FINAL DETERMINATIONS

Future water and sewerage charges 2000–05

CONTENTS

FIGURES

TABLES

FOREWORD

Price limits for 2000–05

Customers will now benefit from lower bills for the first time since the industry was privatised in 1989. They can look forward to a higher quality water service and an improved environment within a framework of falling prices, thanks to the growing efficiency of the water companies.

My determinations of price limits for water companies in England and Wales, for the years 2000–01 to 2004–05, are set out in this publication. The price limits vary from company to company and from year to year. These variations result from a fair and consistent application of the policies I have established over recent years, taking account, where appropriate, of each company's circumstances. I have listened carefully to all stakeholders' views and taken account of ministerial guidance and the latest available information. As a consequence, I have made some changes to my draft price limits for individual companies. In particular, there are changes to the price limits for North West Water arising from ministerial guidance.

Companies will now draw up their charges schemes which will govern the bills sent to individual customers for the year beginning 1 April 2000. Under the Water Industry Act 1999, charges schemes must be approved by me. I consulted and then published my conclusions (MD152, September 1999) on the criteria which I will use to assess them, paying regard to ministerial guidance on social and environmental matters. I will also ensure that companies implement Regulations enacted under the Act.

The effect on individual bills will depend on many factors. Not all customers will see the same reduction in their bills next April. Once I have approved the charges schemes, the individual companies must explain clearly to their customers how their bills will be affected.

The Periodic Review has involved much research and consultation. I determine the limits on the average prices which companies can charge their customers in each of the five years, and the infrastructure charge limit for customers connecting to the system for the first time. These limits must, of course, be justified and explained. This document does that.

Statutory duties

When setting price limits I must comply with my statutory duties. This has involved making judgements about:

- what companies must do to carry out their functions properly, including their legally enforceable obligations;
- the revenue which the companies need to finance their functions and to earn a reasonable return on the investment needed to meet their legal obligations;
- the affordability and value for money for customers of the charges which companies need to levy;
- the promotion of efficiency and economy, through incentives to reduce costs and improve service performance, and penalties for high costs and poor performance;
- facilitating competition by relating prices to the costs incurred by companies.

In balancing these factors, there is no answer that can please everyone.

Ministerial guidance

I have taken account of the Government's views on the framework for utility regulation as set out in *A fair deal for consumers* (July 1998), considering how best to distinguish between the income that companies earn through their own efforts and that which results from other factors. In particular, following the advice of my panel of senior industrialists, I have strengthened incentives for companies to make efficiency savings in their operating costs and to deliver good service.

In an open letter in April 1998, I sought ministerial guidance on the legal obligations they had placed, or would be placing, on water companies in the years from 2000 to 2005. Ministers responded in *Raising the quality* last September, which was supplemented by further responses in March and November 1999. I have followed this guidance in setting price limits.

I have taken a hard look at the pace of new quality standards. Investment in meeting higher quality standards will only be productive if it brings benefits equal to the higher costs. The Chairman of the Environment Agency (EA) has said that "by 2005 we will have reached a position where the significant environmental damage created over the past 200 years will have been repaired". In the 15 years from 1990 to 2005, water companies will have invested £50 billion to improve water quality and to protect the environment, all financed by customers.

Customers' views are critical to achieving the right balance between environmental expenditure and bills. In the last ten years a great deal of work has been done to establish costs. Work to find out the benefits associated with those costs has now begun and the EA has published the results of some aspects of its analyses. Further work is needed, closely linked with the views of customers who pay for these higher quality standards through their bills.

Uncertainties and price adjustments

These price limits set a financial framework for the companies that is appropriate given their maturity. However, they are required to provide a universal service and they are not immune from uncertainties. The quality and environmental obligations for the companies have now been clarified but some other uncertainties remain, largely as a result of the Water Industry Act 1999.

Currently, these uncertainties include the rate of take up of the new right to a meter without installation charge, the potential for rising levels of bad debt as a result of the inability of companies to disconnect household customers for non-payment of bills and the need to provide new charging arrangements for vulnerable customers taking a measured supply.

I have therefore decided, as part of the package of the final determinations, to agree to the companies' request to modify the assessment of materiality in the licence. This will have the effect of reducing the threshold for interim determinations. I will also notify three items — optional metering, the cost of banning disconnection for household customers and the administrative costs of protecting vulnerable groups. The licence modification will be the same in all cases, namely that proposed in July for the take up of optional meters. The new materiality assessment also reflects the change from a ten year to a five year review period.

If there is a material increase in costs, or loss in revenue, arising from the notified items and/or new water quality and environmental obligations imposed on companies which have not been allowed for in these price limits, then prices would be higher after April 2001 than set out in this document.

Analysis and research

The methods used in the review were set out in 1998, after consultation. We have published papers, in particular on efficiency, and made our work freely available.

Water companies submitted Business Plans in April. I have been disappointed at the quality of many of these plans. Some companies subsequently submitted changes at a late stage. Some plans were more bids, by their Boards, for resources than the result of a careful balancing of the concerns of their customers. In particular, when considering the need for expenditure on the maintenance of assets, companies generally have not set out an economic analysis of the options available for maintaining serviceability for customers.

We have analysed companies' proposals for price limits in the light of the information which we have collected, on a comparative basis, over a number of years. Information from each company has been scrutinised by its independent Reporter and by the company's Auditor.

I have relied on analysis carried out in Ofwat, advice from my senior staff and from a panel of senior industrialists and on frequent meetings with the chairmen of the Customer Service Committees (CSCs). I have worked with the Drinking Water Inspectorate (DWI) and the EA. I have co-operated with other utility regulators on common issues, particularly with Ofgem which is reviewing prices for electricity distribution in parallel with our review of water.

I have listened carefully to the representations made to me since I published draft price limits in July from water companies, from the CSCs and consumer groups, from the EA and environmental groups, from MPs, from non-governmental organisations and private individuals.

Competition

The Competition Act 1998 has opened up the prospect of increased market competition in the water industry from next March. The Chancellor of the Exchequer has also announced that I will be given a duty to promote competition. In due course, this should affect the nature of regulation. Meanwhile, comparative competition provides a proxy for the disciplines of the market.

The ability to make comparisons has been a key element in this review. The work my staff have been able to do in subjecting Business Plans to comparative analysis has proved invaluable in achieving a satisfactory outcome.

Changes in utility regulation

The price limits take account of current standards of service performance which I expect to be maintained. Ministers propose legislation so that the Secretary of State and the National Assembly for Wales could initiate standards of performance on environmental and public health issues, as well as in response to a proposition from the regulator. This could involve new legal requirements with a potential effect on prices. My current proposals for the Guaranteed Standards Scheme have, however, already been taken into account in the price limits.

Process

At every significant stage of the price review I have consulted on policies and approaches. I have listened first and foremost to the views of customers, through market research and through the CSCs. I have also listened to companies, to investors and lenders in the City, and to the views of a wide range of environmental and customer bodies.

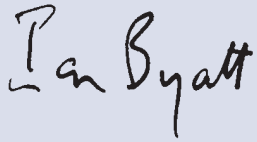
I have to decide what weight I should attach to many conflicting arguments and interests. I have operated a clear process and used an open and transparent approach. This enables interested parties to express their views at the right time and on the basis of good information.

There should be no surprises in this review. Our methodology was established early in the process. In *Prospects for Prices* published in October 1998, I set out what could happen to prices and invited responses on a number of strategic issues. I met all of the water companies formally before they

submitted their Business Plans in April 1999. I published draft price limits in July and invited representations from all interested parties. I have taken due account of the Business Plans and have listened carefully to the representations.

Companies now know exactly what they should achieve, and the price limits which will enable them to deliver outcomes for customers and for the environment. Ofwat and the quality regulators will focus on the outcomes. Delivery by companies will be monitored on an annual basis. How they deliver is their responsibility; they have scope for innovative and cost-effective solutions.

These price limits will deliver satisfactory outcomes for a range of stakeholders. They are realistic for the companies and maintain incentives for continuing efficiency; they provide a price dividend for customers. They also provide finance for the environment and the maintenance of infrastructure. If the Board of any company cannot accept these price limits, they should ask me to refer the matter to the Competition Commission before 25 January 2000.



I C R BYATT
Director General of Water Services

SECTION I

1. SUMMARY OF THE DETERMINATIONS

PART 1. THE DETERMINATION OF PRICE LIMITS

1.1 The price limits

The Director General of Water Services (the Director) has issued determinations of price limits for each of the regulated water and sewerage and water only companies for the five years from 2000–01 to 2004–05. These limit the average change in annual charges (they do not include inflation). The price limits are set out in Table 1 (overleaf). The price limits vary from company to company, reflecting each company's circumstances and a fair and consistent application of the price-setting policies established and set out in earlier papers.

For most companies, the past efficiencies achieved provide scope for a significant price reduction in 2000–01. Price limits are then broadly flat for the next two years but then begin to rise slowly. However, the size of the environmental programme required by Ministers for North West Water in particular, means that its price limits need to rise sharply in the last two of the five years and, consequently, offer less scope for a sustained reduction in prices.

The price limits set are averages and cover a basket of charges — water and sewerage, metered and unmetered charges and charges for trade effluent. The changes to individual customer's bills will be governed by both the price limits and the companies' charges schemes, which the Director will approve in February 2000. The likely average impact of the price limits on household customers' bills is set out in section 1.4.

The initial price reduction (P_0)

The price limits for 2000–01 will reduce prices in April 2000 by 12.3% on average. The size of the price reduction in each company is the result of a combination of factors, some acting to increase it, others to reduce. The price reduction in 2000–01 for all of the companies needs to be considered in this context.

Among the larger companies, there are price reductions of at least 10% except for North West Water whose customers would see, on average, a price reduction of 9%. The initial price reduction for customers of Anglian Water is 10%. This would have been higher but the company froze its prices this year, when it could have raised them by 4.5% (in nominal terms).

Customers of Northumbrian Water will see an average reduction in prices of 19% next April following an adjustment this year to accommodate new environmental obligations. This includes price reductions agreed when Northumbrian Water plc was taken over by Lyonnaise des Eaux.

Customers of the other larger companies will see reductions of between 10% and 15%.

There is more variability among the smaller companies. Customers of Mid Kent Water will see an initial price reduction of 20%. Those of Bournemouth & West Hampshire, Portsmouth and South Staffordshire Water will see modest reductions, and those of Cholderton Water, Tendring Hundred Water and York Waterworks will see reductions of under 10%. There is no initial price reduction for customers of Folkestone & Dover because of the particular needs and requirements of this company.

Price limits between 2001–02 and 2004–05

At the national level, the initial price reduction of 12% will be sustained for the next two years (ie 2001–02 and 2002–03). The average change in the price limits towards the end of the period then begins to rise by 2.6%, in total, over the last two years (ie 2003–04 and 2004–05). When added to the P_0 (2000–01) adjustment, the average annual reduction in prices over the whole five years is 2.1%.

The national picture is changed by the marked increases in prices for North West Water, where prices rise by 8.5% in the last two years of the five year period. This is a consequence of the environmental obligations placed on the company. Excluding North West Water, the average price rise over these two years is 1.6%.

Customers of Anglian Water, South West Water and Wessex Water, will see increases of between 6% and 9% in real terms in the three years 2002–03 to 2004–05. These companies are expected to have higher than average rates of take up of optional meters. Customers of Tendring Hundred Water will also see price rises bringing prices back to around the same level in 2004–05 as now. Only Folkestone & Dover Water's customers will see an increase above today's prices by 2004–05 — of about 10%.

Customers of other companies will continue to benefit from the initial price reductions, with broadly stable prices.

Merger savings

Where companies have agreed price reductions arising from mergers, they have been taken into account in these price limits, as indicated in the footnotes to Table 1.

Table 1: Price limits for 2000–01 to 2004–05

	Annual price limits					
	2000-01	**2001-02**	**2002-03**	**2003-04**	**2004-05**	**Average[1]**
Water and sewerage companies						
Anglian[2]	–10.0	1.0	2.2	2.5	2.5	–0.5
Dŵr Cymru	–10.5	–0.5	0.0	1.2	1.0	–1.9
North West	–9.3	–1.0	0.0	4.0	4.5	–0.5
Northumbrian[3]	–19.4	–2.0	0.0	0.0	0.0	–4.6
Severn Trent	–14.1	–1.0	–1.0	0.0	1.0	–3.2
South West	–12.2	0.0	2.0	2.0	2.0	–1.4
Southern	–13.0	0.0	0.0	1.6	0.8	–2.3
Thames	–11.7	0.0	0.0	–0.8	0.0	–2.6
Wessex	–12.0	0.0	0.0	3.8	4.7	–0.9
Yorkshire[4]	–14.5	0.0	0.0	0.0	1.0	–2.9
WaSC average (weighted)	**–12.3**	**–0.4**	**0.2**	**1.3**	**1.7**	**–2.0**
Water only companies						
Bournemouth & W Hampshire	–3.0	–1.7	–1.7	0.0	1.7	–1.0
Bristol	–10.0	1.0	1.0	0.0	–1.9	–2.1
Cambridge	–14.3	0.0	–1.2	–0.4	–0.9	–3.5
Cholderton[5]	–8.0	–5.0	0.0	0.0	0.0	–2.7
Dee Valley[3]	–10.6	–2.6	–3.0	–3.0	0.0	–3.9
Essex & Suffolk	–13.8	0.0	0.0	0.0	0.0	–2.9
Folkestone & Dover	0.0	1.0	3.0	3.0	3.2	2.0
Mid Kent	–19.7	0.0	0.0	0.0	1.6	–4.0
North Surrey	–15.0	0.0	0.0	2.0	2.2	–2.4
Portsmouth	–3.0	–1.2	–1.3	–0.5	–1.0	–1.4
South East[3]	–16.1	–1.0	–1.5	0.0	0.0	–3.9
South Staffordshire	–2.7	–1.0	–1.0	–1.0	–1.0	–1.3
Sutton & E Surrey	–17.0	–5.0	–2.4	0.0	0.0	–5.1
Tendring Hundred	–6.9	1.0	2.0	2.0	2.0	0.0
Three Valleys	–15.2	0.0	0.0	0.0	0.0	–3.2
York[4]	–9.0	–1.0	0.0	0.0	0.0	–2.1
WoC average (weighted)	**–12.4**	**–0.6**	**–0.5**	**0.0**	**0.0**	**–2.8**
Industry average (weighted)	**–12.3**	**–0.4**	**0.1**	**1.1**	**1.5**	**–2.1**

1 The average for the price limits is the geometric average of the annual price limits.

2 Hartlepool Water merged with Anglian Water in 1998. As such there are no price limits for Hartlepool but those for Anglian apply. As part of the merger conditions, customers of Hartlepool will benefit from an additional 5% price reduction in 2001–02. They are also protected from undue discrimination in respect of prices as a separate class of water customer under the Anglian licence.

3 Each of these companies are the result of mergers in recent years at which price reductions were agreed as part of the conditions of the merger. Some or all of these price reductions were phased to occur after 31 March 2000. The price limits take account of these merger price reductions.

4 Yorkshire Water and York Waterworks announced a merger in 1999 and a combined licence will be issued later this year. As part of the terms of the merger, the price limits for York are set as if they were a separate company and York's customers will benefit from a further 15% reduction in addition to the 2004–05 price limit. This is subject to the outcome of public consultation on the proposed combined licence.

5 Cholderton Water is an exceptionally small company. Price limits have been set, but other than in this table and Tables 3 and 4, the company does not appear on company specific tables in the remainder of this document. It does not have a material effect on any of the summary tables.

1.2 Comparison of the price limits with the companies' proposals

In contrast to the average price reductions of 2.1% proposed by the Director, the companies, in the Business Plans that they submitted in April, sought price increases. These increases averaged 3.8% a year above inflation, as shown in Table 2.

The difference, averaging 5.9% a year, is not uniform across the companies. Among the larger companies the differences range from 3.4% a year for Severn Trent to 8.3% a year for Anglian. The differences are also above average for Dŵr Cymru (Welsh), Thames and Wessex, and below average for Northumbrian and South West Water.

The spread is greater for the smaller companies, ranging from 2.4% for Essex & Suffolk Water to 17.4% for Sutton & East Surrey Water. Companies with smaller differences include Dee Valley, Bristol, Cambridge and North Surrey Water. Companies with larger differences include Folkestone & Dover and Mid Kent Water.

Only five companies (Severn Trent, Dee Valley, Essex & Suffolk, North Surrey and Three Valleys Water) proposed an initial price reduction in their Business Plans. Thames Water did so, but only in its public document. Only Dee Valley and Essex & Suffolk Water proposed price limits in 2004–05 which remained below the present level.

Table 2: Comparison of price limits: final determinations compared with companies' Business Plans

	Average annual price limits 2000-01 to 2004-05		
	1999 final determination	**Business Plan**	**Difference**
Water and sewerage companies			
Anglian	–0.5	7.8	8.3
Dŵr Cymru	–1.9	5.3	7.2
North West	–0.5	5.8	6.3
Northumbrian	–4.6	0.0	4.6
Severn Trent	–3.2	0.2	3.4
South West	–1.4	2.7	4.1
Southern	–2.3	3.1	5.4
Thames	–2.6	4.5	7.1
Wessex	–0.9	6.8	7.7
Yorkshire	–2.9	2.5	5.4
WaSC average (weighted)	**–2.0**	**3.9**	**5.9**
Water only companies			
Bournemouth & W Hampshire	–1.0	4.9	5.9
Bristol	–2.1	1.8	3.9
Cambridge	–3.5	0.4	3.9
Dee Valley	–3.9	–0.4	3.5
Essex & Suffolk	–2.9	–0.5	2.4
Folkestone & Dover	2.0	8.6	6.6
Mid Kent	–4.0	3.5	7.5
North Surrey	–2.4	0.9	3.3
Portsmouth	–1.4	4.4	5.8
South East	–3.9	2.0	5.9
South Staffordshire	–1.3	4.5	5.8
Sutton & E Surrey	–5.1	12.3	17.4
Tendring Hundred	0.0	5.6	5.6
Three Valleys	–3.2	2.6	5.8
York	–2.1	2.9	5.0
WoC average (weighted)	**–2.8**	**2.8**	**5.6**
Industry average (weighted)	**–2.1**	**3.8**	**5.9**

1.3 Changes from the draft price limits

On 27 July 1999, the Director published his draft determinations of price limits. The Director invited companies, customers and others to express their views. He received over 170 representations. These are summarised in Chapter 2 and Appendix B. In reaching his final decisions on price limits, the Director has considered all of the representations and listened carefully to the views of all stakeholders, in addition to taking account of further ministerial guidance. The price limits allow for a larger capital programme than that allowed for in the draft price limits.

The final determinations now take account of:

- additional quality obligations requiring additional capital expenditure of over £650 million and over £50 million of operating expenditure;
- the reappraisal of certain quality improvement proposals by companies and the EA;
- different rates of take up of optional meters; and
- some new information from companies on issues specific to them individually.

A number of specific issues arising from the representations have also been reconsidered. These include, in particular, the change in costs of business rates following recent decisions by Ministers and the phasing of operating expenditure arising from the quality programmes.

Together these have resulted in changes in the final determinations, with an initial price reduction of –12.3% on average and average price limits of –2.1% for each of the five years 2000–05, compared with –13.7% and –2.9% respectively for the draft determinations. Table 3 sets out a comparison between the final and draft determinations for each of the companies. The changes are particularly marked for North West Water where the average price reduction over the five years falls to –0.5% from –1.9% in the draft determinations. This is because additional capital expenditure of £265 million and related operating expenditure have been allowed (around 40% of the national total) in price limits as a consequence of the latest ministerial guidance.

Changes to the quality programme and efficient financing

The Director's primary duty is to ensure that companies are able to finance their functions. Some of these functions have been defined by the guidance from Ministers. The Director, then, has set price limits which allow for the major environmental programme to be delivered and financed, as far as possible, in an efficient manner.

The recent guidance received from Ministers has added to the functions required of water and sewerage companies and the Director has taken full account of this in setting price limits. In doing so, the Director has had to consider the efficient financing of companies' functions. The scale of the investment programme (and the associated operating costs) has already pushed many of the water and sewerage companies to the point where the cost of capital is rising sharply in order to maintain key financial ratios.

Following guidance, the Director has looked very closely at the capital, operating and financing costs of new quality obligations. He believes that substantial economies could be achieved. For eight of the ten water and sewerage companies, the investment programmes consistent with the latest ministerial guidance can be accommodated in an efficient manner. For three of the eight companies, (Dŵr Cymru (Welsh), Southern and South West Water), this has meant that the timing of a few schemes has been adjusted in line with ministerial guidance to avoid situations where price limits might otherwise need to rise above longer-term costs for the companies to be financially viable. In a long-term industry, these adjustments do not represent a significant delay and will enable the work to be carried out efficiently.

Table 3: Comparison of price limits: final determinations compared with draft determinations

	Final determination[1]		Draft determination[2]	
	P_0 in 2000-01	Average[3] K for 2000-05	P_0 in 2000-01	Average[3] K for 2000-05
Water and sewerage companies				
Anglian	–10.0	–0.5	–11.1	–1.2
Dŵr Cymru	–10.5	–1.9	–13.8	–3.0
North West	–9.3	–0.5	–9.3	–1.9
Northumbrian	–19.4	–4.6	–25.5	–5.6
Severn Trent	–14.1	–3.2	–14.1	–3.2
South West	–12.2	–1.4	–13.7	–1.6
Southern	–13.0	–2.3	–15.6	–3.3
Thames	–11.7	–2.6	–11.7	–2.8
Wessex	–12.0	–0.9	–13.5	–1.9
Yorkshire	–14.5	–2.9	–15.2	–3.4
WaSC average (weighted)	**–12.3**	**–2.0**	**–13.4**	**–2.7**
Water only companies				
Bournemouth & W Hampshire	–3.0	–1.0	–3.6	–1.5
Bristol	–10.0	–2.1	–13.5	–3.2
Cambridge	–14.3	–3.5	–16.4	–4.1
Cholderton	–8.0	–2.7	–15.0	–3.2
Dee Valley	–10.6	–3.9	–15.7	–4.4
Essex & Suffolk	–13.8	–2.9	–19.0	–4.3
Folkestone & Dover	0.0	2.0	–8.5	0.5
Mid Kent	–19.7	–4.0	–22.3	–5.7
North Surrey	–15.0	–2.4	–21.2	–4.3
Portsmouth	–3.0	–1.4	–3.0	–1.4
South East	–16.1	–3.9	–23.9	–5.9
South Staffordshire	–2.7	–1.3	–2.7	–2.4
Sutton & E Surrey	–17.0	–5.1	–21.7	–6.5
Tendring Hundred	–6.9	0.0	–8.1	–1.7
Three Valleys	–15.2	–3.2	–16.7	–3.6
York	–9.0	–2.1	–11.8	–2.7
WoC average (weighted)	**–12.4**	**–2.8**	**–16.2**	**–3.9**
Industry average (weighted)	**–12.3**	**–2.1**	**–13.7**	**–2.9**

1 The annual price limit for 2000–01 and the average price limits for 2000–05 are from Table 1 of this document.

2 The annual draft price limit for 2000–01 and average draft price limits for 2000–05 were published in Table 1 of *Future water and sewerage charges 2000–05: Draft determinations* in July 1999.

3 The average for the price limits is the geometric average of the annual price limits.

For North West Water and Wessex Water, the price limits are higher than would otherwise be the case in order to accommodate the financial constraints that result from the increased scale and pace of the environmental programmes now required to meet ministerial objectives. Customers of North West Water and Wessex Water are, therefore, paying more than would otherwise be the case to finance the additional expenditure.

Managing uncertainty

Much has been settled since the draft determinations but there remains some uncertainty. This is inevitable when making projections about the future, and uncertainty and risk are reflected in the equity risk premium in the cost of capital. In certain areas, the Director has limited the exposure and risk of the companies through a number of mechanisms. This may, however, put upwards pressure on customers' bills through interim determinations. Other changes in costs will be taken into account at the next price review in 2004.

Uncertainty in the environmental programme

There is now a high degree of certainty about the water quality and environmental obligations required of companies and significant additional expenditure for water quality and environmental schemes has been allowed in the final price limits compared with the draft determinations. There remains some uncertainty for companies concerning schemes which have not been allowed for in price limits because they require reappraisal before inclusion in the programme and concerning additional new legal obligations.

The protocol and mechanism for recognising new legal obligations occurring between price reviews ('logging up') and for dealing with those quality schemes which require further reappraisal is set out in Chapter 8 and Appendix E. This protocol would also cover situations where the quality regulators might require companies to meet dates earlier than those allowed for in price limits.

In these cases, companies could:

- seek compensation for a loss of abstraction rights through the provisions of the Water Resources Act 1991; or

- confirm, through the appeal process, that Ministers require the implementation of each particular scheme since their decisions would be necessary to trigger the process for logging up or for an interim determination of price limits.

If this process is not followed, the Director would assume that companies can absorb the implications of the change without recourse to higher price limits.

Uncertainty in other costs and revenues

Following representations from companies, the Director has identified three areas where there is a risk that cost pressures will arise but they have not been taken account of in price limits now. These are:

- a faster than expected take up of optional household metering;

- increased levels of bad debt arising from the loss of the power to disconnect household customers;

- the administrative costs of protecting vulnerable groups (Water Industry Act 1999 Regulations).

The Director had set out in the draft determinations his intention to include the number of meter optants as a notified item. He has also decided that the two other matters will be notified items. This means that companies can seek an interim determination to reset their price limits, providing that the change in these notified items is material.

The correction mechanism for increased bad debts arising from the loss of power to disconnect and that for the administrative costs of protecting vulnerable groups is set out in more detail in section 7.2.

As set out in section 5.3.3, the Director proposes to modify the assessment of the materiality for the correction mechanism for optional metering. His proposals were set out in a letter to the Managing

Directors of water companies (MD149, July 1999). Companies argued in their responses to this and in their representations on the draft determinations that these proposals should be extended to all correction mechanisms. The companies were concerned that the high materiality threshold for an interim determination would leave them exposed to increases in costs from a number of different areas which they would have to absorb until the next price review. They argued that the draft price limits did not allow them the flexibility to absorb such costs and that they would be unable to finance their functions.

The Director recognises the degree of uncertainty and the potential sources of increased costs. The price limits do set a tight financial framework and one in which price limits are reset every five years, rather than the ten years envisaged in the original licences. For these reasons, as part of the final determination, he intends to extend the scope of the licence change proposed for meter optants to cover the assessment of materiality in relation to changes in operating expenditure or revenue relating to new legal obligations or the notified items mentioned above.

The proposed modifications should limit the risk faced by companies from increased operating costs or loss of revenue in these areas to around 1% of turnover in any one year, ie a K factor of one.

The proposed licence modification is put forward as part of the overall package for the final determination, and, therefore, will apply only to those companies that accept the price limits.

1.4 The impact on customers' bills

Price limits affect averages and most customers are not in an average position. Furthermore, at a national level, average household bills will be lower than that implied by the price limits because household customers can save money, as well as water, by switching to a meter.

By 2004–05, the average household customer will pay about 12% less in real terms, ie after adjusting for general inflation, than this year. The average annual household bill of £248 could fall by £30 in today's money. Most of this reduction will accrue to customers next April. Table 4 (overleaf) sets out the average expected household bill for each company.

The price limits set the average change in each company's charges. The impact on customers' individual bills will be governed by both the price limits and companies' charges schemes to be drawn up under the Water Industry Act 1999. The Act requires the Director to approve company charges schemes. Since the draft determinations, the Director has published his conclusions on the criteria for the approval of these schemes (MD152, September 1999). In assessing them, he will have primary regard to the impact on customers' bills of proposed tariff rebalancing. He will also have regard to other objectives such as encouraging economy in the use of water through tariffs. The charges schemes will be available, after approval by the Director, in February 2000.

Table 4: Average expected household bills[1]

	Average expected annual household bills[2] (£)						
	1999-00		2004-05		Change		
	Water	Sewerage	Water	Sewerage	Water	Sewerage	Total
Water and sewerage companies							
Anglian[3]	120	157	105	142	–15	–15	–30
Dŵr Cymru	134	168	114	150	–20	–18	–38
North West	104	143	117	121	13	–22	–9
Northumbrian[3]	101	143	86	111	–15	–32	–47
Severn Trent	113	118	102	91	–11	–27	–38
South West	119	237	115	205	–4	–32	–36
Southern	112	166	83	156	–29	–10	–39
Thames	104	102	94	86	–10	–16	–26
Wessex	126	146	113	138	–13	–8	–21
Yorkshire[3]	115	126	99	111	–16	–15	–31
WaSC average (weighted)	**112**	**135**	**103**	**116**	**–9**	**–19**	**–28**
Water only companies							
Bournemouth & W Hampshire	101		98		–3		–3
Bristol	113		100		–13		–13
Cambridge	97		83		–14		–14
Cholderton[3]	139		121		–18		–18
Dee Valley[3]	120		96		–24		–24
Essex & Suffolk	128		108		–20		–20
Folkestone & Dover	117		126		9		9
Mid Kent	147		117		–30		–30
North Surrey	125		107		–18		–18
Portsmouth	81		74		–7		–7
South East[3]	138		108		–30		–30
South Staffordshire	88		82		–6		–6
Sutton & E Surrey[4]	133		96		–37		–37
Tendring Hundred	148		132		–16		–16
Three Valleys	125		103		–22		–22
York[3]	96		84		–12		–12
WoC average (weighted)	**119**		**100**		**–19**		**–19**
Industry average (weighted)	**113**	**135**	**102**	**116**	**–11**	**–19**	**–30**

1 This table and all other figures quoted in this document are in May 1999 prices unless otherwise stated.

2 The actual impact on customers' household bills will also be governed by companies' approved charges schemes.

3 The footnotes in Table 1 also apply to this table. Some of the merger price reductions for Northumbrian Water and Dee Valley Water occurred before 1999-00 and are, therefore, reflected in the 1999-00 bills shown in this table.

4 Sutton & East Surrey Water is the result of a merger in 1996. As part of the conditions of the merger, prices were to be reduced by 5% in 1999-00. This is included in the 1999-00 bill shown above.

Regional effects

Reductions in household bills will depend on location. Among the larger companies, the bigger reductions will be for customers of Northumbrian Water and the smallest for customers of North West Water. Among the smaller water only companies, the larger reductions will be for customers of Mid Kent, Sutton & East Surrey and South East Water. There will be more modest ones for customers of Bournemouth & West Hampshire, Portsmouth and South Staffordshire Water. Customers of Folkestone & Dover Water will see average household bills rise by £9 by 2004–05, because of the particular needs and requirements of this company.

The new price limits scarcely change the regional variations in bills. Customers of Thames Water will still have the lowest combined water and sewerage bill and those of South West Water, the highest.

Differences in the average household bills from the draft determinations

The expected annual average household bill in 2004–05 under the price limits is higher than that envisaged by the draft price limits. The draft price limits assumed that bills could fall by £38, compared with £30 in the final price limits. The reasons for this are set out in section 1.3.

For some companies, changes in the expected average household bill between the draft and final determinations is more marked. The additional quality obligations required of North West Water has meant that average household bills will be only 4% below those in 1999–2000, compared with 10% for the draft determination.

Among the water only companies, the average household bills by 2004–05 will be 5% or more higher than the draft determinations for Bristol, Essex & Suffolk, Folkestone & Dover, Mid Kent, North Surrey, South East and Tendring Hundred Water. These changes result primarily from new information provided by the companies since the draft determinations.

1.5 Infrastructure charges

Limits are also set on infrastructure charges for properties where water or sewerage services are used for domestic purposes. Companies can levy these charges, along with the direct costs of making the connections[1], when properties are connected to water or sewerage systems for the first time. Together with the direct costs of making the connection, these charges cover all of the costs of developing the local networks to serve new customers. The Director considers that these charges should remain at current levels (£226) for each service in 2000–01 indexed by inflation. This is the same limit as the Director set in 1994, but increased for inflation. Charges for subsequent years would rise only in line with inflation.

1.6 Better service for customers, improved drinking water quality and higher environmental standards

In addition to lower bills, customers will also benefit from better service, improved drinking water quality and higher environmental standards. The price limits allow for a capital investment programme of some £15.6 billion over the five years — equivalent to £8.5 million a day.

Of this, the price limits will allow for the companies to spend over £6.4 billion on the maintenance of their asset networks, in order to preserve serviceability to their customers and to protect the environment. This is more than double the level of expenditure before privatisation.

1 *These direct costs can include requisitioning charges for new mains or sewers.*

In March 1999, the Environment Minister described the programme of drinking water quality and environmental improvements for the next five years in the following terms:

- *Completing programmes to ensure that all significant sewage discharges receive at least secondary level treatment. In particular, secondary treatment will be the minimum requirement for all coastal discharges serving populations of 2,000 or more in England and Wales (not merely those serving populations of over 10,000 as before).*

- *Accelerating the programme to improve unsatisfactory sewer overflows which affect water quality and often deposit unhygienic and distasteful solids on river banks and beaches during rainstorms.*

- *Making further substantial progress in meeting River Quality Objectives — the basic measure of river water quality — through the most ambitious programme ever to protect and improve the quality of rivers in this country.*

- *Meeting the standards set out in the new EU Drinking Water Directive, including a start on the programme of lead pipe replacement needed to comply with the progressive tightening of the lead standard over the next 15 years.*

- *Dealing with adverse effects their operations have on Habitats Directive sites, other Sites of Special Scientific Interest and rivers suffering from low flows.*

- *Achieving a significant increase in bathing water standards, including the level of compliance with guideline standards under the Bathing Waters Directive — with the aim of enabling more resorts to gain Blue Flag status.*

- *Meeting higher standards for the use of sewage sludge on agricultural land including phasing out the use of untreated sludge by the end of 2001.*

- *Taking steps to protect shellfish waters and address problems of eutrophication.*

The Director has also allowed in price limits for other improvements as follows.

- The removal of the risk of flooding by sewage from nearly 4,500 properties in all ten regions.

- The removal of low pressure problems from over 2,000 properties in two regions.

- Reduction in leakage levels in accordance with annual targets to reach the economic level of leakage.

- The installation of 118,000 meters for customers using water for non-domestic purposes.

- Implementation of the Water Industry Act 1999, in particular responding to household customers' requests to have a meter installed free of charge.

PART 2. THE FRAMEWORK AND CONTEXT OF THE DETERMINATIONS

1.7 The industry setting

This is a long-term industry. It is highly capital intensive with high investment relative to turnover. The 26 companies have an aggregate annual revenue of almost £7 billion. In aggregate, they have a regulatory capital value of £27 billion and currently invest over £3 billion a year.

In total, the industry has 22 million water customers, and 21 million sewerage customers. Household customers account for over 90% of customers.

Under the price limits, operating costs will account for about 40% of revenue, and capital charges for a further 30%. The return on capital will account for the remaining 30% of revenue.

While the water companies are regional monopolies, they must provide services to all customers and they must also comply with rising quality obligations. If companies fail to meet their obligations, they face prosecution or enforcement action by the quality regulators, that is the EA and the DWI.

The demand for water is broadly constant. The volume of drinking water delivered has fallen by 0.6% since 1992–93. Household demand accounts for 70% of water delivered. This continues to rise as the number of houses increases. Water delivered to business customers, on the other hand, especially to large customers, is falling.

1.8 A growing industry with rising standards and rising efficiency

The industry has grown since privatisation. This is mainly due to rising quality standards for supplying drinking water and discharging waste water. There has been capital investment of around £33 billion (in May 1999 prices) to deliver these higher standards in the ten years since privatisation. Costs have increased to operate better processes and to complete new works.

Since privatisation, these costs have fallen directly on customers. This has led to rising bills, especially between 1990 and 1995.

At the same time, privatisation, linked to regulation, has stimulated the search for efficiency. Shareholder pressure for increased performance is good for customers. The principal way for companies to increase profits is by reducing costs.

The long-run dynamic of rising standards initially led to higher prices to finance higher investment and higher operating costs, and then to growing efficiency in operations and in capital expenditure. Financing costs have fallen as financial markets have adapted to the position of privatised utilities.

1.9 Beyond 2005

Provided they achieve the efficiencies allowed for in these price limits, the companies should be in a position to continue, after 2005, to be able to finance their current functions, and the new legal obligations being imposed on them in this review, without further increase in prices in real terms.

In the longer term, however, it may not be possible for current levels of investment to continue to be financed from improvements in efficiency, at the same time as satisfying the companies' needs to be able to borrow efficiently in the financial markets. New quality and environmental directives are on the way. They may increase the companies' investment needs considerably and they would need to be allowed for in price limits.

Details of some new obligations, such as the pending regulations for lead in water, are not yet available so costs cannot be fully allowed for in this price review. History has shown that it is likely that further new obligations will be imposed before the next review. In the last ten years over £1.5 billion of additional expenditure has been incurred to meet obligations not originally included in price limits. In some circumstances the changes have been so substantial as to trigger interim determinations (South West (1991), North West (1993), Northumbrian (1998)). In all other instances the implications of the new obligations have been taken into account in the subsequent Periodic Review. These arrangements will also apply for the next period for obligations which are not included in price limits or which are newly required as set out in Appendix E.

1.10 The impact of quality improvements and outperformance by companies

The cost of quality improvements would raise the expected annual average household bill by £29 between 1999–2000 and 2004–05. However, water companies have become more efficient in their operations and in their use of capital. They can be expected to continue to improve their efficiency. In addition, the Director has taken account of the fall in the cost of capital and the price limits are set on the basis of lower returns on capital — and therefore lower profitability for the companies.

All this means that the annual average household bill could fall by £30 by 2004–05, as shown in Table 5.

In contrast, at the two previous price reviews in 1989 and 1994, bills increased mainly because of new water quality and environmental obligations. The price limits set by Ministers in 1989, at privatisation, implied an increase of £36[2] in the average annual household bill over the five years 1990–95 to meet these new obligations. In 1994, the corresponding increase was £50[3] over the ten years 1995–2005 (with broadly £34 of this increase being in the five years 1995–2000)[4].

In this review, the expected increase in the annual average household bill to pay for new obligations is a little lower, at £29. This is not because the environmental programme is smaller but rather because the companies' increased efficiency in implementing capital programmes and a lower cost of capital have substantially reduced the additional costs of the drinking water quality and environmental programme which are allowed for in the price limits.

In previous reviews, these increases in bills have been partially offset by the benefits of other improvements in efficiency. The impact of greater efficiency on bills has grown between each successive review.

- The 1989 price limits contained an expectation for efficiency improvements equivalent to a reduction of £6[2] in the average household bill over the period 1990–95.

- The 1994 review implied a bill reduction of £27[3] for greater efficiency over the ten years.

- In this review, the price limits imply a corresponding reduction in average bills of £60 for efficiency — this takes account of both past outperformance of efficiency assumptions and of expected future efficiency savings, as well as lower company profitability.

2 *The cost of quality*, Ofwat, August 1992.
3 *Future charges for water and sewerage services: The outcome of the Periodic Review*, Ofwat, July 1994.
4 *Setting the quality framework: An open letter*, Ofwat, April 1998.

Table 5: The drivers of changes in average expected household bills

	Water £	Sewerage £	Total £
Average household bill 1999–2000	113	135	248
Less:			
— passing on past efficiency savings and outperformance	–8	–27	–35
— assumptions on future efficiency improvements[1]	–13	–12	–25
	–21	–39	–60
Plus:			
— improvements in drinking water & environmental quality[1]	9	20	29
— improvements in service performance	<1	<1	<1
— maintaining the balance between supply & demand	1	0	1
	10	20	30
Average household bill 2004–05	102	116	218
Change from 1999–2000 to 2004–05 — £	–11	–19	–30
— %	–10%	–14%	–12%

1 The additional capital and operating expenditure allowed in the final determination compared with the draft determination for quality improvements and increased capital maintenance has added £7 to the average expected household bill.

At the 1994 review, improvements in efficiency absorbed about half the increase in the bills which resulted from legal obligations for higher water quality and environmental standards. At the 1999 review, efficiency gains by companies could be about double the price increase that would result from new obligations. Half of the total efficiency savings for 2000–05 (the efficiency dividend) would be spent on drinking water quality and the environment. The rest would be returned to customers in the form of lower bills. This split broadly reflects customers' preferences.

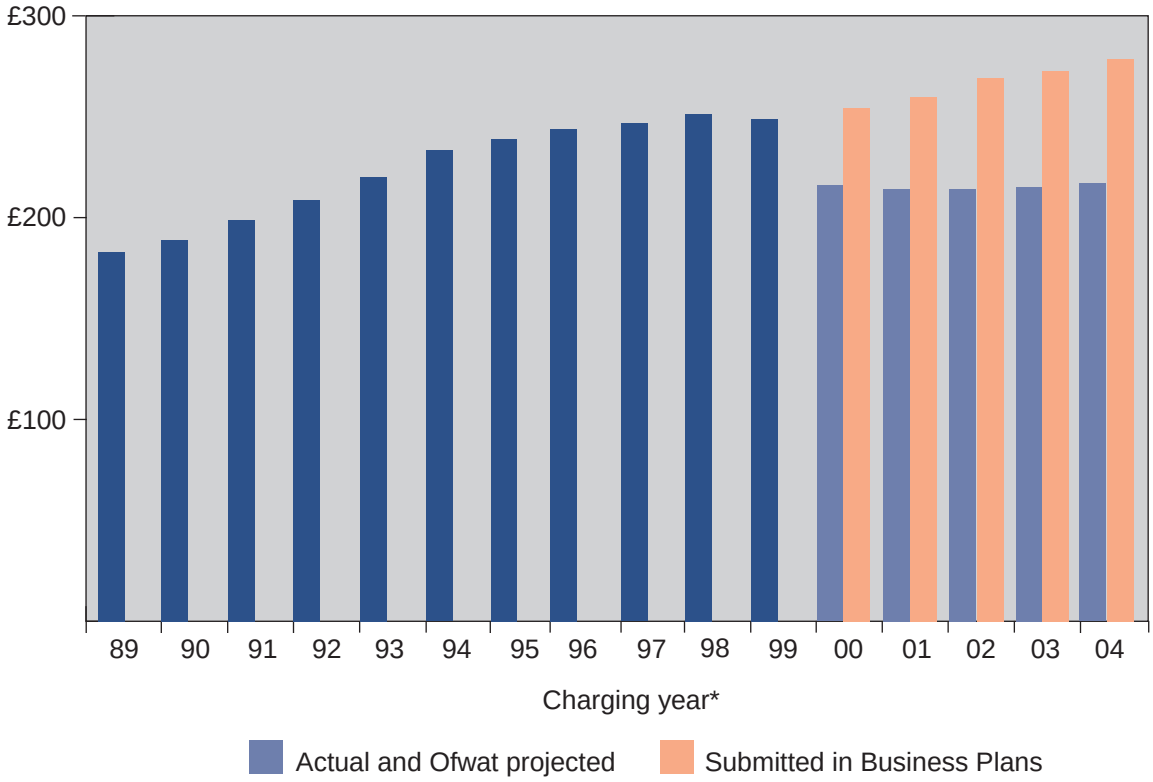
The additional capital expenditure and operating expenditure (compared with that allowed in the draft determination) for the water quality and the environmental programme, together with additional capital maintenance expenditure, have added £7 to the average household bill at 2004–05. The increase for customers of North West Water accounts for over £2 of this £7.

The following sections examine in greater detail the trends since privatisation and the Director's projections for the period 2000–05, which underlie the price limits. The trends and projections are set out in a series of eight figures. Where appropriate, the projections from companies' Business Plans are also included.

1.11 The trend in average household bills since privatisation

Customers' bills increased sharply in the first half of the 1990s. Bills have risen more gradually since the 1994 price review, as shown in Figure 1. The average annual household bill expected under the price limits will be 12% lower (in real terms) by 2004–05 than it is now. This contrasts with the price limit that companies sought in their Business Plans, which would increase bills by about 14% (in real terms) over the five years.

Figure 1: Average household bills 1989–2004



*The charging year, for which bills are generally sent out in April, is the financial year ending next March. For example, the charging year 2000 is the financial year 2000–01.

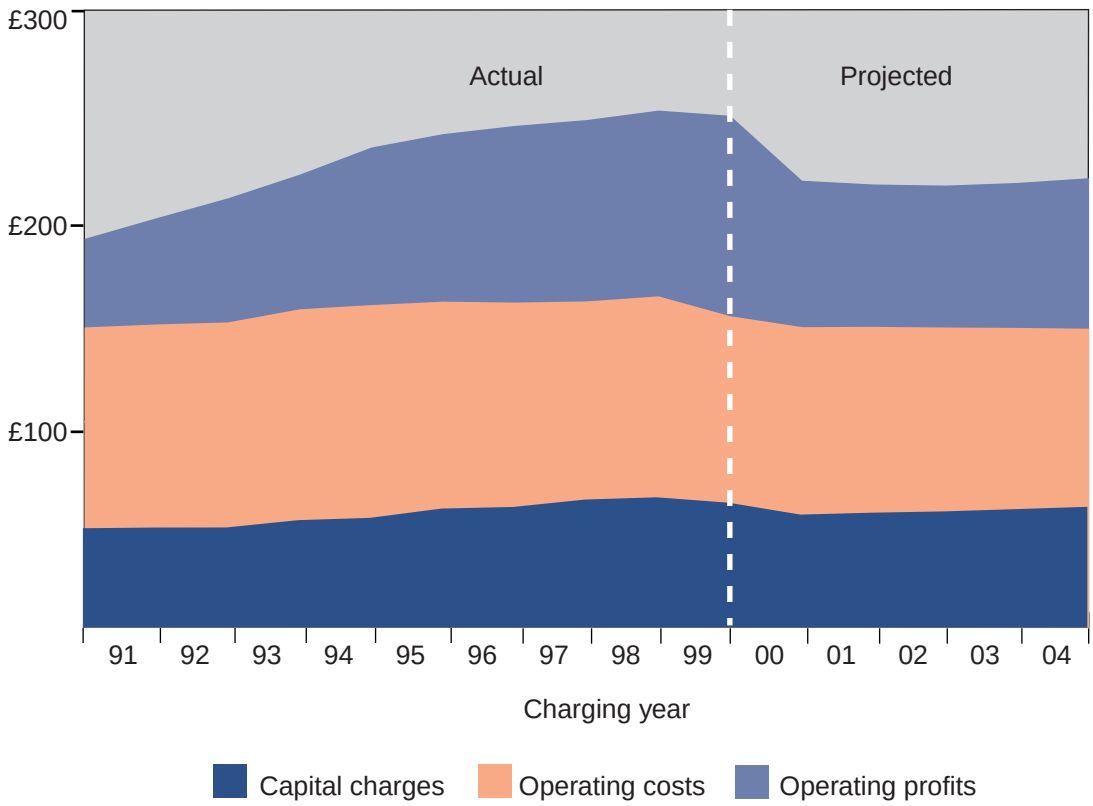
1.12 The trend in overall costs

The main components of customers' bills are:

- operating costs;
- capital charges, ie the costs of improving and maintaining the asset stock (spread over the life of the assets); and
- operating profits, ie the return on capital to both lenders and investors.

Figure 2 sets out how each of these have contributed to bills since privatisation.

Figure 2: Components of the average household bill 1991–2004



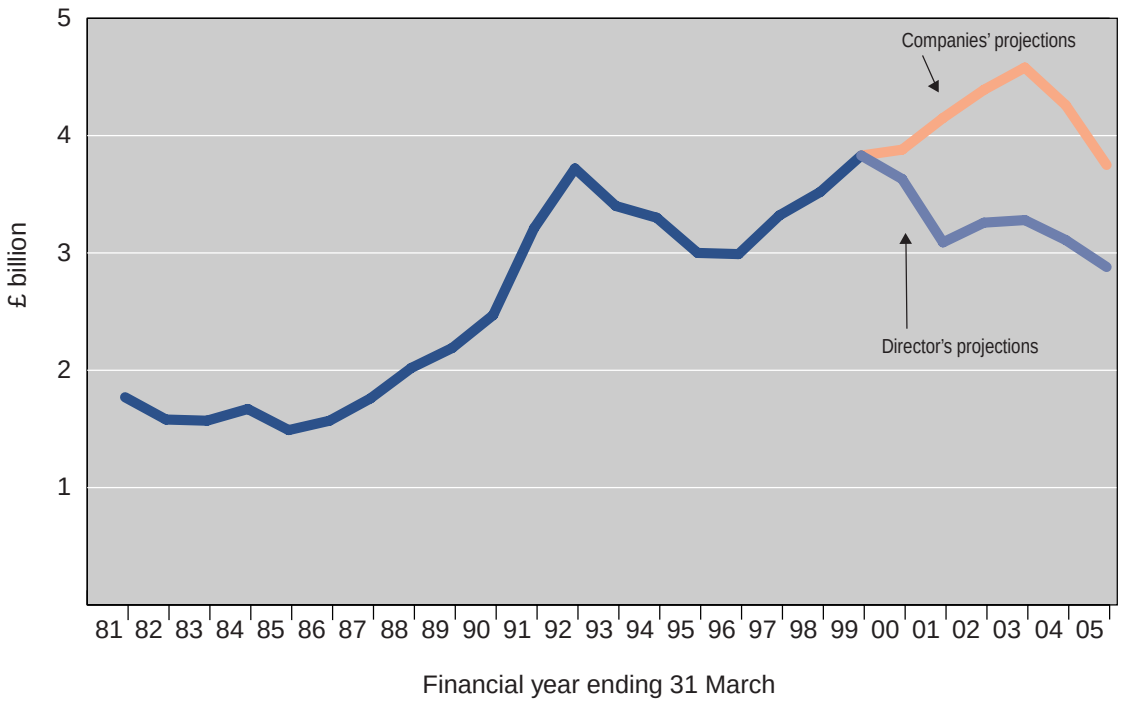
This shows that operating expenditure as a proportion of bills is relatively flat. The capital charges (current cost depreciation and the infrastructure renewals charge) have risen since privatisation because of the large increase in the quality programme which companies have to deliver.

The companies are, however, delivering better quality service to their customers. Operating profits (ie profits before interest, tax and dividends) have risen since privatisation, reflecting both the increased size of the capital programmes and the benefits of increased efficiency. Operating profits are expected to fall following this review and then to be broadly stable, with some rise towards the end of the five years of the price limits.

1.13 Trends in capital investment

The industry's capital investment programme, shown in Figure 3, has been running at about £3 billion a year since privatisation and is expected to continue at this rate. This is mainly because of the capital investment needed to meet higher standards for drinking water quality and to deliver the environmental improvements identified by Ministers. Companies have argued for even higher levels of capital expenditure. A detailed breakdown of projections of capital expenditure for the next five years is set out in Tables 7 and 8 on pages 74 and 75.

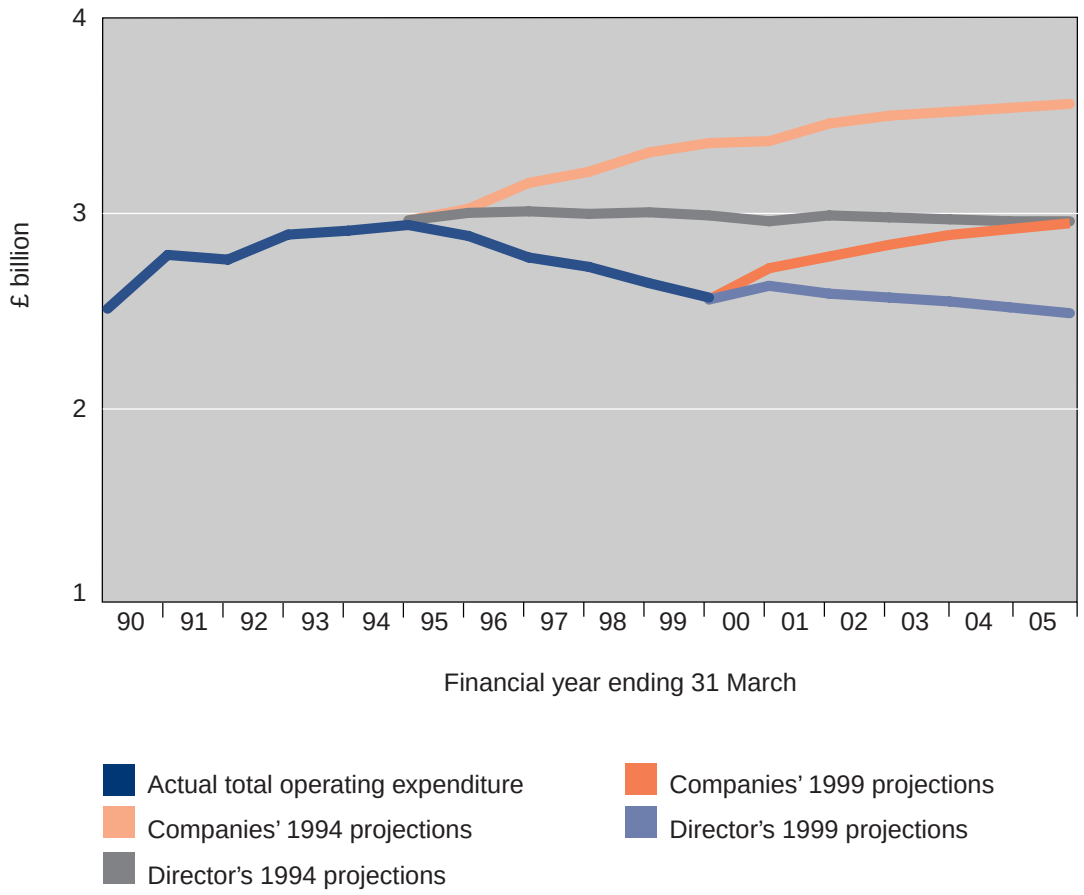
Figure 3: Capital investment 1981–2005



1.14 The trend in companies' efficiency

Efficiency is one of the main drivers of change in customers' bills. Since the 1994 price review, the companies have significantly outperformed the Director's expectations about how efficient they could become. This is illustrated by their falling operating expenditure, as shown in Figure 4. They have also consistently outperformed their own estimates at both the 1989 and 1994 price reviews.

Figure 4: Comparison of actual and projected total operating expenditure



1.15 The trend in capital charges

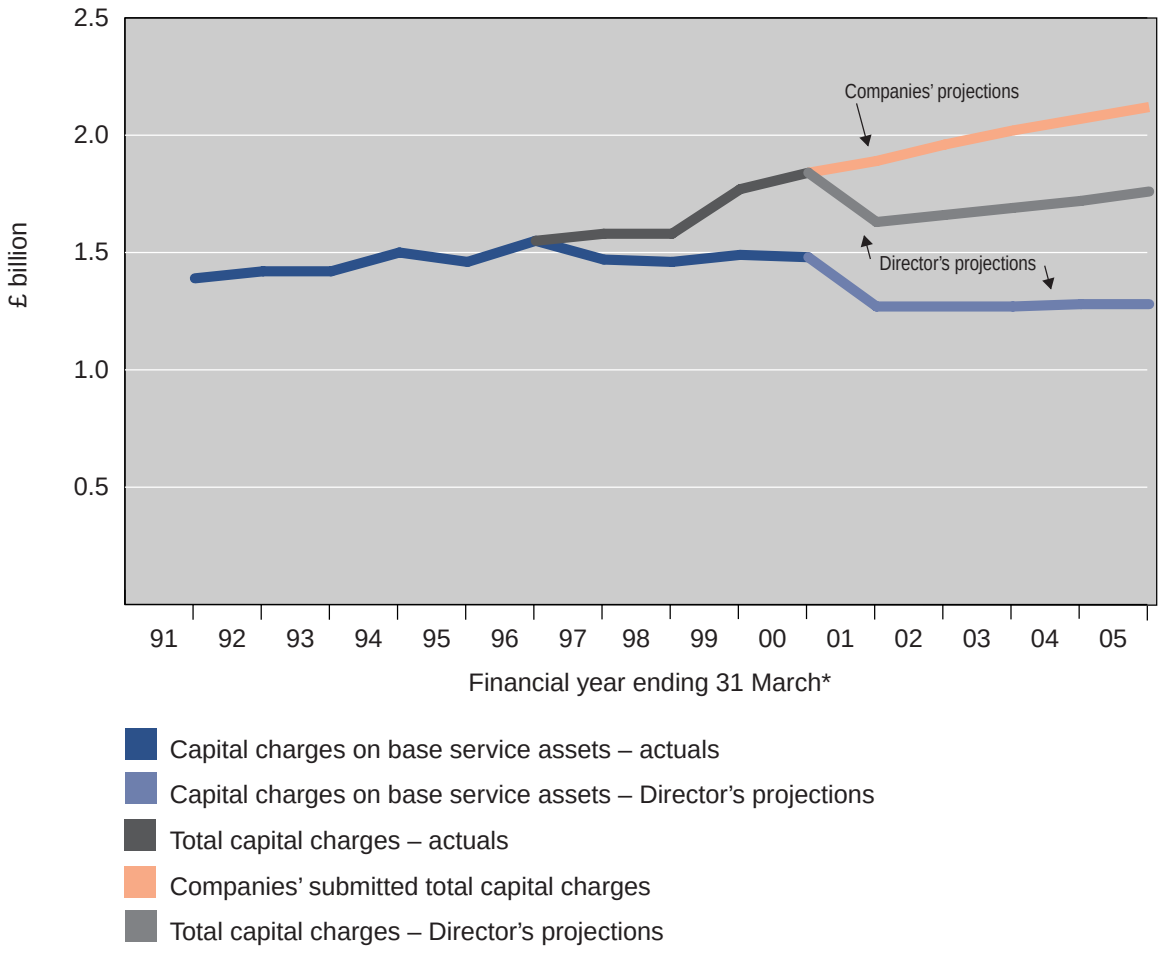
It is capital charges and not expenditure that drive customers' bills. Capital expenditure for above-ground assets (such as treatment works) and below-ground assets (such as sewers and pipes) contribute to the capital charges in customers' bills in different ways.

- Capital expenditure on the new quality improvement programme (when it consists of above-ground assets), is paid for by customers in their bills over the life of the investment through depreciation charges rather than immediately the investment is incurred.
- Similarly, capital maintenance expenditure on above-ground assets is paid for by customers over the life of the investment through depreciation charges.
- Capital maintenance expenditure on the underground network is averaged over a 15-year period. It is this average, the infrastructure renewals charge (IRC), which is paid through customers' bills.

Figure 5 shows the trend in the combined IRC and depreciation charges. Charges in respect of capital maintenance expenditure on existing assets have been allowed for in the price limits broadly in line with the amount that the companies spend.

Figure 5 also shows that the total capital charges are increasing because of the new capital expenditure in the quality programme. The companies' Business Plans project an even greater increase in capital charges.

Figure 5: Comparison of actual and projected capital charges

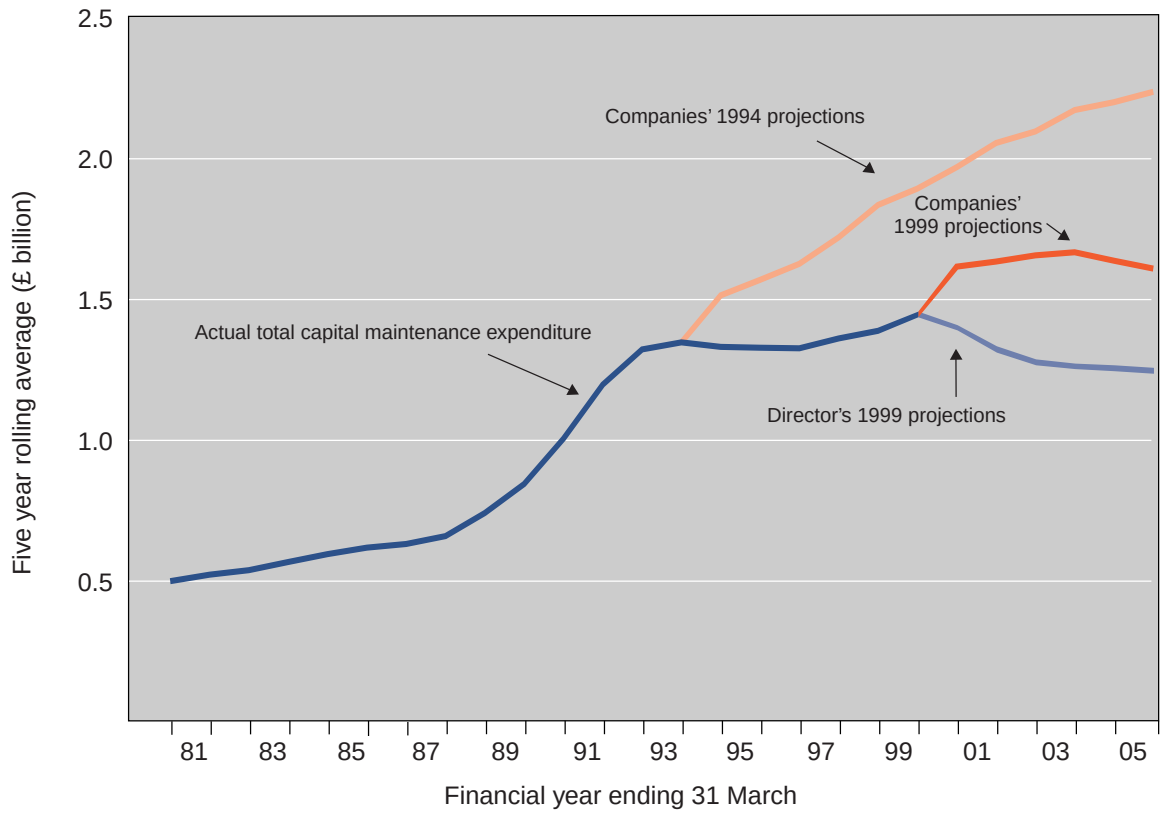


*To illustrate the period of new price limits, the first year of projections is shown as the year ending 31 March 2001.

1.16 The trends in service and maintenance

Companies have also improved services to customers, as reported in Ofwat's annual levels of service report. In almost all cases, service to customers has been maintained or improved. Figure 6 shows the doubling of expenditure on asset maintenance, on average, since 1989. The levels of activity by the companies have been even greater than is implied by expenditure alone, due to their increased efficiency. The price limits will allow this high level of activity to continue. The companies believe that it should increase further.

Figure 6: Total capital maintenance expenditure



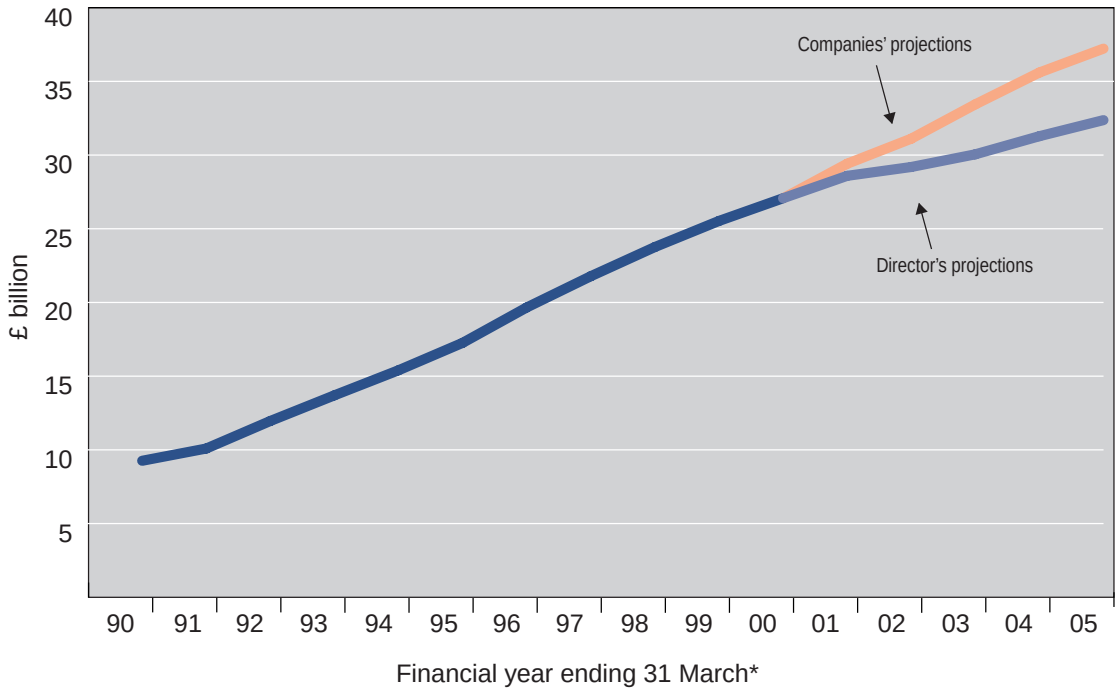
1.17 The profile of the regulatory capital value (RCV)

The RCV is the capital base used in setting price limits. The Director expects that the rate of increase in the industry aggregate RCV will slow in 2000–01 as a result of the companies' capital efficiencies since 1995. These efficiencies are passed back to customers in this way.

The price limits take account of some net increase in RCV after 2000 because of the increased expenditure on new drinking water quality and environmental improvements. This is partly offset by the benefits of the companies' increased efficiency. But the companies still need to raise sufficient capital, generally by borrowing, to pay for this new investment. Customers pay the costs of financing as well as the costs of maintaining and ultimately replacing the companies' assets.

The RCV has trebled since privatisation (see Figure 7) as a result of high capital expenditure (ie total investment less capital charges). Each increase in the RCV increases the profits to be allowed for in price limits. The price limits need to relate to a judgement about the level of profits needed to provide a reasonable return.

Figure 7: Regulatory capital value 1990–2005



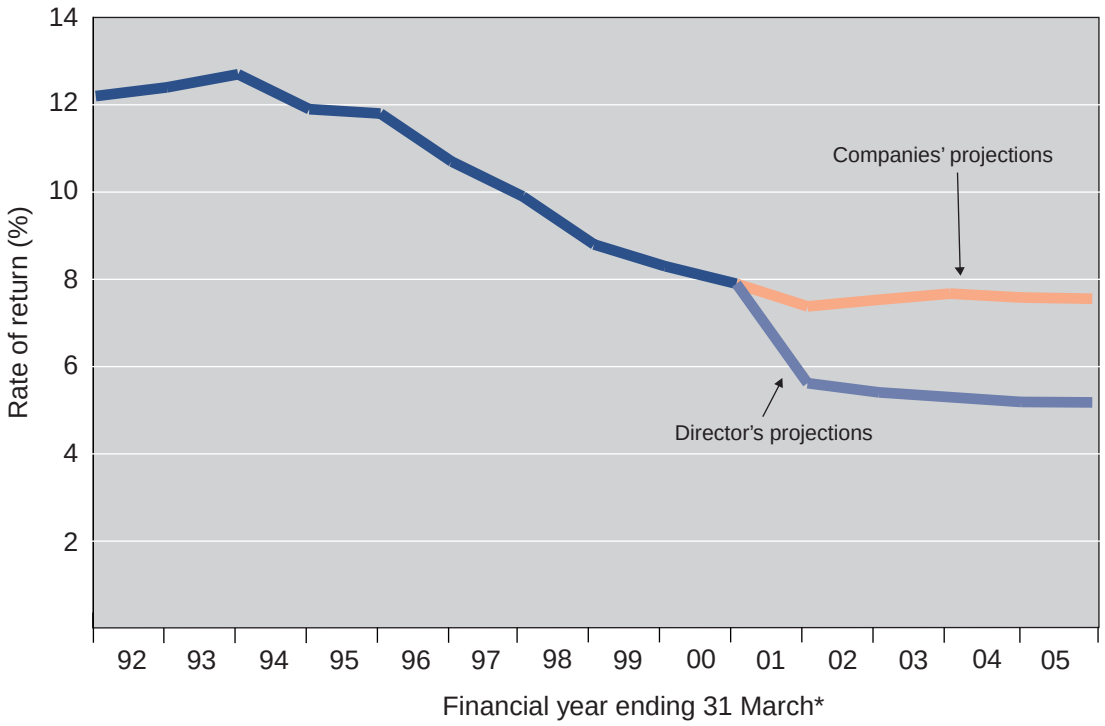
*To illustrate the period of new price limits, the first year of projections is shown as the year ending 31 March 2001.

1.18 Profile of rates of return

The rates of return on capital have been high, although they have been declining since the 1994 review, as shown in Figure 8. The sharp fall in 2000–01 results from the initial price reduction. The slower decline in the following four years reflects the fall out over the five years of the higher returns due to the incentive allowance and other factors (see section 5.5).

Companies believe that they should earn higher returns to cover their estimates of the cost of capital and maintain financial viability as measured by key financial indicators, particularly interest cover.

Figure 8: Post-tax rates of return 1991–2005



*To illustrate the period of new price limits, the first year of projections is shown as the year ending 31 March 2001.

1.19 Taking account of customers' views

Against the history of rising prices and profits, the Director sought the views of customers about the services they want and the amount they are prepared to pay for them. Market research has been carried out by Ofwat headquarters, the regional CSCs, the Ofwat National Customer Council (ONCC), the companies, the Department of the Environment, Transport and the Regions (DETR), the EA and others.

This research has been carried out across England and Wales. It has centred on:

- the profile of bills;
- the size and pace of the quality and environmental investment programmes; and
- the balance between bills and local preferences for improved services (for example, maintaining security of supply or reducing foul flooding).

Much of this work was done in 1998 and the results summarised in *Prospects for Prices*. The Director has taken this and the representations made on the draft determinations into account in setting price limits.

Customers expect a reasonable balance to be struck between passing efficiency savings to them through lower bills; continuing to improve drinking water quality and the environment; and improving levels of service.

Customers do not wish prices to rise above current levels and would prefer not to see significant rises after any initial reduction.

1.20 Analysis of the companies' Business Plans

By contrast, companies in their Business Plans envisage annual price increases significantly above the rate of inflation to finance improvements in the environment. In many cases, as in 1994, the companies' Business Plans appear to be bids for resources rather than coherent Board strategies that set out the views of all of their stakeholders, including customers. The Director's panel of senior industrialists shares this view.

The history of the companies' efficiency improvements also contrasts sharply with their own projections in submissions to Ofwat, as can be seen in Figures 4 and 6.

The Director has reviewed each of the Business Plans, which draw together and update the series of information returns provided to Ofwat in 1998 during the early stages of the review. He has considered carefully the arguments and evidence provided in the Business Plans, as well as the companies' actual outcomes as reported to him in the annual audited July Returns. The Director also considered the findings of studies commissioned by the companies, Ofwat and others. His staff have carried out an industry-wide analysis, using comparative information in the Business Plans.

The Director has not set price limits simply by making adjustments to the companies' Business Plans. In some areas, for example the demand forecasts, the Business Plans have been the starting point. For other areas, the Director has made assumptions about future costs based on Ofwat's own research and professional advice. These assumptions have been compared with the Business Plans and tested against them — but they cannot necessarily be reconciled with all of the details of individual plans.

The CSCs were disappointed that most companies had not proposed initial price cuts and believed that the levels of bills proposed in the Business Plans were unacceptable. They were also concerned about the scale and pace of the proposed environmental programme and whether the improvements represent value for money.

1.21 The drivers of change

The Director's aim is to ensure a fair deal for customers. He will pass efficiency savings on to them through a significant reduction in prices in the first year and by making realistic assumptions on the scope for improvements in efficiency thereafter. The Director has also taken into account customers' concerns about the pace of the environmental programme and the need for cost-effective solutions to meet higher standards.

The main factors driving the changes in the average household bills for the next five years and which underlie the estimates of expenditure on which the price limits are based are:

- efficiency and incentives;
- maintaining service to customers;
- the quality programme;
- maintaining the balance between supply and demand for water; and
- financial issues.

These are summarised below and are detailed in the subsequent chapters of this document.

Efficiency and incentives

The assessment of each company's scope to reduce costs through improving its efficiency is critical. The Director has taken account of the performance of the companies in recent years. As expected, the powerful incentives of price cap regulation have delivered both lower costs and improved services since 1989.

The Director believes that companies can continue to improve their efficiency. Some companies argue that they are nearly at the limit of what is possible. Others assume that they can deliver further significant improvements in efficiency.

The panel of senior industrialists believes that challenges to companies about efficiency savings should be linked with incentives to outperform them. It is reasonable to expect all companies to continue to improve. This is particularly true for the relatively less efficient companies which would be expected to improve faster than more efficient ones.

Incentives to improve efficiency have been strengthened by incorporating a rolling incentive allowance in the methodology used for setting prices. This allows companies to retain for five years the benefit of their outperformance. It operates in a similar way for both operating expenditure and capital expenditure. Further details are set out in Chapter 6.

Table 6 overleaf summarises the Director's assumptions for both the water and sewerage services on the range for efficiency savings in both operating and capital expenditure by 2004–05.

Table 6: Assumed range for total efficiency savings for water and sewerage

	Range of assumed efficiency savings (%)
Operating expenditure to deliver services to customers.	Improving at an average rate of 2.7% per year, leading to savings of between 7%–22% by 2004–05.
Capital maintenance expenditure to maintain serviceability to customers of the networks.	A stepped improvement in 2000–01 of between 0% and 11% in addition to 1.4% per year[1] leading to savings in the range 3%–15% in the period to 2004–05.
Capital enhancement expenditure to meet new quality and environmental standards.	A stepped improvement in 2000–01 of between 1% and 19% in addition to 2.1% per year[2] leading to savings in the range 7%–24% in the period to 2004–05.

1 1.4% per year is equivalent to an average saving of around 4% over the whole period.

2 2.1% per year is equivalent to an average saving of around 6% over the whole period.

As well as providing incentives to the companies to become more efficient, regulation should also give them the incentive to provide good service. Companies should not be tempted to reduce costs at the expense of service to customers and the community. The price limits include an adjustment to reflect the quality of the overall service provided by each company in the past three years. For companies which are significantly better than the industry average, price limits for 2000–01 have been increased by 0.5%. Where services have been significantly worse, price limits have been reduced by 0.5%.

Maintaining service to customers

Ofwat assesses whether the companies' networks of assets are delivering good service to customers. The service provided to customers by the network is generally stable and, in some cases, improving. The price limits will allow the high level of capital maintenance activity since the early 1990s to continue across the industry. This should be sufficient to maintain service to customers.

Expenditure of £1.3 billion a year has been allowed for in the price limits.

The quality programme

The price limits will allow the industry to continue to invest at a very high rate. Water industry investment has accounted for 2%–3% of total capital expenditure in England and Wales in every year since privatisation. The total capital expenditure (including capital maintenance) which can be financed within these price limits amounts to more than £15.6 billion (£8.5 million a day) over the five years.

The great bulk of this investment will be to maintain and improve water and environmental quality and service to customers.

This level of investment is consistent with the specific programme of environmental and water quality improvements announced by Ministers in *Raising the quality* last September and as supplemented by Ministers in March and November 1999. Ministers said in March 1999 that their programme would cost some £8 billion — and also encouraged Ofwat to continue to look critically at companies' estimates. Additional work identified and given technical support by the DWI since the draft determinations has been included in the final determinations. The phasing of the delivery of work has also been further reviewed by the Director to ensure compliance with EU Directives. Other work required to meet bathing water standards has also been included in price limits.

Since March, the Director has carried out further analysis on costs, particularly comparative costs, to ensure that no more is allowed for in price limits than is strictly necessary to cover the costs of clearly specified projects, consistent with ministerial guidance.

He has also examined the timing of capital expenditure in order to consider whether the due dates could be met for all EU obligations; and the whole programme could be financed efficiently as set out in section 1.3.

There are a few cases — mainly in Wessex Water — which show relatively low benefits in relation to cost. These cases have been considered again following representations but the Director continues to believe, and Ministers concur, that these should be further reviewed in order to explore more cost-effective solutions. These schemes have not been included in the final determinations.

Balancing the supply and demand for water and sewerage

Nationally, the demand for water is not rising. The Director has made an allowance in price limits to ensure the continuity of supplies and to improve the margin between supply and demand for companies in the South East of England and for certain other companies. Ofwat and the EA, unlike the water companies, consider that it is useful to retain the option to impose a temporary hosepipe ban as a means of demand management, particularly in areas where there is pressure on resources, and where supplies are not metered.

Provisions in the Water Industry Act 1999 to allow households the right to a meter free of charge could have an impact on price limits and bills (particularly on unmeasured bills), because companies' costs and revenues would be materially affected (see section 5.3).

The Director believes that companies should manage the meter installation programme in the interests of all of their customers. The price limits are, therefore, set on the basis of his assumptions about the rate at which customers opt to have meters installed. These are lower than many of the companies' forecasts. If as a result, a company's revenue is significantly less than anticipated by the Director, he proposes to allow the company a correction mechanism so that its price limits can be reassessed during the five-year period.

About £1.7 billion of capital expenditure over the five years is allowed for in price limits to balance the supply and demand for water and sewerage and to provide for the costs of meters to be installed free of installation charge. This amount would be largely offset by additional capital receipts (eg infrastructure charges and requisition charges on new properties) and revenue from new customers. The overall impact on price limits is modest.

Financial issues

The Director has taken account of the fall in the cost of capital since the last review and the price limits assume a reduction in the level of return on capital (ie profitability), to the cost of capital. This still allows companies to continue to finance their investment programmes.

The cost of capital is a key factor in the water industry because of the need to finance the large investment programme. The cost of capital underpinning price limits will look forward and be based on market evidence, not just on historical averages. The Director considers that a cost of capital in the range 4.25%–5.25% (on a real, post-tax basis) is sufficient for an efficiently financed water company. This is lower than that assumed at the 1994 review. Adjustments have been made for the higher costs faced by small companies and companies with fixed rate debt.

Because of changes in corporate taxation, water companies will increasingly be liable for tax. This has been allowed for in the price limits.

The Director has ensured that these price limits maintain incentives for companies to become more efficient and allow them to earn an even profile of returns. Companies may, however, earn returns in excess of the cost of capital if this is as a result of superior service, or past or future outperformance of the Director's efficiency assumptions.

Particular attention has been paid to the profile of the price limits to check that companies' revenues, profits and cashflow streams underpinning them are such that they should be able to finance the required investment in the capital markets, particularly the debt market. Both cash based and accounting based financial indicators have been used to assess the 'bankability' of the price limits. These measures are commonly used by analysts and credit rating agencies to assess the financial condition of companies. The Director intends that companies should be able to maintain a good credit rating for their borrowings such as an investment grade rating. In a few cases, it has been necessary to assume that certain special dividends paid by companies are returned to them (ie as if they had never been paid) in order to achieve acceptable financial profiles.

Shareholders, not customers, are responsible for paying for the windfall tax. No account has been taken of it in the price limits.

1.22 Implementing the price review

The price limits and infrastructure charges come into effect from 1 April 2000.

If companies decide to dispute the determinations, they can ask the Director to refer the matter to the Competition Commission. They have two months (until 24 January 2000) in which to decide whether to do this. Following a referral, the Competition Commission would then have six months to make a complete replacement determination for the company in question in accordance with the same statutory principles as applied in relation to the Director's determination. Until the Competition Commission makes its decision, the Director's price limits would stand. The price limits for other companies which are not the subject of a referral would be unaffected.

Following the final decisions on price limits, companies should describe how customer service standards and environmental obligations will be delivered under the price limits for 2000–05.

The considerations underpinning monitoring and assessment of company performance over the period 2000–01 to 2004–05 will be: delivery of outputs; prices; serviceability for customers; and comparative competition.

The price limits set by the Director allow service standards and serviceability to customers to be maintained, as well as significant improvements to the environment. The Director will take the necessary steps, including enforcement action, if companies do not maintain these standards. The quality regulators (the DWI and the EA) will ensure that water quality and environmental standards are met.

2. REPRESENTATIONS ON THE DRAFT DETERMINATIONS

In addition to further Ministerial guidance, the Director received 172 representations on the draft determinations. These were from companies (27), customers and customer groups (35), the regional CSCs (10), environmental groups (25), MPs (42), local government organisations (18) and other interested parties (15).

The respondents are set out in Appendix A and the representations have been placed in the Ofwat library (except where specifically requested otherwise).

Following publication of the draft determinations, Ofwat held a series of seminars from late July to early September for business customers, consumer groups and environmental groups and made presentations to City institutions to assist understanding and to inform the critical issues. Following their written representations, each company has had a formal meeting with the Director so that they could make their final representations. The Director has also met with each CSC.

The Director has considered all of the representations received in reaching his conclusions on price limits. This chapter briefly sets out the broad themes made by each group in their representations. Their impact on price limits is set out in section 1.3 and in Table 3, which compares the final determinations with the draft determinations. The representations are summarised in Appendix B and are considered in further detail in Chapters 5 to 10 in section II of this document.

2.1 Companies

The representations from companies were, generally, specific to the individual company. The issues raised have been considered and, when appropriate, responded to in the confidential reports on the final determinations that have been sent to each company with its final determination. There were, however, a number of common themes and issues.

Many representations reiterated positions taken by the companies concerning the framework of the review and the methodology in specific areas. The framework for setting price limits has been subject to extensive consultation over a lengthy period so although most representations on methodological issues have been noted by the Director, there has been no amendment to price limits. There have been no changes to policies in the key areas of the methodology — efficiency, serviceability to customers and the cost of capital.

In a small number of cases, the application of certain general policies to specific companies had produced an inconsistent outcome and, in these instances, the outcome has been reconsidered for those companies. For example, the application of industry-wide assumptions to specific companies (in many cases smaller ones) produced anomalous results. In other cases, errors relating to interpretation of companies' Business Plans have been corrected. Where applicable, factual misunderstandings have been rectified which have, in some cases, resulted in changes to the draft price limits. Consideration has been given to dealing with specific areas of uncertainty and proposals put forward.

2.2 The CSCs

Overall the CSCs believed that customers had welcomed the draft determinations as striking a good balance between improvements to water quality, the environment and services, and passing back to customers the benefits of past efficiency in the form of lower bills. They particularly welcomed the initial price reduction and the prospect of stable bills thereafter. They considered that the price profile of the draft determinations would restore or maintain confidence in incentive regulation. It would be adequate redress for the fact that hitherto shareholders had received more benefits from the companies than customers.

There are two aspects of the draft determinations where a number of CSCs suggested reconsideration by the Director. The first concerns the provision for reducing the incidence of sewer flooding. CSCs believe that customers see this as the highest priority and that it should be considered as a high priority by the water and sewerage companies too. The second concerns the Director's assumptions in the draft determinations about the number of customers who will opt for a meter.

2.3 Customers and consumer groups

All of the customers and consumer groups which responded broadly welcomed the draft determinations but the National Consumer Council (NCC) and the National Union of Residents' Associations commented that prices could be lower. The NCC also argued for greater transparency from companies in their financial statements.

2.4 Environmental groups

The EA, statutory environmental bodies and other environmental interest groups commented on the environmental programme. Representations from smaller local groups focused on individual schemes and commented primarily on work affecting their locality. These organisations generally expressed the wish that even more environmental improvements should be included in price limits.

2.5 MPs and local government organisations

Over 40 representations were received from MPs and MEPs. Most of them welcomed the benefits of the proposed price reductions for customers; some expressed concerns about the scope of the environmental programme, the possibility of job losses and the maintenance of service standards. The local government representations were equally split between wanting to see price reductions for customers and a call for further improvements to the environment and reductions in sewer flooding problems.

2.6 Financial institutions

No formal representations have been received from institutional shareholders, independent merchant bankers, broking analysts or others in the City. The Director has, as for other key stakeholders, kept financial institutions informed through seminars.

2.7 Other interested parties

Sewer flooding was a key concern of both Unison's Severn Trent Branch and Midlands Region, each arguing for greater funding. All four Unison representations and that of the GMB raised the possibility of significant job losses if the draft determinations were confirmed. Unison also questioned whether Ofwat's assumptions on meter take-up rates were realistic.

3. INDIVIDUAL COMPANY SUMMARIES

This document sets out and explains the Director's determinations by reference to the national picture and national issues. This chapter summarises the key elements in the Director's determination for each company and the effects on customers' bills and future services.

The purpose of this chapter is to assist customers, regional bodies, and other interested parties to understand the issues for each company which have informed the Director's decisions.

The position for each company is described under the following headings:

The price limits and expected effect on household bills

The price limit is the proposed K factor.

Bills may not change exactly in line with price limits. Customers' bills will also be affected by companies' charges schemes drawn up under the Water Industry Act 1999 which are required to be approved by the Director. The effect of the price limit on average annual household bills will also depend on the actual volume of water used by metered customers and the number of metered customers. The figures shown here are based on the Director's projections.

The typical measured customer is the customer with average consumption in 1997–98, where consumption remains constant each year to 2004–05. The typical unmeasured customer is the customer with the average rateable value in 1997–98 who remains on an unmeasured basis (ie does not switch to a meter). The figures for typical bills illustrate for other customers the sort of change in bills, year on year, that they can expect provided they remain on an unmeasured (or measured) basis and, in the case of a measured customer, their annual consumption is constant over the period.

The bills for 1999–2000 set out in this chapter have been indexed to May 1999 prices (as have all figures in the document unless otherwise stated). They may, therefore, differ from those quoted in earlier Ofwat publications but are identical to those used in *Future water and sewerage charges 2000–05: Draft determinations*.

Overall company strategy for the period

This section pulls out the key points from the company's Business Plan submitted to the Director in support of its proposals for price limits for the period 2000–05. Each company (with the exception of the very small Cholderton & District Water) has published a summary of its Plan, which includes the key improvements to services that it proposes. A copy is in the Ofwat library and a one-page summary on Ofwat's web site.

Forecast increases (or decreases) in capital maintenance expenditure are relative to the actual annual average expenditure during the period 1992–93 to 1997–98. For some companies, part of the forecast increase reflects elements of the quality programme.

CSC's view of the company's strategy

This section summarises the main points of the CSC's report to the Director with its views on the company's Business Plan. The full CSC reports are in the Ofwat library.

Director's judgements on company functions to be allowed in price limits and other relevant factors

This section summarises the Director's judgements on the key elements that have influenced his determination of price limits.

References to expenditure from the companies' quality programme not included in price limits are based on companies' cost estimates.

Efficiency assumptions for capital maintenance and capital enhancement expenditure are expressed as the average reduction for the whole period 2000–01 to 2004–05.

Director's assessment of expenditure needs underlying the determination

The Director's assessment of the company's future operating and capital expenditure requirements are expressed in terms of £ per connected property per annum to facilitate comparison between companies.

The aggregate of these for a company cannot easily be compared with the average annual household bill for a number of reasons. First, the bill includes an element for the return on capital; secondly, capital expenditure is paid for in bills over the life of the asset through capital charges (rather than immediately the expenditure is made); and thirdly, the number of properties does not equate to the number of customers.

Director's assessment of the post-tax cost of capital needed by the company

The Director's assessment of the cost of capital for each company varies slightly depending on whether there is a small company premium (see section 10.3.5).

Director's assessment of what is driving the changes in bills

This table shows the key factors that influence the future change in the average annual household bill from its current level in 1999–2000 to the end of the price review period in 2004–05. For simplicity only five influences are shown. Past efficiency savings and outperformance includes: the remainder of the 1994 glidepath, the overall service performance adjustment and an adjustment to reflect benefits already shared voluntarily by companies with customers. Future efficiency improvements relate to both operating and capital maintenance expenditure and include adjustments for broad equivalence and other capital charges (described in Chapter 7).

ANGLIAN WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–10.0**	**1.0**	**2.2**	**2.5**	**2.5**
Average annual household bill (water) (£)	120	105	104	104	104	105
Average annual household bill (sewerage) (£)	157	140	139	139	141	142
Average annual household bill (total) (£)	**277**	**245**	**243**	**243**	**245**	**247**
Typical measured bill (£)	218	197	197	199	203	206
Typical unmeasured bill (£)	346	311	315	321	329	339

Overall company strategy for the period

- Deliver the water quality and environmental programme, including all Bathing Waters to achieve Blue Flag water quality by 2005.
- Remove most existing internal sewer flooding, persistent external sewer flooding and some odour problems.
- Forecast increase in capital maintenance expenditure of around 10%.
- Forecast 41% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Increase in average annual household bills of £39 to £316 by 2004–05.

CSC's view of the company strategy

The proposed increase in bills is unacceptable to customers, making it impossible for the CSC to support proposals to reduce sewer flooding and smells from sewage treatment works. The CSC is not convinced that the company's plan reflects customers' priorities as customers were not presented with improvements in the same billing context as now proposed. Given the company's estimate of the cost of the quality programme, only statutory improvements should be allowed within price limits. The expected increase in meter uptake is welcomed, but the CSC has some concerns about the impact on unmeasured bills.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- £47 million of the company quality programme was not included because it was either not supported by the DWI or EA or the Director is not satisfied that cost-effective solutions have been proposed.
- Trend in serviceability to customers is stable and there is no need to increase capital maintenance activity.
- No allowance has been made for the proposed service enhancements, apart from a small allowance to reduce sewer flooding.
- Price limits assume that 15% of 1999–2000 unmeasured household customers will opt for a meter by March 2005. This increase since the draft determination adds £4 to the average household bill and is shown in line 5 of the table below.
- Assumed cost reductions by 2004–05: opex 14% (w), 17% (s); capital maintenance 13% (w), 7% (s); capital enhancement 12% (w), 14% (s).
- Price limits include no adjustment for past overall service performance.
- Under the terms of the merger with Anglian Water, Hartlepool Water's customers will form a separate class of water customer and will be protected form undue discrimination in respect of the charges they receive. The average household bills for Hartlepool's customers will follow a similar profile to the water bill for Anglian's customers but they will further benefit from an additional 5% price reduction in 2001–02.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	119
2 Total capital maintenance expenditure — annual average	54
3 Total capital enhancement expenditure — annual average	72

Director's assessment of the post-tax cost of capital needed by the company: 4.75%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	277
Less (1) passing on past efficiency savings and outperformance	–21
(2) assumptions on future efficiency improvements	–37
Plus (3) improvements in drinking water & environmental quality	24
(4) improvements in service performance	<1
(5) maintaining the balance between supply & demand	4
Average household bill in 2004–05	247

DŴR CYMRU (WELSH WATER)

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–10.5**	**–0.5**	**0.0**	**1.2**	**1.0**
Average annual household bill (water) (£)	134	126	122	118	116	114
Average annual household bill (sewerage) (£)	168	142	143	144	147	150
Average annual household bill (total) (£)	**302**	**268**	**265**	**262**	**263**	**264**
Typical measured bill (£)	173	156	156	157	159	160
Typical unmeasured bill (£)	324	289	288	288	291	293

Overall company strategy for the period

- Deliver the water quality and environmental programme requiring investment of £1,400 per customer (1997–98 prices), but company would prefer rephased programme to allow for stable bills.
- Forecast increase in capital maintenance expenditure of 62%.
- Company forecast 19% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Improve levels of service with provision in price limits for reducing sewer flooding and supply interruptions, and improving security of supply.
- Real increase in average annual household bill of £57 to £359 by 2004–05.

CSC's view of the company strategy

The company's proposal, in its Business Plan, to increase prices is unacceptable. Customers are seeking a one-off reduction to bills and decreasing bills thereafter. The committee believes that customers should not have to pay for environmental schemes over and above statutory requirements. The CSC supports proposals to reduce sewer flooding, but considers this should be met from base costs. Additional demand costs should be met through cost-reflective tariffs.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- £158 million of the company quality programme was not included because it was either not supported by the DWI or EA or the Director is not satisfied that cost-effective solutions have been proposed. £71 million is being rephased to 2005–06.
- Price limits assume a 10% increase in sewerage infrastructure maintenance activity to restore serviceability to customers.
- Price limits assume that 10% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Provision for reduction in sewer flooding.
- Assumed cost reductions by 2004–05: opex 22% (w), 20% (s); capital maintenance 10% (w), 10% (s); capital enhancement 17% (w), 16% (s).
- Price limits include no adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	136
2 Total capital maintenance expenditure — annual average	61
3 Total capital enhancement expenditure — annual average	106

Director's assessment of the post-tax cost of capital needed by the company: 4.75%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	302
Less (1) passing on past efficiency savings and outperformance	–32
(2) assumptions on future efficiency improvements	–44
Plus (3) improvements in drinking water & environmental quality	37
(4) improvements in service performance	<1
(5) maintaining the balance between supply & demand	1
Average household bill in 2004–05	264

NORTH WEST WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–9.3**	**–1.0**	**0.0**	**4.0**	**4.5**
Average annual household bill (water) (£)	104	102	103	105	111	117
Average annual household bill (sewerage) (£)	143	118	116	115	118	121
Average annual household bill (total) (£)	**247**	**220**	**219**	**220**	**229**	**238**
Typical measured bill (£)	235	211	209	210	217	226
Typical unmeasured bill (£)	259	238	242	246	257	271

Overall company strategy for the period

- Implement the water quality and environmental programme, which amounts to 25% of total national programme. Company is concerned, however, about the impact on bills and the physical disruption for customers.
- Halve the number of properties at risk of flooding from sewers.
- Forecast 14% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Forecast increase in capital maintenance expenditure of 18% when including the impact of the quality programme.
- Increase in average annual household bill of £71 to £318 by 2004–05.

CSC's view of the company strategy

The Business Plan is not affordable for the majority of customers, and is contrary to customers' views. The CSC supports the priorities for quality improvements but believes that the programme should be rephased over a period necessary to ensure stable prices based on sound cost-benefit analysis. The CSC would like more done to reduce sewer flooding problems. It does not consider that free meters make economic sense.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- £90 million of the company quality programme was not included because the Director is not satisfied that cost-effective solutions have been proposed. An additional £114 million has been included because it was given technical support by DWI after receipt of the Business Plan.
- Provision for 25% reduction in sewer flooding incidents.
- Trend in serviceability to customers is stable and there is no need to increase capital maintenance activity.
- Price limits assume that 10% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Assumed cost reductions by 2004–05: opex 8% (w), 20% (s); capital maintenance 10% (w), 12% (s); capital enhancement 12% (w), 10% (s).
- Price limits include a negative adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	105
2 Total capital maintenance expenditure — annual average	61
3 Total capital enhancement expenditure — annual average	133

Director's assessment of the post-tax cost of capital needed by the company: 4.75%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	247
Less (1) passing on past efficiency savings and outperformance	–33
(2) assumptions on future efficiency improvements	–22
Plus (3) improvements in drinking water & environmental quality	45
(4) improvements in service performance	<1
(5) maintaining the balance between supply & demand	1
Average household bill in 2004–05	238

NORTHUMBRIAN WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–19.4**	**–2.0**	**0.0**	**0.0**	**0.0**
Average annual household bill (water) (£)	101	88	86	86	86	86
Average annual household bill (sewerage) (£)	143	110	108	109	109	111
Average annual household bill (total) (£)	**244**	**198**	**194**	**195**	**195**	**197**
Typical measured bill (£)	226	188	185	185	186	187
Typical unmeasured bill (£)	253	205	201	202	201	202

Overall company strategy for the period

- Deliver the water quality and environmental programme while keeping prices stable.
- Improve levels of service, with specific provision in price limits to reduce sewer flooding problems.
- Forecast 8% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Forecast increase in capital maintenance expenditure of 18%.
- Increase in average household bill of £2 to £246 by 2004–05.

CSC's view of the company strategy

While supporting the company's proposals for price stability, the CSC would like to see a one-off reduction in prices of no less than 10% in 2000–01, accepting that this might mean some slippage in the company's demanding capital programme. If, however, the quality programme, which bears little relationship to customer priorities, were to necessitate large price increases then the CSC believes that customers would prefer to see the initial reduction used to offset such rises. The CSC considers the metering programme to be manageable on the figures submitted by the company.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- £27 million of the company quality programme was not included because it was either not supported by the DWI or EA or the Director is not satisfied that cost-effective solutions have been proposed.
- Trend in serviceability to customers is stable and there is no need to increase capital maintenance activity.
- Price limits assume that 5% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Provision for a small reduction in sewer flooding incidents.
- Assumed cost reductions by 2004–05: opex 8% (w), 17% (s); capital maintenance 11% (w), 8% (s); capital enhancement 16% (w), 8% (s).
- Price limits include no adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	104
2 Total capital maintenance expenditure — annual average	52
3 Total capital enhancement expenditure — annual average	72

Director's assessment of the post-tax cost of capital needed by the company: 4.75%

Director's assessment of what is driving the changes in bills		£
Average household bill in 1999–2000		244
Less	(1) passing on past efficiency savings and outperformance	–55
	(2) assumptions on future efficiency improvements	–18
Plus	(3) improvements in drinking water & environmental quality	26
	(4) improvements in service performance	<1
	(5) maintaining the balance between supply & demand	<1
Average household bill in 2004–05		197

SEVERN TRENT WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–14.1**	**–1.0**	**–1.0**	**0.0**	**1.0**
Average annual household bill (water) (£)	113	106	104	102	102	102
Average annual household bill (sewerage) (£)	118	95	92	91	90	91
Average annual household bill (total) (£)	**231**	**201**	**196**	**193**	**192**	**193**
Typical measured bill (£)	239	206	203	201	201	203
Typical unmeasured bill (£)	244	213	211	211	213	217

Overall company strategy for the period

- Implement the water quality and environmental programme.
- Maintain and improve levels of service, with specific provision in price limits for improving drinking water, reducing water pressure problems and reducing sewer flooding problems.
- Forecast 13% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Maintain historical level of maintenance on existing assets, with reduction in expenditure.
- Decrease in average annual household bill of £3 to £228 by 2004–05.

CSC's view of the company strategy

The CSC welcomes the proposal for an initial price reduction, but believes the reduction should be greater, with prices stable thereafter. The CSC has concerns about the industry's ability to deliver the environmental programme and believes it should be phased over a longer period. The CSC supports proposals to reduce sewer flooding problems.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- £73 million of the company quality programme was not included because it was either not supported by the DWI or EA or the Director is not satisfied that cost-effective solutions have been proposed.
- Provision for reducing sewer flooding incidents by 40%. Improvements in drinking water aesthetic characteristics and reducing water pressure problems are not allowed for in price limits.
- Trend in serviceability to customers is stable and there is no need to increase capital maintenance activity.
- Price limits assume that 10% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Assumed cost reductions by 2004–05: opex 11% (w), 14% (s); capital maintenance 12% (w), 16% (s); capital enhancement 18% (w), 19% (s).
- Price limits include no adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	100
2 Total capital maintenance expenditure — annual average	63
3 Total capital enhancement expenditure — annual average	49

Director's assessment of the post-tax cost of capital needed by the company: 4.75%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	231
Less (1) passing on past efficiency savings and outperformance	–28
(2) assumptions on future efficiency improvements	–20
Plus (3) improvements in drinking water & environmental quality	9
(4) improvements in service performance	<1
(5) maintaining the balance between supply & demand	1
Average household bill in 2004–05	193

SOUTH WEST WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–12.2**	**0.0**	**2.0**	**2.0**	**2.0**
Average annual household bill (water) (£)	119	114	113	113	114	115
Average annual household bill (sewerage) (£)	237	194	194	197	201	205
Average annual household bill (total) (£)	**356**	**308**	**307**	**310**	**315**	**320**
Typical measured bill (£)	248	218	217	221	224	228
Typical unmeasured bill (£)	407	357	360	370	380	391

Overall company strategy for the period

- Delivery of water quality and environmental programme.
- Additional improvements to reduce sewer flooding and improve taste of drinking water.
- Forecast increase in capital maintenance expenditure of 4%.
- Forecast 31% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Increase in average household bills of £9 to £365 by 2004–05.

CSC's view of the company strategy

The CSC welcomes the company's proposals to provide improvements in sewer flooding and drinking water quality, as well as the delivery of the environmental programme laid down by the Government, but is disappointed that this cannot be done within a framework of stable or falling prices. It believes environmental improvements were being crammed into too short a timescale. The CSC has concerns about the effect of take up of free metering on unmeasured bills.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- £12 million of the company quality programme was not included because it was not supported by the DWI or the EA. £17 million is being rephased to 2005–06.
- Provision for reducing sewer flooding incidents by 15%.
- Trend in serviceability to customers is stable and there is no need to increase capital maintenance activity.
- Price limits assume that 15% of 1999–2000 unmeasured household customers will opt for a meter by March 2005. This increase since draft determination adds £3 to the average household bill and is shown in line 5 of the table below.
- Assumed cost reductions by 2004–05: opex 14% (w), 17% (s); capital maintenance 7% (w), 13% (s); capital enhancement 9% (w), 13% (s).
- Price limits include a negative adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	124
2 Total capital maintenance expenditure — annual average	73
3 Total capital enhancement expenditure — annual average	140

Director's assessment of the post-tax cost of capital needed by the company: 4.75%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	356
Less (1) passing on past efficiency savings and outperformance	–65
(2) assumptions on future efficiency improvements	–25
Plus (3) improvements in drinking water & environmental quality	51
(4) improvements in service performance	<1
(5) maintaining the balance between supply & demand	3
Average household bill in 2004–05	320

SOUTHERN WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–13.0**	**0.0**	**0.0**	**1.6**	**0.8**
Average annual household bill (water) (£)	112	90	88	85	84	83
Average annual household bill (sewerage) (£)	166	149	150	151	154	156
Average annual household bill (total) (£)	**278**	**239**	**238**	**236**	**238**	**239**
Typical measured bill (£)	251	216	215	213	214	214
Typical unmeasured bill (£)	294	255	256	257	263	266

Overall company strategy for the period

- Implement the full quality programme. Company has tried to phase the programme to provide stability in customers' bills.
- Improve levels of service to customers, with specific provision for reducing sewer flooding problems.
- Increase in expenditure of 62% to maintain assets, which includes the impact of the quality programme and is reflective of recent spend levels.
- Forecast 19% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Real increase in average annual household bills of £27 to £305 by 2004–05.

CSC's view of the company strategy

The CSC recognises that the company's strategy is dominated by the requirement to meet quality and environmental obligations. The CSC believes that the resulting bill increases are against customers' wishes and would welcome rephasing of the programme by quality regulators and government.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- £5 million of the company quality programme was not included because it was either not supported by the DWI or EA or the Director is not satisfied that cost-effective solutions have been proposed. £6 million is being rephased to 2005–06.
- Price limits assume a 10% increase in sewerage maintenance activity to restore serviceability to customers.
- Price limits assume that 10% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Provision for a small reduction in sewer flooding incidents.
- Assumed cost reductions by 2004–05: opex 7% (w), 17% (s); capital maintenance 9% (w), 14% (s); capital enhancement 24% (w), 16% (s).
- Price limits include a positive adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	110
2 Total capital maintenance expenditure — annual average	55
3 Total capital enhancement expenditure — annual average	84

Director's assessment of the post-tax cost of capital needed by the company: 4.75%

Director's assessment of what is driving the changes in bills		£
Average household bill in 1999–2000		278
Less	(1) passing on past efficiency savings and outperformance	–40
	(2) assumptions on future efficiency improvements	–25
Plus	(3) improvements in drinking water & environmental quality	25
	(4) improvements in service performance	<1
	(5) maintaining the balance between supply & demand	1
Average household bill in 2004–05		239

THAMES WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–11.7**	**0.0**	**0.0**	**–0.8**	**0.0**
Average annual household bill (water) (£)	104	95	95	95	94	94
Average annual household bill (sewerage) (£)	102	88	88	87	86	86
Average annual household bill (total) (£)	**206**	**183**	**183**	**182**	**180**	**180**
Typical measured bill (£)	206	184	183	183	181	180
Typical unmeasured bill (£)	222	200	201	202	201	203

Overall company strategy for the period

- Submitted plan implements quality programme, but company prefers reconsideration of nature and timing of obligations by Ministers and regulators to ensure stable bills. It has published an alternative plan which it considers produces a more balanced outcome with no increase in bills by 2004–05.
- Remove 2,300 properties from risk of flooding by sewers twice in ten years.
- Forecast 9% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Forecast increase in capital maintenance expenditure of 19%.
- Increase in average household bill of £47 to £253 by 2004–05.

CSC's view of the company strategy

The CSC says that the submitted price profile should be reworked as it does not deliver a meaningful initial price reduction followed by inflation-only increases. The quality programme should be rephased to minimise the impact on bills, but the CSC strongly supports proposals for reducing sewer flooding. The CSC endorses customer support for reducing the risk of cryptosporidium. Free metering is already in place and is not a significant issue.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- £50 million of the company quality programme was not included because it was either not supported by the DWI or EA or the Director is not satisfied that cost-effective solutions have been proposed.
- Trend in serviceability to customers is stable and there is no need to increase capital maintenance activity.
- Price limits assume that 5% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Provision for 32% reduction in sewer flooding incidents.
- Assumed cost reductions by 2004–05: opex 8% (w), 11% (s); capital maintenance 9% (w), 11% (s); capital enhancement 11% (w), 17% (s).
- Price limits include no adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	102
2 Total capital maintenance expenditure — annual average	47
3 Total capital enhancement expenditure — annual average	53

Director's assessment of the post-tax cost of capital needed by the company: 4.75%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	206
Less (1) passing on past efficiency savings and outperformance	–28
(2) assumptions on future efficiency improvements	–11
Plus (3) improvements in drinking water & environmental quality	12
(4) improvements in service performance	<1
(5) maintaining the balance between supply & demand	<1
Average household bill in 2004–05	180

WESSEX WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–12.0**	**0.0**	**0.0**	**3.8**	**4.7**
Average annual household bill (water) (£)	126	108	108	107	109	113
Average annual household bill (sewerage) (£)	146	129	129	129	133	138
Average annual household bill (total) (£)	**272**	**237**	**237**	**236**	**242**	**251**
Typical measured bill (£)	220	192	192	191	196	204
Typical unmeasured bill (£)	305	272	277	281	296	314

Overall company strategy for the period

- Implement the full quality programme, including low flow river problems, by March 2005. Company believes that customers would prefer a slower pace so that bills do not increase, and this would be the company's preferred strategy.
- Forecast increase in capital maintenance expenditure of 13%.
- Forecast 36% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Continue to improve levels of service, with specific provision in price limits for reduction in properties at risk of flooding from sewers.
- Real increase in average annual household bill of £47 to £319 by 2004–05.

CSC's view of the company strategy

The proposed increase in bills is unacceptable and contrary to customer expectations. The CSC considers that the extensive environmental programme should be phased to reduce the impact on bills. It supports proposals for the reduction of sewer flooding and recognises the company's concern about the effect of switching to meters on bills for unmeasured customers.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- £109 million of the company quality programme was not included because it was either not supported by the DWI or EA or the Director is not satisfied that cost-effective solutions have been proposed.
- Price limits assume a 10% increase in water and sewerage infrastructure maintenance activity to restore serviceability to customers.
- Price limits assume that 15% of 1999–2000 unmeasured household customers will opt for a meter by March 2005. This increase since draft determination adds £1 to the average household bill and is shown in line 5 of the table below.
- Provision for 15% reduction in sewer flooding incidents.
- Assumed cost reductions by 2004–05: opex 11% (w), 7% (s); capital maintenance 11% (w), 11% (s); capital enhancement 9% (w), 7% (s).
- Price limits include a positive adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	113
2 Total capital maintenance expenditure — annual average	67
3 Total capital enhancement expenditure — annual average	116

Director's assessment of the post-tax cost of capital needed by the company: 4.75%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	272
Less (1) passing on past efficiency savings and outperformance	–56
(2) assumptions on future efficiency improvements	–8
Plus (3) improvements in drinking water & environmental quality	41
(4) improvements in service performance	<1
(5) maintaining the balance between supply & demand	2
Average household bill in 2004–05	251

YORKSHIRE WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–14.5**	**0.0**	**0.0**	**0.0**	**1.0**
Average annual household bill (water) (£)	115	98	98	98	98	99
Average annual household bill (sewerage) (£)	126	111	111	111	110	111
Average annual household bill (total) (£)	**241**	**209**	**209**	**209**	**208**	**210**
Typical measured bill (£)	220	195	194	193	192	193
Typical unmeasured bill (£)	262	229	231	234	237	243

Overall company strategy for the period

- Implement the water quality and environmental programme.
- Forecast increase in capital maintenance expenditure of 25%.
- Maintain and improve levels of service, with provision in price limits for reducing sewer flooding problems.
- Forecast 23% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Real increase in annual average household bills of £30 to £266 by 2004–05.

NB: Figures may not reconcile to the above due to differences between Ofwat and company calculations of bills in 1999–2000.

CSC's view of the company strategy

The CSC wants stable prices, is opposed to real price increases and regrets the absence of a reduction in 2000–01. The scale and speed of the quality programme go further and faster than customers want. No evidence has been produced to show that the benefits justify the impact on bills. The CSC refers particularly to the pace of the mains distribution, lead and combined sewer overflows programmes. The CSC also questions the need for further expenditure to improve the supply/demand balance and is concerned about the potential costs and lack of control of the free meter option. The proposed cost of capital is considered to be too high.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- £84 million of the company quality programme was not included because it was either not supported by the DWI or EA or the Director is not satisfied that cost-effective solutions have been proposed.
- Serviceability to customers is stable and there is no need to increase capital maintenance activity.
- Price limits assume that 10% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Provision for reduction in sewer flooding by 18%.
- Assumed cost reductions by 2004–05: opex 8% (w), 11% (s); capital maintenance 10% (w), 4% (s); capital enhancement 9% (w), 7% (s).
- Price limits include a negative adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	103
2 Total capital maintenance expenditure — annual average	55
3 Total capital enhancement expenditure — annual average	85

Director's assessment of the post-tax cost of capital needed by the company: 4.75%

Director's assessment of what is driving the changes in bills		£
Average household bill in 1999–2000		241
Less	(1) passing on past efficiency savings and outperformance	–26
	(2) assumptions on future efficiency improvements	–34
Plus	(3) improvements in drinking water & environmental quality	27
	(4) improvements in service performance	1
	(5) maintaining the balance between supply & demand	1
Average household bill in 2004–05		210

BOURNEMOUTH & WEST HAMPSHIRE WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–3.0**	**–1.7**	**–1.7**	**0.0**	**1.7**
Average annual household bill (water) (£)	101	98	97	96	96	98
Average annual household bill (sewerage) (£)	0	0	0	0	0	0
Average annual household bill (total) (£)	**101**	**98**	**97**	**96**	**96**	**98**
Typical measured bill (£)	96	94	93	92	93	94
Typical unmeasured bill (£)	109	106	105	103	105	107

Overall company strategy for the period

- Implement the water quality programme as specified by the DWI, and River Allen low flow scheme.
- Improve security of supply through completion of Longham Lakes scheme and a link main to Knapp Mill, Christchurch, and selective metering.
- Maintain and improve levels of service, with provision in price limits for reducing pressure problems.
- Forecast 11% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Maintain historical overall levels of maintenance expenditure on existing assets.
- Real increase in annual average household bill of £32 to £133 in 2004–05.

CSC's view of the company strategy

The company's proposed price limits are unacceptable, and contrary to customers' expectations. The CSC has not seen cost-benefit analysis for the River Allen low flow scheme. It supports the company's proposals to reduce pressure problems and improve security of supply.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- Some proposals affecting monitoring arrangements were not supported by the DWI, but these amendments have not had a material effect on the quality programme proposed by the company.
- Agrees the need for improving security of supply through completion of Longham Lakes.
- The number of properties at risk of suffering from poor pressure should be reduced to less than 4 in 1,000.
- Trend in serviceability to customers is stable and there is no need to increase capital maintenance activity.
- Price limits assume that 10% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Assumed cost reductions by 2004–05: opex 11%; capital maintenance 14%; capital enhancement 24%.
- Price limits include no adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	68
2 Total capital maintenance expenditure — annual average	28
3 Total capital enhancement expenditure — annual average	24

Director's assessment of the post-tax cost of capital needed by the company: 5.50%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	101
Less (1) passing on past efficiency savings and outperformance	–5
(2) assumptions on future efficiency improvements	–3
Plus (3) improvements in drinking water & environmental quality	3
(4) improvements in service performance	<1
(5) maintaining the balance between supply & demand	2
Average household bill in 2004–05	98

BRISTOL WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–10.0**	**1.0**	**1.0**	**0.0**	**–1.9**
Average annual household bill (water) (£)	113	102	102	102	102	100
Average annual household bill (sewerage) (£)	0	0	0	0	0	0
Average annual household bill (total) (£)	**113**	**102**	**102**	**102**	**102**	**100**
Typical measured bill (£)	90	84	87	89	90	88
Typical unmeasured bill (£)	122	110	111	113	113	112

Overall company strategy for the period

- Implement the water quality programme.
- Improve security of supply from the Gloucester to Sharpness Canal.
- Maintain services to customers at high levels.
- Forecast 16% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Forecast broadly stable level of capital maintenance expenditure.
- Increase in average annual household bills of £6 to £119 by 2004–05.

CSC's view of the company strategy

The company's proposed price limits are unacceptable, and contrary to customer expectations. Ministers should review the lead and cryptosporidium monitoring obligations which have a significant impact on the company. The CSC has not seen any cost-benefit analysis for the Malmesbury low flow scheme. It agrees with the need to improve security of supply from the Gloucester to Sharpness Canal.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- Some schemes proposed by the company for quality enhancements were not supported by the DWI, but these amendments have not had a material effect on the quality programme proposed by the company.
- Agrees the need for improving security of supply from the Gloucester to Sharpness Canal.
- Trend in serviceability to customers is stable and there is no need to increase capital maintenance activity.
- Price limits assume that 10% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Assumed cost reductions by 2004–05: opex 17%; capital maintenance 8%; capital enhancement 18%.
- Price limits include a positive adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	68
2 Total capital maintenance expenditure — annual average	22
3 Total capital enhancement expenditure — annual average	29

Director's assessment of the post-tax cost of capital needed by the company: 5.50%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	113
Less (1) passing on past efficiency savings and outperformance	–10
(2) assumptions on future efficiency improvements	–14
Plus (3) improvements in drinking water & environmental quality	9
(4) improvements in service performance	0
(5) maintaining the balance between supply & demand	2
Average household bill in 2004–05	100

CAMBRIDGE WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–14.3**	**0.0**	**–1.2**	**–0.4**	**–0.9**
Average annual household bill (water) (£)	97	85	85	84	84	83
Average annual household bill (sewerage) (£)	0	0	0	0	0	0
Average annual household bill (total) (£)	**97**	**85**	**85**	**84**	**84**	**83**
Typical measured bill (£)	91	77	77	76	75	74
Typical unmeasured bill (£)	117	106	108	109	111	111

Overall company strategy for the period

- Implement the water quality programme.
- Forecast increase in capital maintenance expenditure of 11%.
- Forecast 20% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Increase in average annual household bills of £3 to £103 by 2004–05.

NB: Figures may not reconcile to the above due to differences between Ofwat and company calculations of bills in 1999–2000.

CSC's view of the company strategy

The proposals to minimise the impact on customers' bills are welcomed, but the CSC had hoped to see an initial price reduction. No enhancements to service are considered necessary. The CSC welcomes the proposals to extend meter uptake.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- One scheme proposed by the company for quality enhancements was not supported by the DWI, but this amendment has not had a material effect on the quality programme proposed by the company.
- Trend in serviceability to customers is stable and there is no need to increase capital maintenance activity.
- Price limits assume that 15% of 1999–2000 unmeasured household customers will opt for a meter by March 2005. This increase since draft determination adds £1 to the average household bill and is shown in line 5 of the table below.
- Assumed cost reductions by 2004–05: opex 8%; capital maintenance 7%; capital enhancement 19%.
- Price limits include no adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	62
2 Total capital maintenance expenditure — annual average	15
3 Total capital enhancement expenditure — annual average	15

Director's assessment of the post-tax cost of capital needed by the company: 5.50%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	97
Less (1) passing on past efficiency savings and outperformance	–8
(2) assumptions on future efficiency improvements	–9
Plus (3) improvements in drinking water & environmental quality	2
(4) improvements in service performance	0
(5) maintaining the balance between supply & demand	1
Average household bill in 2004–05	83

CHOLDERTON & DISTRICT WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–8.0**	**–5.0**	**0.0**	**0.0**	**0.0**
Average annual household bill (water) (£)	139	128	121	121	121	121
Average annual household bill (sewerage) (£)	0	0	0	0	0	0
Average annual household bill (total) (£)	**139**	**128**	**121**	**121**	**121**	**121**
Typical measured bill (£)	n/a	n/a	n/a	n/a	n/a	n/a
Typical unmeasured bill (£)	n/a	n/a	n/a	n/a	n/a	n/a

Overall company strategy for the period

- Maintain and improve levels of service to customers, especially through completion of the Cholderton Reservoirs to Amesbury Road link to reduce the risk of low pressure problems.
- Maintain historical levels of maintenance expenditure on existing assets.

CSC's view of the company strategy

Customers will support the inclusion and delivery of the company's proposed outputs.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- Agrees the need to complete the Cholderton Reservoirs to Amesbury Road link to reduce the risk of low pressure problems.
- Serviceability to customers is stable and there is no need to increase capital maintenance activity.
- Price limits assume that 10% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Assumed cost reductions by 2004–05: opex 7%; capital maintenance 5%; capital enhancement 5%.
- Price limits ensure that a minimum cash balance for the company is maintained.
- Price limits include no adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	88
2 Total capital maintenance expenditure — annual average	29
3 Total capital enhancement expenditure — annual average	6

Director's assessment of the post-tax cost of capital needed by the company: n/a

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	n/a
Less (1) passing on past efficiency savings and outperformance	n/a
(2) assumptions on future efficiency improvements	n/a
Plus (3) improvements in drinking water & environmental quality	n/a
(4) improvements in service performance	n/a
(5) maintaining the balance between supply & demand	n/a
Average household bill in 2004–05	n/a

Note: As Cholderton & District Water is a very small company, not all of the information that has been provided in this chapter for other companies is readily available or appropriate. Where this is the case, entries are marked n/a.

DEE VALLEY WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–10.6**	**–2.6**	**–3.0**	**–3.0**	**0.0**
Average annual household bill (water) (£)	120	107	104	100	96	96
Average annual household bill (sewerage) (£)	0	0	0	0	0	0
Average annual household bill (total) (£)	**120**	**107**	**104**	**100**	**96**	**96**
Typical measured bill (£)	86	78	77	75	73	74
Typical unmeasured bill (£)	135	121	118	114	110	110

Overall company strategy for the period

- Implement water quality programme by accelerating mains rehabilitation.
- Improve levels of service, with provision in price limits to reduce low pressure problems and start a long-term strategy to reduce supply interruption problems.
- Broadly maintain level of capital maintenance expenditure.
- Forecast 24% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Reduction in average annual household bills of £12 to £108 by 2004–05.

CSC's view of the company strategy

The CSC believes that customers wish to see modest continuing reductions in bills. The CSC is content that the overall company strategy and investment proposals are in line with customer priorities, but feels that customers should not have to pay for improvements beyond statutory obligations.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- No amendments were made to the extent of the company's proposals for the quality enhancement programme.
- Provision for reduction in low pressure problems by 2004–05.
- Serviceability to customers is stable and there is no need to increase capital maintenance activity.
- Price limits assume that 10% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Assumed cost reductions by 2004–05: opex 8%; capital maintenance 10%; capital enhancement 12%.
- Price limits include no adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	60
2 Total capital maintenance expenditure — annual average	30
3 Total capital enhancement expenditure — annual average	16

Director's assessment of the post-tax cost of capital needed by the company: 5.50%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	120
Less (1) passing on past efficiency savings and outperformance	–20
(2) assumptions on future efficiency improvements	–7
Plus (3) the impact of improvements in water quality	3
(4) improvements in service performance	<1
(5) maintaining the balance between supply & demand	<1
Average household bill in 2004–05	96

ESSEX & SUFFOLK WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–13.8**	**0.0**	**0.0**	**0.0**	**0.0**
Average annual household bill (water) (£)	128	110	110	109	109	108
Average annual household bill (sewerage) (£)	0	0	0	0	0	0
Average annual household bill (total) (£)	**128**	**110**	**110**	**109**	**109**	**108**
Typical measured bill (£)	106	90	90	89	89	88
Typical unmeasured bill (£)	140	121	122	122	123	123

Overall company strategy for the period

- Deliver the water quality programme within a framework of an initial price reduction and stable prices thereafter.
- Improve security of supply, including active demand management and development of incremental resource schemes to reduce hosepipe ban frequency.
- Forecast increase in capital maintenance expenditure of 23%.
- Maintain service levels where levels meet customer expectations, and improve those where service provided is below expectations, within the price limits offered.
- Forecast 25% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Decrease in average annual household bills of £6 to £122 by 2004–05.

CSC's view of the company strategy

The CSC broadly welcomes the company's proposals to reduce bills in 2000–01 and maintain prices at that level, in real terms, in the following four years. However, the CSC believes that the initial bill reduction should be greater than proposed, even if this means greater increases thereafter. The committee welcomes the planned extension of metering.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- No significant amendments were made to the extent of the company's proposals for the quality enhancement programme.
- Allowance for improved security of supply.
- Trend in serviceability is stable and there is no need to increase capital maintenance activity.
- Price limits assume that 15% of 1999–2000 unmeasured household customers will opt for a meter by March 2005. This increase since the draft determination adds £1 to the average household bill and is included in line 5 of the table below.
- Assumed cost reductions by 2004–05: opex 11%; capital maintenance 9%; capital enhancement 18%.
- Price limits include no adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	77
2 Total capital maintenance expenditure — annual average	22
3 Total capital enhancement expenditure — annual average	23

Director's assessment of the post-tax cost of capital needed by the company: 5.15%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	128
Less (1) passing on past efficiency savings and outperformance	–12
(2) assumptions on future efficiency improvements	–16
Plus (3) improvements in drinking water & environmental quality	4
(4) improvements in service performance	0
(5) maintaining the balance between supply & demand	4
Average household bill in 2004–05	108

FOLKESTONE & DOVER WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**0.0**	**1.0**	**3.0**	**3.0**	**3.2**
Average annual household bill (water) (£)	117	117	117	120	123	126
Average annual household bill (sewerage) (£)	0	0	0	0	0	0
Average annual household bill (total) (£)	**117**	**117**	**117**	**120**	**123**	**126**
Typical measured bill (£)	96	96	97	100	102	104
Typical unmeasured bill (£)	133	134	135	140	145	151

Overall company strategy for the period

- Implement the water quality programme, including alleviation of low flow rivers.
- Improve security of supply and reduce frequency of hosepipe restrictions to one in ten years.
- Forecast 22% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Forecast increase in capital maintenance expenditure of 9%.
- Real increase in average annual household bills of £48 to £167 in 2004–05.

CSC's view of the company strategy

The CSC was concerned that the price rises proposed would result in the southern region's highest charges. The CSC supports the company's focus on essential improvements to minimise the impact on customers' bills, but would prefer to see more phasing of the quality programme to reduce the impact further. The CSC believes that customers would welcome the company's proposals to ensure high water quality and reducing the likelihood of supply restrictions.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- £1 million of the amended company quality programme was not included because the Director is not satisfied that cost-effective solution has been proposed.
- Agrees the need for improving security of supply.
- Trend in serviceability to customers is stable and there is no need to increase capital maintenance activity.
- Price limits assume that 10% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Assumed cost reductions by 2004–05: opex 20%; capital maintenance 10%; capital enhancement 15%.
- Price limits include no adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	89
2 Total capital maintenance expenditure — annual average	22
3 Total capital enhancement expenditure — annual average	58

Director's assessment of the post-tax cost of capital needed by the company: 5.50%

Director's assessment of what is driving the changes in bills		£
Average household bill in 1999–2000		117
Less	(1) passing on past efficiency savings and outperformance	–7
	(2) assumptions on future efficiency improvements	–10
Plus	(3) improvements in drinking water & environmental quality	15
	(4) improvements in service performance	0
	(5) maintaining the balance between supply & demand	11
Average household bill in 2004–05		126

MID KENT WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–19.7**	**0.0**	**0.0**	**0.0**	**1.6**
Average annual household bill (water) (£)	147	117	117	116	116	117
Average annual household bill (sewerage) (£)	0	0	0	0	0	0
Average annual household bill (total) (£)	**147**	**117**	**117**	**116**	**116**	**117**
Typical measured bill (£)	140	115	117	119	119	120
Typical unmeasured bill (£)	156	125	125	125	126	130

Overall company strategy for the period

- Implement the water quality programme.
- Maintain and improve levels of service to customers, especially reducing low pressure problems.
- Forecast average increase in capital maintenance expenditure of 62%.
- Forecast 27% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Real increase in average annual household bills of £19 to £166 by 2004–05.

CSC's view of the company strategy

The company's overall strategy reflects customers' priorities, but the proposed price increases would not be in line with customers' wishes. The CSC recognises that the water quality programme would place upward pressure on bills but does not support the company's bid to increase prices for the provision of customer service standards already offered by other companies in the region.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- No amendments were made to the extent of the company's proposals for the quality enhancement programme.
- Trend in serviceability to customers is stable and there is no need to increase capital maintenance activity.
- Price limits assume that 15% of 1999–2000 unmeasured household customers will opt for a meter by March 2005. This increase since draft determination adds £2 to the average household bill and is shown in line 5 of the table below.
- Assumed cost reductions by 2004–05: opex 20%; capital maintenance 10%; capital enhancement 17%.
- Price limits include a negative adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	68
2 Total capital maintenance expenditure — annual average	30
3 Total capital enhancement expenditure — annual average	43

Director's assessment of the post-tax cost of capital needed by the company: 5.50%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	147
Less (1) passing on past efficiency savings and outperformance	–27
(2) assumptions on future efficiency improvements	–14
Plus (3) improvements in drinking water & environmental quality	8
(4) improvements in service performance	0
(5) maintaining the balance between supply & demand	3
Average household bill in 2004–2005	117

NORTH SURREY WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–15.0**	**0.0**	**0.0**	**2.0**	**2.2**
Average annual household bill (water) (£)	125	106	105	104	105	107
Average annual household bill (sewerage) (£)	0	0	0	0	0	0
Average annual household bill (total) (£)	**125**	**106**	**105**	**104**	**105**	**107**
Typical measured bill (£)	121	106	106	105	107	109
Typical unmeasured bill (£)	125	108	108	109	112	116

Overall company strategy for the period

- Implement the water quality programme.
- Improve security of supply against risk of pollution incident in the River Thames.
- Improve security of supply in rural areas under high demand conditions.
- Forecast increase in capital maintenance expenditure of 31%.
- Forecast 19% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Increase in average annual household bill of £3 to £129 by 2004–05.

CSC's view of the company strategy

The CSC considers that the company's plan broadly reflects customers' priorities, but advises that customers will need to be satisfied that risks to security of supply justify the expenditure proposed in the company's business plan. The CSC is disappointed that the company is not proposing an overall reduction in bills by 2004–05.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- No significant amendments were made to the extent of company proposals for the quality enhancement programme.
- Agrees that allowance should be made for the full licenced abstractions to be utilised at Chertsey Gravel Wells.
- Trend in serviceability to customers is stable and there is no need to increase capital maintenance activity.
- Price limits assume that 15% of 1999–2000 unmeasured household customers will opt for a meter by March 2005. This increase since draft determination adds £2 to the average household bill and is shown in line 5 of the table below.
- Assumed cost reductions by 2004–05: opex 8%; capital maintenance 8%; capital enhancement 17%.
- Price limits include a positive adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	76
2 Total capital maintenance expenditure — annual average	17
3 Total capital enhancement expenditure — annual average	24

Director's assessment of the post-tax cost of capital needed by the company: 5.50%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	125
Less (1) passing on past efficiency savings and outperformance	–16
(2) assumptions on future efficiency improvements	–13
Plus (3) improvements in drinking water & environmental quality	9
(4) improvements in service performance	0
(5) maintaining the balance between supply & demand	2
Average household bill in 2004–2005	107

PORTSMOUTH WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–3.0**	**–1.2**	**–1.3**	**–0.5**	**–1.0**
Average annual household bill (water) (£)	81	78	77	76	75	74
Average annual household bill (sewerage) (£)	0	0	0	0	0	0
Average annual household bill (total) (£)	**81**	**78**	**77**	**76**	**75**	**74**
Typical measured bill (£)	83	81	81	80	80	80
Typical unmeasured bill (£)	80	77	76	75	75	74

Overall company strategy for the period

- Implement water quality programme.
- Investment to maintain security of supply to customers.
- Forecast 16% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Maintain serviceability to customers, with a decrease in expenditure of 25%.
- Real increase in average annual household bills of £19 to £96 by 2004–05.

NB: Figures may not reconcile to the above due to differences between Ofwat and company calculations of bills in 1999–2000.

CSC's view of the company strategy

The CSC is astonished at the company's proposals for price increases, which it believes are contrary to customers' wishes. Given the company's assertion that it does not have a supply/demand imbalance, the CSC was surprised that the company requested additional funding to secure supplies. The CSC believes that improvements to customer service should be funded through efficiencies or by the company's shareholders in recognition of past poor performance.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- £4 million of the company quality programme was not included because it was not supported by the DWI or EA.
- No need for allowance in price limits to improve security of supply.
- Trend in serviceability to customers is stable and there is no need to increase capital maintenance activity.
- Price limits assume that 5% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Assumed cost reductions by 2004–05: opex 7%; capital maintenance 3%; capital enhancement 19%.
- Price limits include no adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	49
2 Total capital maintenance expenditure — annual average	18
3 Total capital enhancement expenditure — annual average	15

Director's assessment of the post-tax cost of capital needed by the company: 5.50%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	81
Less (1) passing on past efficiency savings and outperformance	–7
(2) assumptions on future efficiency improvements	–4
Plus (3) improvements in drinking water & environmental quality	4
(4) improvements in service performance	0
(5) maintaining the balance between supply & demand	<1
Average household bill in 2004–2005	74

SOUTH EAST WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–16.1**	**–1.0**	**–1.5**	**0.0**	**0.0**
Average annual household bill (water) (£)	138	116	113	110	109	108
Average annual household bill (sewerage) (£)	0	0	0	0	0	0
Average annual household bill (total) (£)	**138**	**116**	**113**	**110**	**109**	**108**
Typical measured bill (£)	139	117	116	114	113	113
Typical unmeasured bill (£)	147	125	124	122	123	123

Overall company strategy for the period

- Implement the water quality programme.
- Major investment to improve the security of water supplies.
- Forecast 5% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Broadly maintain historical levels of maintenance expenditure on existing assets.
- Real fall in annual average household bills of £8 to £132 by 2004–05.

NB: Figures may not reconcile to the above due to differences between Ofwat and company calculations of bills in 1999–2000.

CSC's view of the company strategy

Any price increase would be contrary to customers' views. The quality programme should be phased to reduce the impact on bills. Customers in the locality support expenditure on the River Wye. As this is already a high-cost company, the CSC is concerned about the cost of high street shops as there has been no assessment of value for money.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- £90 million of the company quality programme was not included because it was either not supported by the DWI or EA or the Director is not satisfied that cost-effective solutions have been proposed.
- Agrees need to improve the security of water supplies as part of strategy for resources in the South East.
- The company's meter switching forecasts are accepted.
- Trend in serviceability is stable and there is no need to increase capital maintenance activity.
- Assumed cost reductions by 2004–05: opex 22%; capital maintenance 6%; capital enhancement 18%.
- Price limits do not include an adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	70
2 Total capital maintenance expenditure — annual average	26
3 Total capital enhancement expenditure — annual average	34

Director's assessment of the post-tax cost of capital needed by the company: 5.15%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	138
Less (1) passing on past efficiency savings and outperformance	–15
(2) assumptions on future efficiency improvements	–22
Plus (3) improvements in drinking water & environmental quality	6
(4) improvements in service performance	0
(5) maintaining the balance between supply & demand	1
Average household bill in 2004–2005	108

SOUTH STAFFORDSHIRE WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–2.7**	**–1.0**	**–1.0**	**–1.0**	**–1.0**
Average annual household bill (water) (£)	88	84	84	83	83	82
Average annual household bill (sewerage) (£)	0	0	0	0	0	0
Average annual household bill (total) (£)	**88**	**84**	**84**	**83**	**83**	**82**
Typical measured bill (£)	82	80	81	80	78	78
Typical unmeasured bill (£)	91	89	89	90	91	92

Overall company strategy for the period

- Implement water quality programme.
- Address problems of increasing peak demand by demand management and expansion of treatment capacity.
- Maintain existing levels of customer service.
- Forecast 28% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Reduce expenditure on asset maintenance by 20%, but maintain serviceability to customers.
- Increase in average annual household bills of £19 to £107 by 2004–05.

CSC's view of the company strategy

The CSC considers the company's proposed price limits to be unacceptable and not justified by the new obligations placed on the company. The CSC believes that customers want to see prices kept down. It considers that the metering programme should be implemented at lower costs than those assumed by the company.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- Minor amendments were made to the company quality programme to deal with company proposals not supported by the DWI.
- Trend in serviceability to customers is stable and there is no need to increase capital maintenance activity.
- Price limits assume that 10% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Assumed cost reductions by 2004–05: opex 14%; capital maintenance 9%; capital enhancement 22%.
- Price limits include no adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	63
2 Total capital maintenance expenditure — annual average	19
3 Total capital enhancement expenditure — annual average	21

Director's assessment of the post-tax cost of capital needed by the company: 5.50%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	88
Less (1) passing on past efficiency savings and outperformance	–2
(2) assumptions on future efficiency improvements	–9
Plus (3) improvements in drinking water & environmental quality	4
(4) improvements in service performance	0
(5) maintaining the balance between supply & demand	1
Average household bill in 2004–2005	82

SUTTON & EAST SURREY WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–17.0**	**–5.0**	**–2.4**	**0.0**	**0.0**
Average annual household bill (water) (£)	133	111	103	99	98	96
Average annual household bill (sewerage) (£)	0	0	0	0	0	0
Average annual household bill (total) (£)	**133**	**111**	**103**	**99**	**98**	**96**
Typical measured bill (£)	117	94	87	83	82	80
Typical unmeasured bill (£)	140	118	111	107	106	105

Overall company strategy for the period

- Implement water quality programme (including improvements not given technical support by DWI).
- Maintain high levels of service to customers.
- Forecast increase in capital maintenance expenditure of 40%.
- Forecast 58% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Real increase in average annual household bills of £61 to £194 by 2004–05.

NB: Figures may not reconcile to the above due to differences between Ofwat and company calculations of bills in 1999–2000.

CSC's view of the company strategy

The CSC finds that the price increases proposed by the company lack credibility and realism. It is sceptical of the forecasts of the rate at which customers will take up the free meter option. Customers would support the reduction in the cryptosporidium risk, but lead, iron and chalk work should be rephased to minimise the impact on bills.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- £28 million of the company quality programme was not included either because it was not supported by the DWI or because it is not considered to be a new obligation.
- Serviceability to customers is stable and there is no need to increase capital maintenance activity.
- Price limits assume that 10% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Assumed cost reductions by 2004–05: opex 11%; capital maintenance 12%; capital enhancement 13%.
- Price limits include no adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	69
2 Total capital maintenance expenditure — annual average	28
3 Total capital enhancement expenditure — annual average	21

Director's assessment of the post-tax cost of capital needed by the company: 5.50%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	133
Less (1) passing on past efficiency savings and outperformance	–18
(2) assumptions on future efficiency improvements	–23
Plus (3) improvements in drinking water & environmental quality	3
(4) improvements in service performance	0
(5) maintaining the balance between supply & demand	1
Average household bill in 2004–05	96

TENDRING HUNDRED WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–6.9**	**1.0**	**2.0**	**2.0**	**2.0**
Average annual household bill (water) (£)	148	132	130	127	129	132
Average annual household bill (sewerage) (£)	0	0	0	0	0	0
Average annual household bill (total) (£)	**148**	**132**	**130**	**127**	**129**	**132**
Typical measured bill (£)	108	102	102	101	103	104
Typical unmeasured bill (£)	175	160	162	158	162	167

Overall company strategy for the period

- Earlier completion of quality programme for distribution mains.
- Maintain high levels of service to customers.
- Forecast around 36% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Forecast increase in capital maintenance expenditure of 64%, including work deferred from current period.
- Real increase in average annual household bills of £13 to £161 in 2004–05, following voluntary deferrals of price increases of £6 in the last two years.

CSC's view of the company strategy

The CSC is alarmed by the level of bills proposed by the company and the fact that the investment programme appears to be scheduled at the beginning of the period. It would prefer a smoother distribution of investment. The CSC is not convinced that the company's plan reflects customer priorities as customers had not chosen their priorities in the billing context now proposed by the company. Whilst the CSC supports the company's proposal to extend metering, it is concerned about the effect this could have on unmeasured bills.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- No significant amendments were made to the extent of company proposals for the quality enhancement programme.
- Trend in serviceability to customers is stable and there is no need to increase capital maintenance activity.
- Price limits assume that 10% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Assumed cost reductions by 2004–05: opex 17%; capital maintenance 7%; capital enhancement 17%.
- Price limits include a positive adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	68
2 Total capital maintenance expenditure — annual average	28
3 Total capital enhancement expenditure — annual average	18

Director's assessment of the post-tax cost of capital needed by the company: 5.50%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	148
Less (1) passing on past efficiency savings and outperformance	–8
(2) assumptions on future efficiency improvements	–12
Plus (3) improvements in drinking water & environmental quality	4
(4) improvements in service performance	0
(5) maintaining the balance between supply & demand	<1
Average household bill in 2004–05	132

THREE VALLEYS WATER

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–15.2**	**0.0**	**0.0**	**0.0**	**0.0**
Average annual household bill (water) (£)	125	106	105	104	103	103
Average annual household bill (sewerage) (£)	0	0	0	0	0	0
Average annual household bill (total) (£)	**125**	**106**	**105**	**104**	**103**	**103**
Typical measured bill (£)	108	91	92	93	93	94
Typical unmeasured bill (£)	136	116	116	116	116	116

Overall company strategy for the period

- Implement the water quality programme.
- Forecast increase in capital maintenance expenditure of 25% to prevent further decline in serviceability.
- Improvements to security of supply by increasing flexibility of existing resources and effective demand management.
- Maintain and improve customer service levels.
- Forecast 26% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Increase in average household bill of £5 to £130 by 2004–05.

CSC's view of the company strategy

The CSC feels that the price limits proposed by the company fail to reflect the desire on the part of customers for an initial price reduction followed by stable bills. The committee believes customers support work to reduce the cryptosporidium risk, but would prefer a more targeted approach to proposals for other improvements. The CSC believes the installation rate of free meters should be managed to avoid a disproportionate impact on unmeasured bills.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- £7 million of the company quality programme was not included because it was not supported by the DWI.
- Not satisfied that the company has demonstrated the need to secure improved security of supply by improving water treatment facilities.
- Price limits assume that 10% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Serviceability to customers is stable and there is no need to increase capital maintenance activity.
- Assumed cost reductions by 2004–05: opex 11%; capital maintenance 8%; capital enhancement 16%.
- Price limits include a negative adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	65
2 Total capital maintenance expenditure — annual average	22
3 Total capital enhancement expenditure — annual average	21

Director's assessment of the post-tax cost of capital needed by the company: 5.15%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	125
Less (1) passing on past efficiency savings and outperformance	–18
(2) assumptions on future efficiency improvements	–10
Plus (3) improvements in drinking water & environmental quality	5
(4) improvements in service performance	0
(5) maintaining the balance between supply & demand	1
Average household bill in 2004–05	103

YORK WATERWORKS

Price limits & expected effect on household bills	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Price limit (%)		**–9.0**	**–1.0**	**0.0**	**0.0**	**0.0**
Average annual household bill (water) (£)	96	86	85	85	84	84
Average annual household bill (sewerage) (£)	0	0	0	0	0	0
Average annual household bill (total) (£)	**96**	**86**	**85**	**85**	**84**	**84**
Typical measured bill (£)	103	95	96	98	99	100
Typical unmeasured bill (£)	100	91	90	90	90	90

Overall company strategy for the period

- Implement the water quality programme.
- Maintain levels of service among the best in the country.
- Forecast increase in capital maintenance expenditure of 31% to include increase in mains renewal rate from current 0.3% to 0.5% per annum.
- Forecast 22% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Increase in average bills of £6 to £102 by 2004–05.

CSC's view of the company strategy

The CSC wants stable prices, opposes real price increases and regrets the absence of a reduction in 2000–01. It is concerned about proposed expenditure of £6.7 million on pesticides and wants the Director to consider alternatives. It questions the need to accelerate the requirements of the lead standard. It thinks the company's assumptions on the potential demand for free meters are unrealistic and believes more should be done to facilitate effective management of the policy. The proposed cost of capital is too high and is unreasonable to customers.

Director's judgements on company functions to be allowed in price limits & other relevant factors

- Broadly accept the company's quality programme.
- Serviceability to customers is satisfactory and there is no need to increase capital maintenance activity.
- Price limits assume that 5% of 1999–2000 unmeasured household customers will opt for a meter by March 2005.
- Assumed cost reductions by 2004–05: opex 11%; capital maintenance 7%; capital enhancement 12%.
- Price limits include no adjustment for past overall service performance.

Director's assessment of expenditure needs underlying the determination	2000–01 to 2004–05 (£/property/annum)
1 Total operating expenditure — annual average	56
2 Total capital maintenance expenditure — annual average	15
3 Total capital enhancement expenditure — annual average	20

Director's assessment of the post-tax cost of capital needed by the company: 5.50%

Director's assessment of what is driving the changes in bills	£
Average household bill in 1999–2000	96
Less (1) passing on past efficiency savings and outperformance	–8
(2) assumptions on future efficiency improvements	–9
Plus (3) improvements in drinking water & environmental quality	5
(4) improvements in service performance	0
(5) maintaining the balance between supply & demand	<1
Average household bill in 2004–05	84

SECTION II

4. CUSTOMERS' PRIORITIES AND THE OUTPUTS TO BE DELIVERED

While taking account of the views of all stakeholders, the Director has a particular duty to ensure that the interests of customers are protected. Their views on the level and profile of bills and their priorities for improvements to services are, therefore, especially important.

This chapter sets out the Director's conclusions on customers' priorities in respect of:

- the balance between bills and local preferences for improved services;
- CSCs' views of companies' Business Plans;
- the size and pace of the drinking water quality and environmental improvement programmes.

It also summarises the outputs which companies will be expected to deliver by 2005.

4.1 Customers' priorities

Considerable work, mainly through customer surveys, has been done by the companies, by national bodies, and by Ofwat, including the CSCs and ONCC, to understand customers' priorities and preferences relating to the Periodic Review. Much of the work was undertaken in 1998 and the results summarised in *Prospects for Prices*. The conclusions drawn then remain valid.

4.1.1 Customer satisfaction

Generally satisfaction with the overall service has increased over recent years. Customers' main concerns are about security of essential supplies, leakage levels and high bills. The concern over high bills reflects lower levels of satisfaction with value for money. Despite improving levels of satisfaction, customers in almost every region register a need for continued improvements in some services.

4.1.2 Priorities for improvements

At a national level, reducing leakage and maintaining reliability of supply are uppermost in customers' minds, together with minimising sewer flooding. Customers, however, appear to give relatively low priority to reducing the frequency of hosepipe bans.

Customers emphasise the importance of maintaining and improving the quality of drinking water. This covers taste, discoloration and hardness issues, the replacement of lead pipes and reducing the risk from cryptosporidium.

Environmental issues, including river and bathing water quality and low flow rivers are important to customers, but their relative priority, against some other service improvements, varies.

Where surveys gave a choice about the pace of improvements, the aspirations of the majority of customers do not go as far as the full programme set out in Ministers' guidance to the Director in September 1998 and supplemented in March and November 1999. The message is support for steadily paced improvements, but no more.

4.1.3 The balance between bills and services

The critical, and difficult, question is whether customers are prepared to pay for their aspirations. Customers are consistent in not wanting bills to increase above inflation. They are, however, prepared to forego part of potential bill reductions arising from past or future efficiency savings in order to

secure improvements in services provided there are tangible benefits. There was less consistency in the precise balance between bill reductions and service improvements. The companies have concluded that customers would prefer a balance in favour of service improvements, whereas others, including the CSCs, take a different view.

Companies' research suggested that customers would rather see five years of stable prices than an initial reduction followed by increases to reflect the cost of improvements. Ofwat's research indicated that a majority of customers would prefer a profile incorporating an initial price reduction but also that this was not an issue on which customers have particularly strong views.

4.1.4 Low income customers

Some companies undertook specific research on lower income customers. ONCC also undertook a qualitative project to assess their views, and the CSCs have considered the wishes of these customers.

Companies' research indicated that the priorities of low income customers are similar to the rest of the customer base, and that willingness to pay is not markedly different. This does not, however, take affordability into account, and when the issues were considered in the context of household budgets and affordability, there is a stronger indication that lower bills would be preferred to service improvements.

4.1.5 Business customers

Generally, business customers have shown that their priorities lie in areas which would directly affect their businesses — interruptions to supply, pressure and water quality. They place more emphasis on the importance of customer contact and information than domestic customers do.

Although business customers are generally less willing to pay for improvements in areas which might be classed as being part of the water companies' basic services, they have shown some willingness to pay for environmental improvements.

4.2 CSCs' views on companies' Business Plans

The CSCs submitted reports to the Director in June 1999 commenting on how far they consider the strategies in companies' Business Plans reflect the customers' priorities in their regions. These are summarised in the individual company summaries set out in Chapter 3. The common themes are as follows.

- The level of bills proposed by companies is unacceptable and is inconsistent with clearly stated customer opposition to bills rising above inflation.
- It is disappointing that so few companies proposed an initial price cut.
- Although much of the quality programme reflects customers' priorities, there is considerable concern among CSCs about the speed of implementation of the programme and the consequent effects on bills. Generally, CSCs call for the timescale for improvements to be reconsidered, arguing that there is no evidence that customers want these quality enhancements at any cost.
- The information provided by the Government and the EA on the benefits of their proposed environmental programme is insufficient to allow customers to reach an informed view. Most CSCs express serious doubts that all of the improvements represent value for money.
- CSCs question the scale of the programme to deal with lead communication pipes since the benefits to customers are negligible unless customers also replace their sections of the pipework. They argue for a more targeted approach aimed at those customers who would benefit most.
- There is support for companies' proposals to reduce sewer flooding, reflecting a high customer priority. Many CSCs would like more to be done, but recognise the constraints imposed by the scale of the quality programme.

- There is little support for other service improvements.
- Installation of meters free of charge is supported but, because of concern about the effect on bills for unmeasured customers, CSCs urge the Director and companies to manage the new statutory entitlement in the best interests of all customers.

4.3 The outputs to be delivered by companies

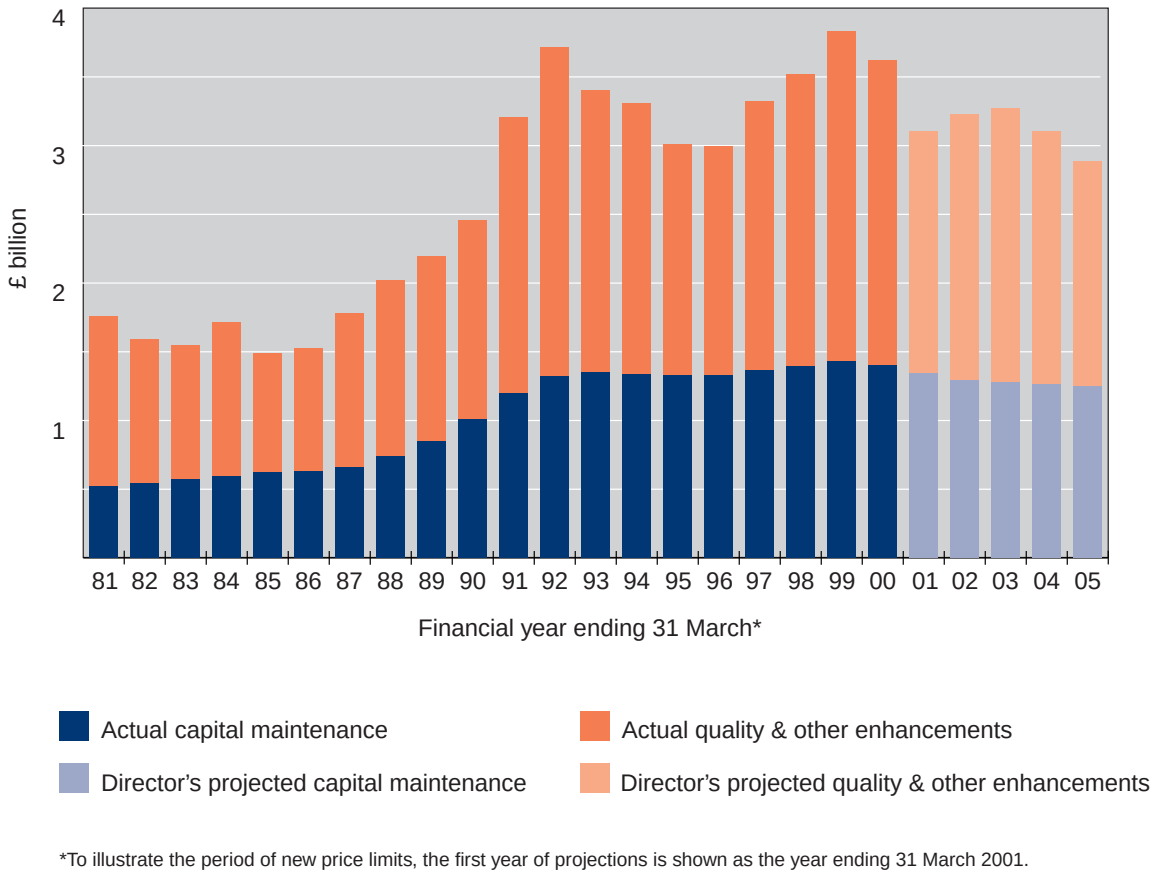
The required outputs from the companies during 2000–05 were first assessed by the Director in 1994. Since then the obligations have increased. This is particularly true for the drinking water quality and environmental improvement programmes.

The guidance received from Ministers in September 1998, March 1999 and November 1999 set out the extent of drinking water and environmental quality improvements. Companies will need to carry out a substantial programme of asset improvements to complete the programme started in 1994 and deliver these additional enhancements. The 2000–05 programme is more than twice as large as that anticipated in the 1994 determination and twice the size of that for the current five year period (measured in terms of the population benefiting from these programmes).

The continuing rise in the standards required to be delivered by companies since privatisation is mirrored in the level of capital expenditure. Figure 9 shows at an industry level the historical and projected capital expenditure for the water companies since 1981, analysed by capital maintenance expenditure and enhancement expenditure.

On 1 March 1999, the Environment Minister indicated eight improvement areas (see page 20). Six areas related to the sewerage service, one to the water service and one covered both services.

Figure 9: Actual and projected capital investment 1981–2005



*To illustrate the period of new price limits, the first year of projections is shown as the year ending 31 March 2001.

4.3.1 Water service improvement

The Minister highlighted the requirement for companies to meet the standards set out in the new EU Drinking Water Directive. Most of the improvements affecting the water service address these new standards, or are required to maintain compliance with current standards (due to matters outside the control of the companies such as significant deterioration of the quality of raw water), or are required to continue with the ongoing quality improvements to the water distribution system. These include:

- improvements at water treatment works to serve 15 million consumers to meet new standards in the revised EU Drinking Water Directive;
- modification to water treatment works providing water sufficient for 30 million consumers to reduce the risk from cryptosporidiosis;
- installation of treatment at water sources to supply 17 million consumers, to reduce the amount of lead dissolved from both company pipes and household plumbing;
- replacement of 1.25 million of the companies' lead communication pipes over the next five years — about one million to achieve compliance with tighter standards required by the EU Drinking Water Directive by 2013 and the remaining pipes to be replaced under the continuing maintenance programme;
- improvements at water treatment works serving 8 million consumers to overcome exceptional problems of deteriorating raw water quality;
- rehabilitation of a further 22,000km of water and distribution mains to reduce problems associated with discoloration due to iron, manganese and turbidity — in addition to work being carried out to maintain current levels of serviceability to consumers.

The Minister sought action to reduce the adverse environmental impact of water abstraction on Habitats Directive sites, other Sites of Special Scientific Interest (SSSIs), rivers suffering from low flows and also to protect wetlands. This will be dealt with by 81 projects, affecting a volume of water of 1,160Ml/day, sufficient to supply four million consumers.

4.3.2 Sewerage service improvement

The Minister set out the necessity for action across the whole of the sewerage service in order to limit the environmental impact of companies' operations, and to meet all EU Directives. These action plans are summarised below.

The Urban Waste Water Treatment Directive (UWWTD)

As well as continuing to implement the 1994 programme of improvements, companies are required to deliver improvements driven by changes in the interpretation of the UWWTD. The reappraisal of the status of some marine waters by DETR and the EA has required more secondary treatment of waste waters. This follows from a judicial review of the Humber and Severn estuary boundaries and the Government's withdrawal of HNDA (areas of higher natural dispersion) status from coastal waters. Ministers now require companies to provide a minimum of secondary treatment for all coastal discharges exceeding a population equivalent of 2,000.

Unsatisfactory sewer overflows

An action plan that commenced in 1994 to accelerate the programme of improvements to unsatisfactory intermittent discharges means that almost four times more improvements are planned for 2000–05 than were originally envisaged.

River Quality Objectives (RQOs)

Action is planned to improve half the river stretches which currently fail the non-statutory quality objectives set for them in 1989 such that they are brought into compliance by the end of 2005.

Habitats Directive sites and other SSSIs

Action is planned to protect 42 SSSIs from the effects of sewage effluent discharges, 20 of which are also EU Habitats Directive sites.

Bathing waters

Since 1994, there has been an increase of 11% in the number of bathing waters designated under the EU Bathing Water Directive, including nine inland sites. Ministers have approved the revision of the EA's bathing water policy which requires enhanced sewage treatment or revised outfall arrangements at some locations. This action plan should result in a significant increase in bathing water quality and compliance with guideline standards. This should enable more resorts to gain Blue Flag status (provided local authorities meet their requirements).

Disposal of sewage sludge

The use of untreated sewage sludge on farmland is being phased out by the end of 2001. Levels of treatment and disposal routes will have to accord with the revised Code of Practice for the agricultural use of sewage sludge.

Shellfish waters and eutrophication

Ministers have designated 76 new shellfish waters and extended the existing 17 designations made under the EU Shellfish Waters Directive. This requires companies to treat some discharges affecting these waters to a higher level.

On the basis of advice from the EA, Ministers have extended three of the existing 33 sensitive areas originally designated under the UWWTD in 1994, and have identified a further 47 sensitive areas. This requires nutrient removal at sewage treatment works impacting on these areas.

Other new obligations

The government has imposed a new duty on water and sewerage companies to provide first time sewerage to unsewered properties where the existing drainage arrangements give rise to environmental or amenity problems.

4.3.3 Improvements assumed in the price limits

All of these ministerial requirements and obligations will entail a major programme for the improvement of companies' assets. This comprises the following.

- The completion of improvements under the UWWTD at treatment works which treat the sewage produced by the equivalent of 19 million people.
- Improvements at sites discharging to estuarial and coastal waters with a population equivalent of 8 million in order to reduce the environmental impact of sewage effluents on the marine environment and to improve bathing water quality.
- To carry out enhancements to more than 1,700 works discharging to inland waters. This will deal with requirements to reduce nutrients in effluents, meet other terms of EU Directives and also improve the quality of river water to meet nationally set river water quality objectives.

- To make improvements to over 4,600 intermittent discharges from the sewerage system. This will reduce the risk of pollution from occasional discharges of sewage in wet weather and protect some bathing waters and shellfish harvesting areas.

- The improved treatment and disposal of over 1.3 million tonnes of dry sewage sludge annually by 2005. Levels of treatment and disposal routes will have to accord with the framework of statutory controls and the forthcoming revised Code of Practice for the agricultural use of sewage sludge.

The impact of these new obligations varies by region. The effect on individual companies depends on factors such as: the regional topography, land use, demography, the quality of the raw water available for drinking water supply and the nature of the receiving waters into which sewage effluents are discharged. The extent of the companies' programmes is also dependent on the size and performance of the companies' existing asset base. For example, soft upland waters tend to dissolve lead from the older pipework often found in large conurbations, and sewerage companies with long coastlines are installing, for the first time, secondary treatment for all significant coastal discharges.

4.4 Metering

The number of customers who pay measured charges for their water and sewerage services has increased significantly since 1994. Most companies have installed a greater number of meters, particularly for households, than forecast in 1994. In 1992–93, around 3% of households in England and Wales were charged on a measured basis. By 1997–98 this had risen sharply to about 11%, principally due to the general policy of metering new properties and companies introducing more attractive meter option schemes. By March 2000 about 18% of households are expected to be metered, as a result of wider availability of free meter options.

The price limits make allowance for two types of metering. The first is the metering of households as part of a company's plan for balancing supply and demand, where this is considered to be economic. The second is for optional metering.

The Water Industry Act 1999 removes the general ability of water companies to meter any existing households. Ministers are, however, consulting on exemptions set out in the proposed Regulations published in October 1999 that will allow companies to meter, for example, households with high non-essential consumption, such as sprinkler users[5]. These legislative changes have been anticipated by most companies in their Business Plans and the scale of metering programmes to improve the supply and demand balance is therefore lower than that projected at the time of *Prospects for Prices*. For this reason, price limits make allowance for companies to meter 118,000 such properties, representing approximately 0.5% of current unmeasured customers.

In respect of optional metering, the new Act entitles households to have a meter installed free of charge. The implications of this new legislation for price limits are discussed in sections 5.3.3 and 9.2.1.

4.5 Security of supply

Allowance has been made in price limits for a small number of companies to improve the current security of their supplies. The security of supplies to customers is, and will be, assessed against a number of levels of service criteria that quantify the risks to customers of different types of interruptions; for example, hosepipe bans once every ten years.

Some companies have been operating with resource deficits in recent years and, hence, customers of Essex & Suffolk Water and Folkestone & Dover Water for example, have been receiving an unacceptable level of service. This is reflected in the views of customers in these areas.

5 *The Water Industry Act 1999: Consultation on Regulations*, DETR, October 1999.

A number of other companies have identified a reduced level of reliable resources in particular supply zones following their review of the reliability of available resources in conjunction with the EA in 1997[6]. For example, Southern Water in its Sussex North zone, North West Water in its West Cumbria and Carlisle zones, and Thames Water in its London zone have demonstrated that such reductions mean that the actual service level offered to customers is below industry standards. In addition, the East Midlands zone in Severn Trent Water presently has a resource deficit.

In all of these cases, the price limits allow for investment to enable these companies to restore the levels of service to their customers. In these instances, the companies plan a mix of leakage control, bulk imports, demand management and small-scale resource developments to achieve this. In the period 2000–05, the performance of companies will be monitored to ensure that customers benefit from improvements in the security of their water supplies.

Some of the smaller companies who rely on single sources for their supplies are at particular risk from pollution incidents or unplanned emergencies. The price limits allow for expenditure by Bournemouth & West Hampshire Water, Bristol Water and North Surrey Water to enable them to secure alternative resources or to improve the robustness of their supply systems.

4.6 Levels of service

Service provided to customers has improved for both water and sewerage since 1990–91. Key improvements are that:

- interruptions to supply and problems of low pressure have fallen;
- the number of houses most at risk of flooding from sewers has halved since 1990 and actual incidents of sewer flooding have fallen by around 35% since 1992.

Customer care has improved substantially and companies are increasingly aware of customers' requirements.

Companies have also introduced a range of additional services. These have included: cheaper (or free) optional meters; longer opening hours for customer contact lines; free or subsidised supply pipe repair or replacement; improved customer information, such as newsletters or magazines; and improved access to flexible, low-cost payment methods.

Some of these improvements have been achieved through companies reinvesting efficiency savings achieved since 1994–95.

The Director has considered carefully the research into customers' views on the need for further improvements to services. He has concluded that allowance should be made in price limits for further reductions in the risk of sewer flooding for all companies. However, the scale of the other environmental obligations has limited the level of investment which can be allowed for in price limits. Nevertheless, significant progress will be possible where the problem is most acute (for example, Dŵr Cymru (Welsh), Severn Trent, North West and Yorkshire Water). The Director has also allowed in price limits for some continued improvement for the remaining companies.

An allowance has been made to reduce problems of low water pressure in two companies, Bournemouth & West Hampshire Water and Dee Valley Water. This should allow performance in these companies to meet the standard of service prevailing in the rest of the industry.

6 *Review of water company yields*, Environment Agency, March 1998.

4.7 Capital and operating expenditure included in the determinations

Projections of the investment allowed for in price limits to enable companies to deliver the outputs set out in this chapter are discussed in more detail in subsequent chapters. Table 7 sets out the total capital and operating expenditure allowed in price limits by type of investment.

Table 7: Projections of expenditure 2000-05

	Water £m	Sewerage £m	Total £m
Capital expenditure[1] (five year total)			
Base service:			
Infrastructure renewals expenditure	1,260	890	2,150
Non-infrastructure capital maintenance	2,130	2,130	4,260
Enhanced service levels	1	137	138
Supply/demand balance[2]	1,129	556	1,685
Quality enhancements	2,260	5,120	7,380
Total	**6,780**	**8,833**	**15,613**
£ per property per year	57	78	135
Operating expenditure (annual average)			
Base service	1,395	917	2,312
Enhanced service levels	0	0	0
Supply/demand balance	23	24	47
Quality enhancements[3]	33	156	189
Total	**1,451**	**1,097**	**2,548**
£ per property per year	61	48	109

1 Capital expenditure is gross of grants and contributions for new development.

2 Only £315 million of this impacts on the price limits. The remaining expenditure is broadly self-financing (see section 9.2).

3 The rebasing of the starting position for quality operating expenditure since the draft determination has contributed to the higher annual average totals when compared with the draft determinations (see section 6.7.2).

Table 8 sets out for each company, the annual average capital expenditure allowed in its price limits, in absolute terms and on a £ per property basis.

Table 8: Capital expenditure[1] by company

	Annual average capital expenditure 2000-05	
	£m	£/property
Water and sewerage companies		
Anglian	280	126
Dŵr Cymru	222	167
North West	603	194
Northumbrian	146	125
Severn Trent	391	112
South West	145	213
Southern	217	140
Thames	435	99
Wessex	153	182
Yorkshire	291	139
WaSC total	**2,883**	**138**
Water only companies		
Bournemouth & W Hampshire	10	52
Bristol	25	52
Cambridge	4	31
Dee Valley	5	46
Essex & Suffolk	34	45
Folkestone & Dover	6	80
Mid Kent	17	73
North Surrey	8	40
Portsmouth	10	33
South East	36	60
South Staffordshire	22	40
Sutton & E Surrey	13	49
Tendring Hundred	3	46
Three Valleys	44	43
York	3	34
WoC total	**240**	**47**
Industry total	**3,123**	**135**

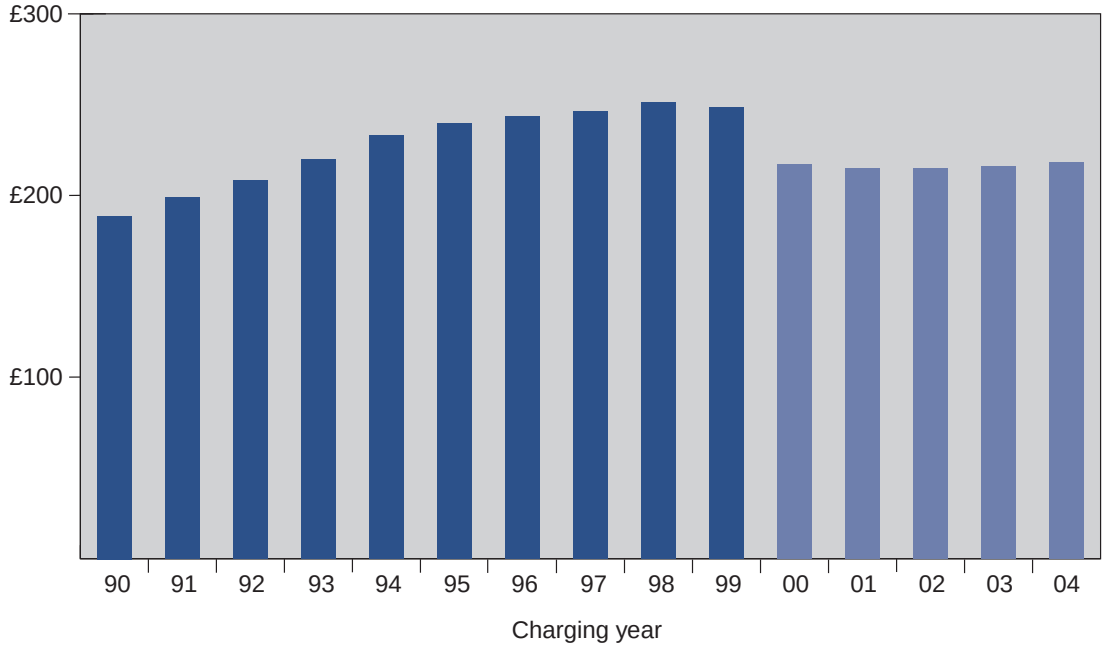
1 Capital expenditure is gross of grants and contributions for new development.

5. THE PROFILE OF PRICES AND BILLS

5.1 Overall position

Since 1990, customers have experienced continuous increases in their combined water and sewerage bills (as shown in Figure 10). The water industry was suffering from under-investment and, in addition, the companies have been required to undertake extensive programmes of work to meet higher standards of water quality and sewage treatment. This has driven bills up, sharply in the first half of the 1990s and more gradually since the 1994 price review.

Figure 10: Actual and projected average household bills 1990–2004



At the industry level, average household bills have increased by almost 40% in real terms since privatisation but the picture varies across the country. For South West Water, customers have seen their combined water and sewerage bills increase in real terms by 60%, on average, whereas customers of Anglian Water and Yorkshire Water have seen increases of about 27%.

In recent years, the water companies have reduced their costs markedly, as a result of increased efficiency, and seen their cost of capital fall. As set out in Chapter 4, customers have indicated that they wish bills to fall where significant savings are possible. Ministers have indicated that they would like to see prices fall in a way which thereafter preserves stability.

The determinations imply a significant cut in real prices for customers in 2000–01 and customers will see a reduction in their bills of, on average, 13%. This reduction will pass on to customers the benefits of past efficiency gains and a lower cost of capital. At the industry level, this reduction would be broadly sustained for the five year period but, for a few companies, average household bills would need to rise annually by up to 4% in the later years because of the large capital investment programme required to improve quality standards, as described in Chapter 4.

These subsequent price increases can be kept to a minimum if companies continue to increase efficiency and pass to customers over the period 2001–05 those efficiencies made by the companies in 1995–2000 which would not be transferred to customers in the initial price reduction. By 2004–05 bills will be, on average, around 12% lower, in real terms, than in 1999–2000.

In *Prospects for Prices*, it was argued that past efficiencies should be transferred rapidly to customers, by setting prices that ensured that companies earned no more than their cost of capital. This would have resulted in a 'V' shaped profile, as bills rose subsequently to finance the quality programme.

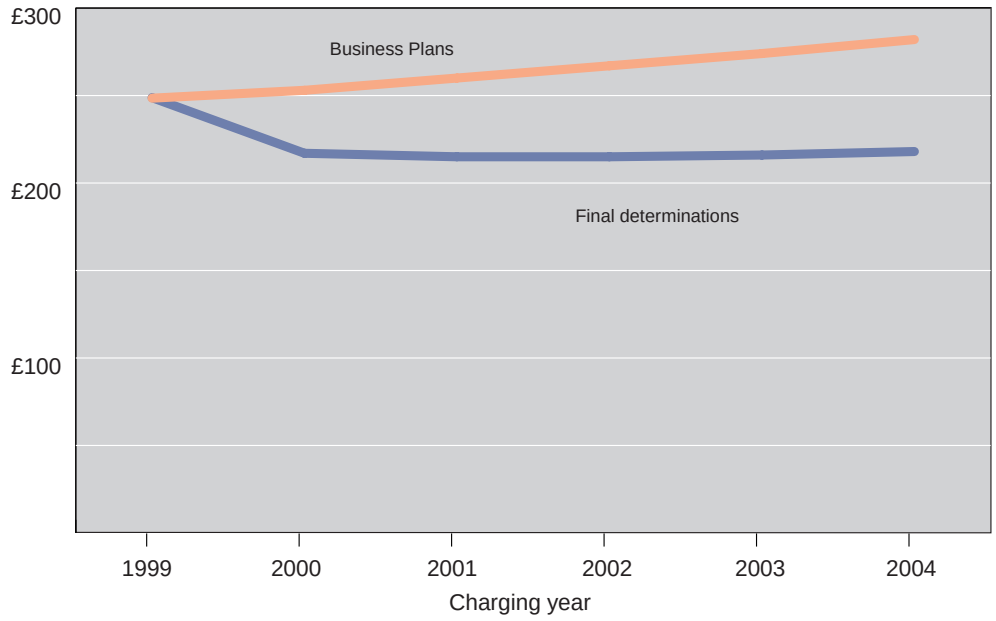
Since then, the Director has strengthened incentives to companies to outperform efficiency assumptions by allowing them to retain their operating and capital expenditure gains for a full five years. He has also further examined ways in which the improvement programmes can be delivered cost effectively and efficiently without raising prices but also, as far as possible, without creating financing problems for companies.

In these determinations, the initial reductions in the projected average household bills in 2000–01 are smaller than in *Prospects for Prices* but are sustained for the first two years for most companies (followed by small rises in the last two years) and over the whole five-year period for some. However, for North West Water and Wessex Water, the price rises in the last two years are more marked because of the water quality and environment programme required by Ministers. By 2004–05, bills would be lower than those anticipated in *Prospects for Prices* for all companies except Folkestone & Dover Water.

The price limits are substantially lower than those proposed by the companies in their Business Plans, which were submitted in April of this year. At a national level the companies, despite acknowledging that significant past efficiencies have been achieved, argued that they needed to increase price limits by, on average, over 3% in 2000–01 followed by larger annual increases in price limits over the four year period to 2004–05. On their proposals, bills would be 14% higher in 2004–05 than in 1999–2000.

Figure 11 compares the projected average household bills proposed by companies in their Business Plans with those implied by the price limits. The comparison at 2004–05 for individual companies is included in Chapter 3.

Figure 11: Comparison of average household bills in the final determinations and the Business Plans



5.2 The initial reduction in bills in 2000–01

The current incentive framework has delivered substantially greater cost savings than were expected at the 1994 price review.

There are, however, variations in the initial price reduction between companies, although most customers will see reductions of over 10%. For a small number of companies (North West, Bournemouth & West Hampshire, Portsmouth, South Staffordshire, and York Waterworks), the initial reduction in average household bills is smaller than this. For Folkestone & Dover, there is no initial reduction in the average household bill because of the particular needs and requirements of this company.

Other than the degree of outperformance achieved against cost assumptions, there are several factors influencing the size of the initial reductions.

- Eight of the water and sewerage companies and nine of the water only companies have already voluntarily reflected efficiency savings in the level of bills up to 1999–2000, either by not taking up their allowed price limits in full during 1995–2000 or by giving cash rebates to customers.

- Companies that have provided a significantly better service to customers than the industry average (measured across a broad range of services) have been given a positive initial adjustment to their first year price limit (as set out in section 6.8).

- Companies that made efficiency savings early in the quinquennium will pass all of these on to customers in 2000–01 and will have higher than average initial price reductions. For other companies, the initial price reduction will be lower but all operating cost outperformance up to and including 1998–99 will be passed to customers by 2003–04 at the latest.

- Upward pressure on bills in 2000–01 due to the effect of the quality enhancement programme in the first year and, in some cases, to falling revenue caused by metering programmes has also affected the size of the initial price reduction. One company, Northumbrian Water, had its price limits increased in 1999–2000 through an interim determination in order to allow for additional environmental quality obligations.

5.3 The links between price limits and bills

5.3.1 Price limits and household bills

The reduction in average household bills (Figure 10) is likely to be greater than that suggested by the price limits for the period 2000 to 2005. The price limits reflect the increase in charges necessary to make up for the loss of revenue when household customers switch to a meter. This loss of revenue occurs as a result of these customers using less than the average amount of water. Such customers switch to a meter because they save money as a result of using less water or because their rateable value is higher than average or both.

5.3.2 Changes in household bills and charges

Household customers who remain on unmeasured charges or measured charges throughout the next price limit period may well see their bills change by different amounts to the price limits. This will reflect rebalancing within the overall average change in tariffs allowed within the annual price limits. This rebalancing is principally as a result of two elements.

First, as described in section 5.3.1, customers who switch to a meter do so because they believe that they will benefit from lower bills (because they have lower than average consumption or a higher than average rateable value). When such customers switch, the average consumption of water per

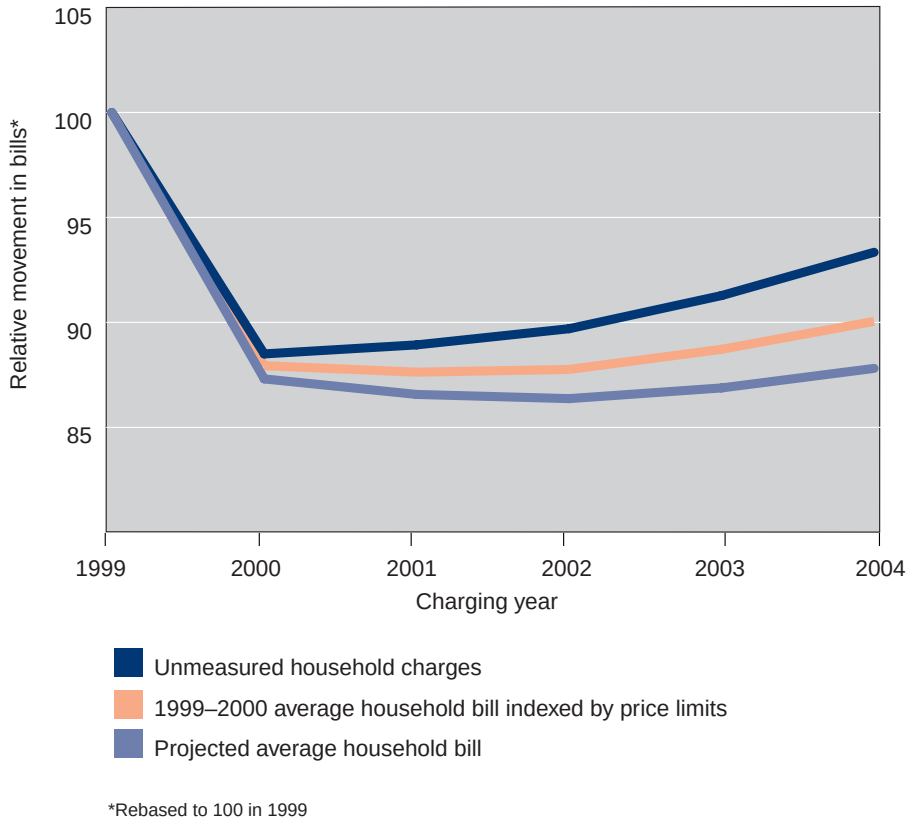
unmeasured household may rise and the average rateable value per unmeasured household may fall. In order to maintain a fair balance between measured and unmeasured charges, unmeasured charges need to increase vis-à-vis measured charges. A fair balance is maintained by applying the measured/unmeasured tariff differential[7], which is calculated by applying a company's measured charges to the average amount of water delivered to an unmeasured household. The resulting measured bill is compared with the average unmeasured household bill (for that company). The calculated differential should be no greater than the extra costs of providing a metered supply. As a result of this, customers who stay on an unmeasured supply may find that their bills are higher than suggested by the price limits, because of increases in unmeasured charges.

Secondly, companies are able to recoup some of the lost revenue resulting from the metering of higher than average rateable value properties by raising charges to the remaining unmeasured customers (as is usually the case) or by raising charges generally. This is because of the way in which the (unmeasured) tariff basket arithmetic works.

These effects are described in greater detail in *Tariff rebalancing and the tariff basket: a consultation paper*[8].

Figure 12 sets out projections at an industry level in average household bills and charges relative to the price limits.

Figure 12: Comparison of unmeasured and average household bills



7 See *1999–2000 Report on tariff structure and charges*, Ofwat, May 1999, for further explanation.

8 *Tariff rebalancing and the tariff basket: a consultation paper,* Ofwat, May 1997.

The Water Industry Act 1999 gives the Director powers to approve company charges schemes. Since the draft determinations, the Director has published (in MD152[9]) his conclusions on the criteria for the approval of companies' annual charges schemes. The Director will also ensure that companies implement Regulations enacted under the Act (eg to protect vulnerable customers). The effect on individual bills will depend on many factors, particularly as a result of making charges more cost-reflective. Customers should not all expect to see the same reduction in their bills next April. Once the Director has approved the schemes, the companies are expected to clearly explain to their customers how their own bills will be affected.

The projected average household bill at 2004–05 is about 2.5% less than a simple projection of the 1999–2000 bill using the cumulative price limits to 2004–05. Unmeasured charges, by comparison, are projected to see a cumulative increase of about 4% more than the cumulative price limits.

Table 9 illustrates the relative movements in the charges for unmeasured and measured households. This shows that unmeasured households who remain on unmeasured charges will see smaller reductions in their bills because of the rebalancing described above. Existing measured households, however, can expect percentage reductions in their charges by 2004–05 that are broadly in line with the overall price limit. The percentage change in bills for such customers will, of course, also depend on any changes to water usage.

9 *MD152 Approval of companies' charges schemes in 2000–01*, Ofwat, September 1999.

Table 9: Changes in measured and unmeasured household bills

	Household bills (£)					
	1999-00		2004-05		% change	
	Measured	Unmeasured	Measured	Unmeasured	Measured	Unmeasured
Water and sewerage companies						
Anglian	218	346	206	339	–6	–2
Dŵr Cymru	173	324	160	293	–8	–10
North West	235	259	226	271	–4	5
Northumbrian	226	253	187	202	–17	–20
Severn Trent	239	244	203	217	–15	–11
South West	248	407	228	391	–8	–4
Southern	251	294	214	266	–15	–10
Thames	206	222	180	203	–13	–9
Wessex	220	305	204	314	–7	3
Yorkshire	220	262	193	243	–12	–7
WaSC average (weighted)	**222**	**267**	**201**	**251**	**–9**	**–6**
Water only companies						
Bournemouth & W Hampshire	96	109	94	107	–2	–2
Bristol	90	122	88	112	–2	–8
Cambridge	91	117	74	111	–19	–5
Dee Valley	86	135	74	110	–14	–19
Essex & Suffolk	106	140	88	123	–17	–12
Folkestone & Dover	96	133	104	151	8	14
Mid Kent	140	156	120	130	–14	–17
North Surrey	121	125	109	116	–10	–7
Portsmouth	83	80	80	74	–4	–8
South East	139	147	113	123	–19	–16
South Staffordshire	82	91	78	92	–5	1
Sutton & E Surrey	117	140	80	105	–32	–25
Tendring Hundred	108	175	104	167	–4	–5
Three Valleys	108	136	94	116	–13	–15
York	103	100	100	90	–3	–10
WoC average (weighted)	**109**	**127**	**94**	**112**	**–14**	**–12**
Industry average (weighted)	**224**	**268**	**201**	**250**	**–10**	**–7**

The household bills in this table (for both services for water and sewerage companies) are calculated using the projected charges for measured and unmeasured households and assume a constant average water billed to measured households and constant average rateable value for unmeasured households. The percentage change columns, therefore, indicate the changes by 2004-05 for measured and unmeasured charges.

5.3.3 The Director's assumptions for optional metering and the proposed correction mechanism

The projections for average bills and tariff rebalancing are influenced by assumptions about the number and characteristics of households opting for a meter.

In his determinations, the Director has sought to balance the benefits to those customers who can gain from opting for a meter and the costs (from rebalancing) to those customers who remain on unmeasured charges. This reflects the views set out in MD145. In this letter, the Director asked companies to set out in their Business Plans the way they intend to manage metering programmes in the best interests of all customers. The Director has also sought to reflect in price limits levels of optional metering which can be considered manageable by the companies in the best interests of all their customers.

In July, for the purposes of setting the draft price limits, the Director assumed that no more than 10% of the 1999–2000 unmeasured household base would opt for a meter in the period 2000–01 to 2004–05. This equates at an industry level to about 1.7 million optional meter installations, which compares with an industry total of 1.4 million in the five year period 1995–2000. This level would allow for 15% more optional meters in total to be installed in 2000–05 than were actually installed by the companies in 1995–2000. For many companies current rates of optional metering are well below 10% over five years.

In their representations to the Director on the draft determinations, many companies questioned the industry-wide assumption that price limits would allow for 10% of the 1999–2000 unmeasured household base opting for a meter by 2004–05. This approach was also questioned by some CSCs. It was commonly suggested that greater differentiation across companies should be reflected in price limits, taking account of each company's experience to date with meter options and company-specific circumstances.

Within the context of companies managing optional metering in the best interests of all customers, the Director has carefully reviewed the evidence for such differentiation and the views expressed by companies in their representations. He has concluded that it is appropriate to allow for different rates of optional metering across companies. These different rates are 15%, 10% and 5% of the 1999–2000 unmeasured household base. Table 10 indicates the final determination assumption for each company. At industry level, these assumptions imply that about 1.6 million unmeasured households would opt for a meter by 2004–05.

Table 10: Rates of take up of optional metering

15% of 1999-2000 base	10% of 1999-2000 base	5% of 1999-2000 base
Anglian (including Hartlepool)	Dŵr Cymru (Welsh)	Northumbrian
South West	North West	Thames
Wessex	Severn Trent	Portsmouth
Cambridge	Southern	South East
Essex & Suffolk	Yorkshire	York
North Surrey	Bournemouth & W Hampshire	
Mid Kent	Bristol	
	Dee Valley	
	Folkestone & Dover	
	South Staffordshire	
	Sutton & East Surrey	
	Tendring Hundred	
	Three Valleys	

The assumptions underlying price limits have had regard to two key criteria:

- Companies' ability to manage the demand for optional metering.

- The extent to which companies have been trying to manage the impact of optional metering in the best interest of all customers (particularly the impact of tariff rebalancing on unmeasured customers).

Under the first criterion, the Director has had regard to the recent evidence on companies' rates of switching; whether companies currently charge for meter options; and the level of household bills. Companies which currently have high rates of take up of meter options, relatively high household bills and which presently charge for their meter option are likely to have less scope for managing demand. Under the second criterion, he has had regard to the degree to which companies have promoted the uptake of optional meters (eg through promotional activities and tariff design). Where the current high rates of take up of optional meters are linked to promotional activity and the incentives for customers to opt for a meter are provided by companies, the assumptions underlying the final determination assume more active management of the demand for optional meters. The assumptions also underpinning price limits allow for the impact of tariff rebalancing on unmeasured tariffs which are consistent with the objective set out in MD145 of companies' managing optional metering in the best interests of all customers.

The Director has assumed for most companies that those customers choosing to opt for a meter will have levels of demand that are no less than 70% of the unmeasured average. This is generally consistent with evidence provided by companies with reliable consumption data for household customers. In the cases of Dŵr Cymru (Welsh Water) and Sutton & East Surrey Water, however, the Director has assumed a level of demand less than 70%. This takes account of the strong incentive for customers with low consumption to switch given the structure of the unmeasured tariff in these companies. Furthermore, the Director's determinations assume that households will typically reduce their water usage by no more than a further 5% after opting. This is discussed further in section 9.1.

As set out in MD149 (July 1999), the Director believes that there should be a correction mechanism in companies' licences to allow for loss of revenue or additional costs from optional metering. Where the number of optional meters in the period 2000–05 exceeds the Director's assumptions and the additional costs to and loss of revenue by companies exceed a materiality threshold, companies will be able to seek an interim determination to reset the price limits.

In such circumstances, any request for an interim determination may result in increases to price limits and further upward pressures on household bills. The Director will, however, need to be assured that companies have adopted prudent metering policies in the interests of all of their customers and sought as far as practicable to manage the demand for optional meters.

In MD149, the Director proposed a licence modification to:

- take into account any material financial risks that companies may face because of uncertainties over the projections for optional metering, subject to an appropriate balance of risk between shareholders and customers;

- provide incentives to companies to manage optional metering.

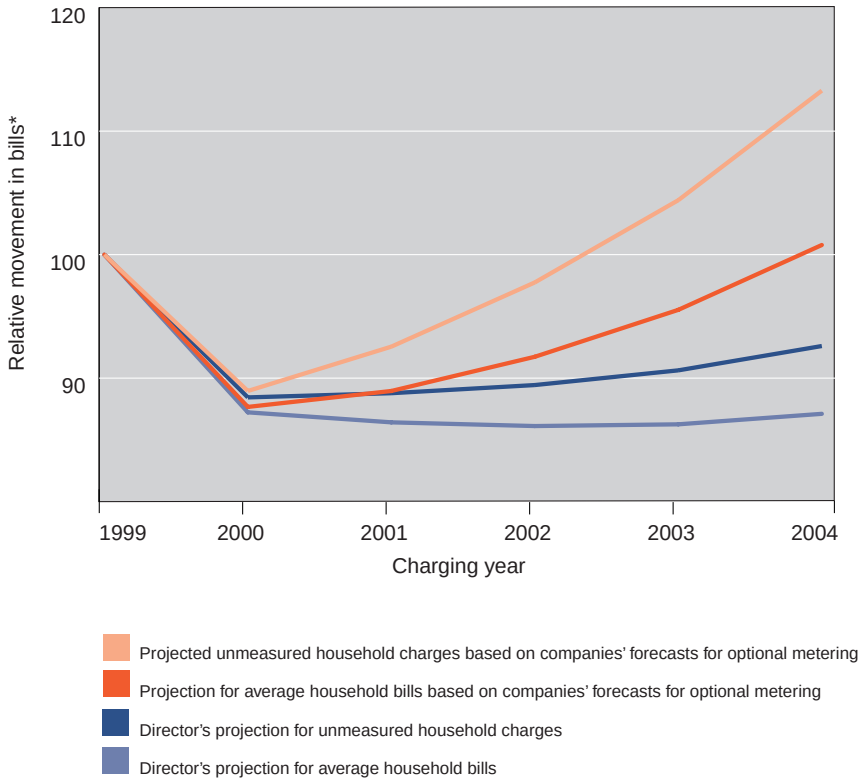
The Director believes that these objectives are best met by a modification to existing licences. His proposed modifications were presented to companies (in MD149) as part of the draft determinations.

The companies' responses to these proposals were generally favourable. Ofwat responded in RD22/99 to the issues raised by companies. A proposed licence modification has been published for consultation with the final determinations, incorporating minor revisions to the MD149 proposals. Companies have until 24 January 2000 to indicate their agreement to the licence changes. The

Director has indicated that he will not pursue the licence modification where a company refers its final determination to the Competition Commission since he regards this as part of the overall final determination package.

The potential impact of any such interim determination is illustrated in Figure 13. This projects average household bills using the aggregate of the projections included in companies' Business Plans of numbers of meter optants and their characteristics. Figure 13 highlights that there is potential for a growing divergence, particularly from 2001–02, between the Director's projected average household bills and those implied by company assumptions for optional metering, and this could trigger interim determinations and have an impact on price limits and bills in the next five years.

Figure 13: Impact of optional metering on unmeasured and average household bills



*Rebased to 100 in 1999

5.4 Charges for water and sewerage services

The charges made for water delivered and sewage collected should recover fairly the costs of providing each service. This is important when a significant number of customers receive their water and sewerage services from different suppliers. It is also particularly important where the costs of providing the respective services are changing at different rates because of the environmental quality programme. Table 11 contrasts the cumulative increases for water and sewerage for the period 2000–05, distinguishing the first year (with its initial price reduction) and the four subsequent years.

Table 11: Indicative changes in water and sewerage charges 2000–01 to 2004–05

	Price limit for first year 2000-01			Cumulative price limits for four years 2001-02 to 2004-05		
		Indicative			Indicative	
	Price limit	Water	Sewerage	Cumulative price limit	Water	Sewerage
Water and sewerage companies						
Anglian	–10.0	–11.2	–9.2	8.4	7.5	9.0
Dŵr Cymru	–10.5	–5.2	–14.9	1.7	–6.3	9.1
North West	–9.3	0.5	–15.8	7.6	14.1	2.7
Northumbrian	–19.4	–12.3	–24.0	–2.0	–4.3	–0.3
Severn Trent	–14.1	–7.5	–19.7	–1.0	–1.8	–0.2
South West	–12.2	–3.8	–17.3	6.1	1.5	9.3
Southern	–13.0	–19.2	–10.5	2.4	–6.9	5.8
Thames	–11.7	–7.6	–14.6	–0.8	1.3	–2.4
Wessex	–12.0	–13.9	–11.1	8.7	8.3	8.8
Yorkshire	–14.5	–15.2	–13.9	1.0	1.9	0.2

The indicative price limit for each service for 2000–01 show generally greater reductions for the sewerage service compared with the water service. This reflects the greater efficiencies both in capital and operating expenditure in sewerage and also the increased investment, relative to that projected in 1994, required for the water service to ensure continuity of supplies, largely due to the drought.

The indicative changes in price limits for water and sewerage over the period 2000–05 reflect, in the main, the respective investment expenditure, demand and efficiency assumptions for each service. The majority of the quality investment relates to the sewerage service and for the majority of water and sewerage companies the indicative price limits are greater for sewerage than for water in this period. For the other companies (Anglian, North West, Thames and Yorkshire Water), the indicative price limits are greater for water than for sewerage. For these companies the difference in the investment programmes for each service are not so marked and the demand and efficiency assumptions for each service are the more dominant factors.

To ensure that customers of one service do not subsidise customers of the other, the indicative price limits are consistent with water and sewerage companies equalising their rates of return on capital (measured by the regulatory capital value) in each service.

For some companies, however, following the indicative price limits for water and sewerage (for the initial price reduction in 2000–01 and the subsequent four year cumulative price limit) would lead to prices for one service initially coming down further than for the other service, only for them to rise again by a greater amount. This leads to ‘V’ shaped price profiles for one service. This occurs in particular for Dŵr Cymru (Welsh Water) but also to a lesser extent for Yorkshire Water. For these companies, the Director believes that a more even application of the initial price reduction between water and sewerage is appropriate, allowing for a smoother profile of indicative price limits over the five years.

As indicated in MD152, final decisions about the preferred indicative split of price limits necessary for charges will be made at the same time as responses are given to companies by Ofwat on their draft charges schemes (likely to be December 1999).

5.5 Profitability and price profiles

The Director has a duty to ensure that companies can finance the proper carrying out of their functions. He has considered carefully the impact that the projected profile of prices will have on the returns, profits and cashflows achieved by the companies.

A summary projected profit and loss account for the industry is shown in Table 12. The table shows a 30% reduction in operating profit for the industry following the initial price reduction in 2000–01. Operating profits then show a gradual upward trend as companies need to finance the growing capital base resulting from the continuing investment programme. Assuming that companies meet the Director's efficiency assumptions, the level of profit is a function of the growing capital base and the cost of capital. The levels of operating profit in 2004–05, however, remain well below the levels achieved by companies in 1997–98 in absolute terms and, measured as a return on capital, significantly lower.

Table 12: Financial projections

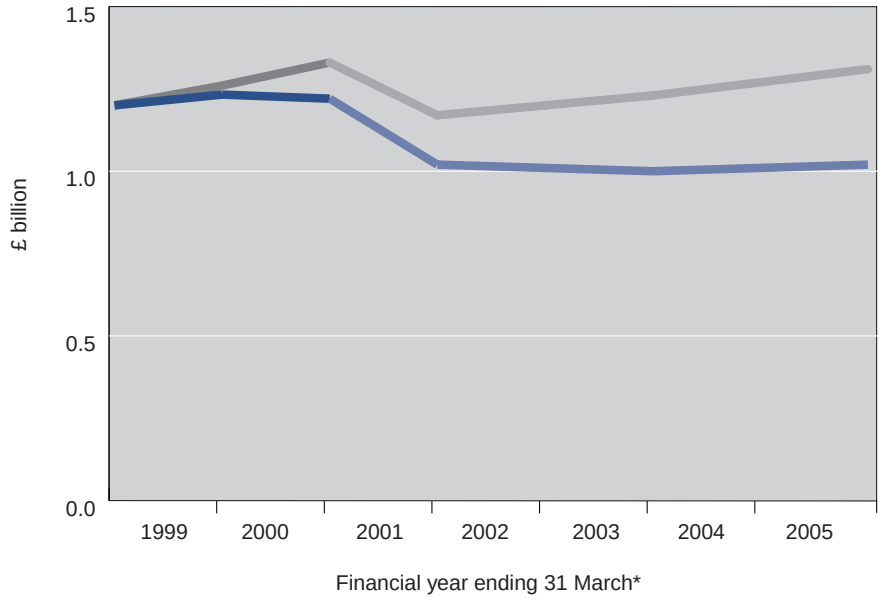
	Current cost profit and loss account (£ billion)		
	1999-00	2000-01	2004-05
Turnover	7.0	6.2	6.3
Operating expenditure	2.6	2.6	2.5
Current cost depreciation:			
Base service	1.1	1.0	1.0
Enhancements	0.1	0.2	0.3
Infrastructure renewals charge	0.4	0.4	0.4
Current cost operating profit	2.8	2.0	2.1
Regulatory capital value (average)	27.5	28.4	32.0
Return on capital (post-tax)	7.90%	5.66%	5.24%

Expenditure on capital investment on above ground assets is recovered through customers' bills over the life of the asset (rather than immediately the investment is incurred) through depreciation charges. Table 12 shows separately the depreciation charges on the assets providing the base service and those arising from enhancement investment.

Figure 14 shows the trend in depreciation charges from 1997–98 through the period of price limits. This shows that the depreciation charge from the base service assets falls in the first year of the price limits because of the effects of the broad equivalence principle (which broadly matches the depreciation charge with maintenance expenditure and is discussed further in section 7.3.8) and then remains broadly constant. Total depreciation, however, increases because of the continued investment required for new enhancements, primarily the quality programme, which increases the capital base. This causes upward pressure on bills. Expenditure on capital maintenance and enhancements (from which the depreciation charges are derived) is discussed in Chapter 7.

The projected infrastructure renewals charge reflects the average, over a 15 year period, of the infrastructure renewals expenditure required to maintain the underground network assets. It is broadly similar over the five year period to that in 1999–2000. The serviceability to customers of the network assets is discussed further in Chapter 7.

Figure 14: Current cost depreciation charges for base and total assets



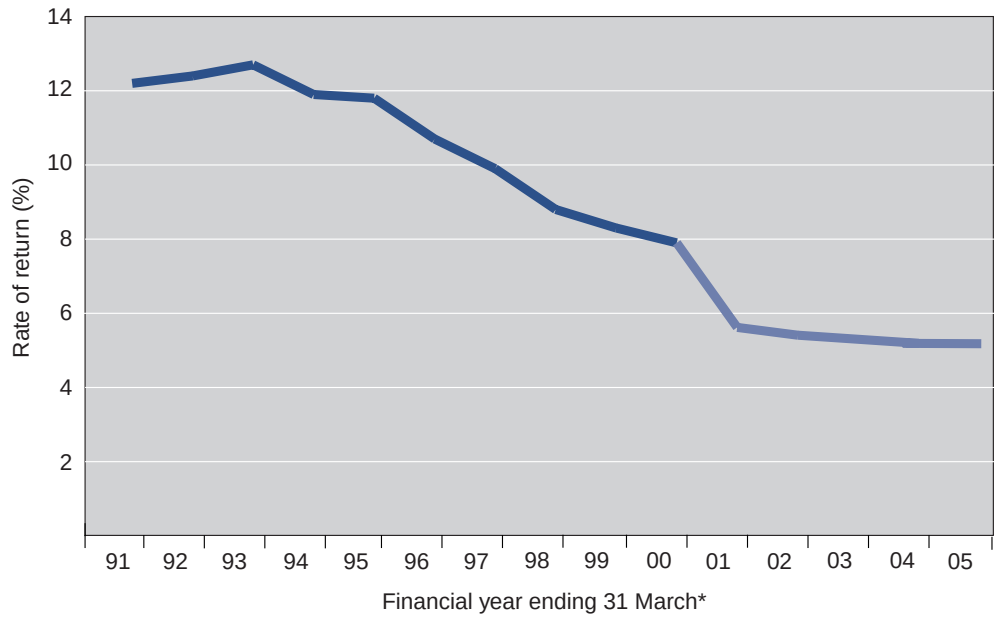
Total depreciation – actuals
Total depreciation – Director's projections
Depreciation on base service assets – actuals
Depreciation on base service assets – Director's projections

*To illustrate the period of new price limits, the first year of projections is shown as the year ending 31 March 2001.

The 1994 determination has already delivered a steady fall in the return on capital towards the cost of capital, as shown in Figure 15 (overleaf). This trend was, at that time, projected to continue to 2005. However, the price limits will incorporate an immediate step change in returns down to the cost of capital. The return on capital will then remain fairly constant at this lower level over the period.

The cost of capital is not intended to guarantee shareholders' returns. A poorly managed water company might earn a lower return because it underperforms the assumptions, for example on efficiency savings, which the Director assumed the company could make. On the other hand, outperformance of the Director's efficiency assumptions will increase returns. This is important for the preservation of incentives.

Figure 15: Post-tax rates of return



*To illustrate the period of new price limits, the first year of projections is shown as the year ending 31 March 2001.

As well as future outperformance, there are a variety of situations in which these price limits could result in a particular company earning a return above its cost of capital. For example:

- the effect of the incentive framework is such that companies which have made operating cost efficiencies in the later years of the current quinquennium will earn returns above the cost of capital in the early years of the next one;

- companies that have already chosen to pass on the benefits of outperformance voluntarily through lower bills or cash rebates will earn a higher return as the forgoing of past revenue has been taken into account in the price limits; and

- the effect of the service performance adjustment is to reward those companies providing a superior service by increasing their returns.

6. EFFICIENCY AND INCENTIVES

6.1 Summary of the efficiency improvements assumed in price limits for 2000–05

Price limits should give companies the incentive to increase efficiency and stimulate them to reduce costs without reducing levels of service to customers and the environment. In his assessment of the scope for improvements in efficiency, the Director has considered both operating and capital expenditure together. The approach taken is consistent in both areas and provides incentives for companies to reduce costs.

In his determinations, the Director has assumed that the scope for efficiency in base operating expenditure (ie the costs of operating the existing service, before considering enhancements in service to customers and the environment) justifies, on average, reductions of 2.4% per annum for the water service and 3.1% for the sewerage service. For capital maintenance expenditure, he has assumed that the scope for efficiency justifies, on average, a reduction in the expenditure needed to carry out necessary activities with effect from the first year, of 10% for the water service and 12% for the sewerage service. For capital enhancement expenditure, the Director has made more challenging assumptions than for capital maintenance since there is evidence that greater scope exists for efficiency in this area (see section 6.7).

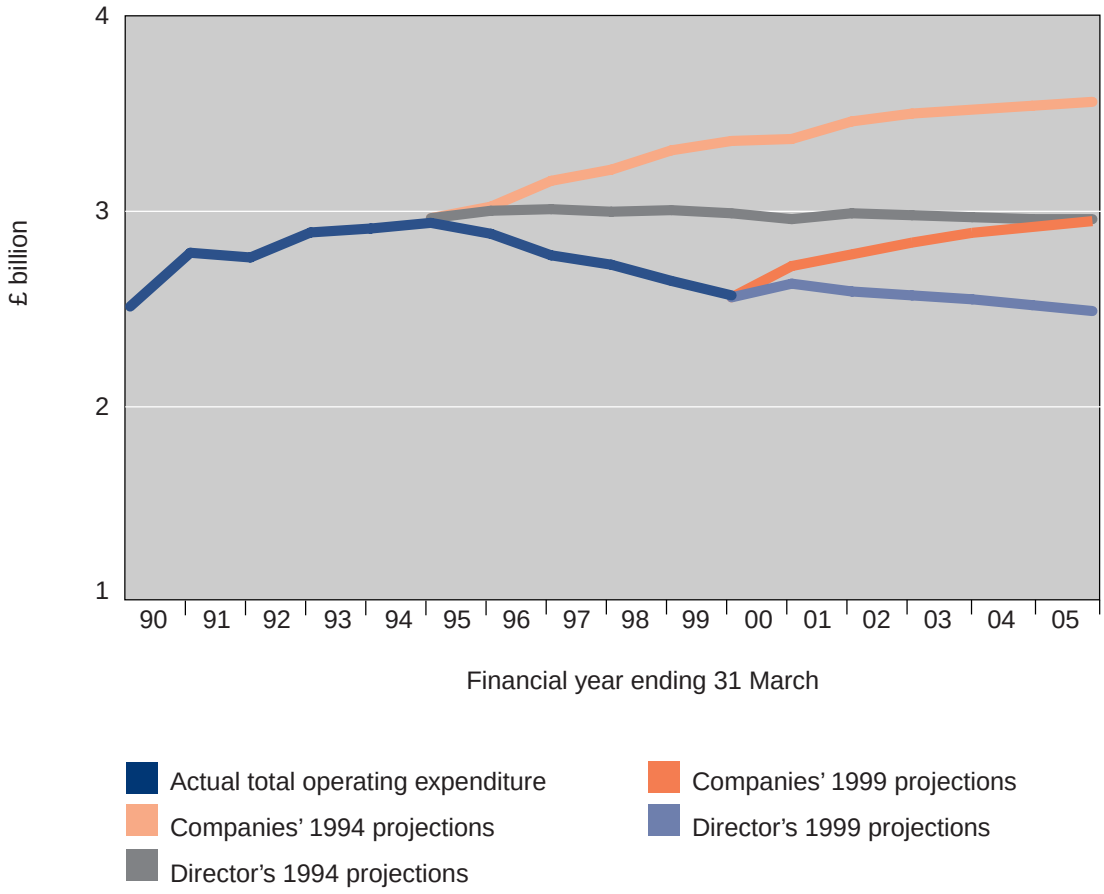
The efficiency judgements assume that relatively inefficient companies will substantially catch up with the more efficient companies, but that all companies have the scope to make further improvements. Incentives have been strengthened by the introduction of the rolling incentive allowance for both operating and capital expenditure. Companies will retain outperformance for five years irrespective of the timing of price reviews (see section 6.3).

Some companies argued in their Business Plans that they cannot make any further efficiency savings. However, past and current performance does not support the view that the industry has reached optimal efficiency, nor does the recent research undertaken for Ofwat. Furthermore, other companies have assumed significant improvements in efficiency in their plans. Experience from the 1994 review suggests that companies' projections of operating expenditure are very different to the outturn position, as shown in Figure 16 (overleaf).

The Director has been advised by his panel of senior industrialists that challenging assumptions would be a powerful stimulus to achieve even greater improvements. In a competitive environment, companies continually strive to cut costs quickly. Furthermore, capital expenditure in competitive markets would usually not be countenanced if operating cost savings did not follow. Any prospect of deteriorating financial performance would itself provide a very strong incentive to reduce costs further. The Director has taken these views into account in reaching the judgements underpinning the price limits.

A number of companies made representations that specific allowances should be made in price limits for restructuring costs. They argue that this would provide incentives to achieve further efficiency. Some companies have also made statements about the likely job losses that they consider would be necessary to achieve the efficiency savings assumed in draft determinations. It is for companies to decide how savings should be achieved. Evidence shows that large-scale and expensive restructuring exercises are not always a cost-effective way to achieve improvements in efficiency.

Figure 16: Comparison of actual and projected total operating expenditure



6.2 Cost trends since 1989

Companies have made expenditure savings in response to the existing incentives in the regulatory system, which allow companies to retain outperformance between Periodic Reviews. Figure 16 shows actual trends in total operating costs since privatisation in 1989. Some companies have made more savings than others, with those set the greater challenges outperforming the most.

At the 1994 price review, companies were expected to improve operating efficiency, with the relatively inefficient companies facing more demanding expectations. This increase in efficiency was offset by additional operating costs needed to meet the significant improvements in quality required by the then government. Indeed, operating expenditure increased by 16% in real terms between 1988–89 and 1992–93. It was assumed in the price limits set in 1994 that total operating expenditure would need to increase by 3% in real terms between 1992–93 and 1998–99.

In the event, most companies outperformed. Companies have reported that total operating expenditure decreased by 12% in real terms between 1992–93 and 1998–99. Total operating expenditure in 1998–99 was £420 million less than had been expected when prices were set in 1994.

Total operating expenditure includes the operating costs arising from new legal requirements on quality, improvements to levels of service and dealing with imbalances between supply and demand. Base operating expenditure, which reflects the costs of delivering a fixed level of service, has shown much greater efficiency savings, ranging from 3% to 37% and amounting to some £590 million in 1998–99.

Companies have also made considerable improvements in capital efficiency over the last five years. There have been savings of up to 30% in relation to their quality enhancement programmes. In the sewerage service, these savings have been as high as 40%. For capital maintenance expenditure, companies have reported savings of up to 15%. Many companies have reported that they have reinvested savings in delivering additional outputs.

Experience since the last review generally confirms the expectation that the least efficient companies have the most scope to make savings and also that companies which have the most demanding expectations are also likely to outperform the most.

6.3 Incentives

In determining price limits for 2000–05, the Director has sought to ensure that companies have adequate incentives to outperform regulatory assumptions on efficiency savings. This has been achieved by incorporating a rolling incentive mechanism whereby efficiency savings in excess of the regulatory assumptions (outperformance) are retained by companies for five years before being passed to customers. Without this mechanism, outperformance achieved in the later years of the 1995–2000 period would only be retained by companies for a shorter period before being passed to customers. This was considered to be an inadequate incentive to improve efficiency in the later years of a review period. The effect of this incentive mechanism is to phase bill reductions over the 2000–05 period rather than take the maximum possible price reduction in the first year.

For capital expenditure outperformance, the incentive mechanism operates through adjustments to the regulatory capital value. This is described in more detail in section 10.2. For operating expenditure, an incentive allowance is added to the revenue requirement for those companies where the bulk of their outperformance has been achieved after 1995–96. The allowance reduces to zero by the year 2003–04 in all cases, so that the projected bill in 2004–05 is unaffected. Where the level of outperformance has fluctuated over time, this has been smoothed before the incentive allowance is calculated. In particular, any decrease in the level of outperformance has been ignored. This is to encourage companies to deal with any exceptional and atypical items within a framework of progressively declining operating expenditure. The smoothing method used is also consistent with the view that large-scale and expensive restructuring exercises are avoidable.

In some cases, the incidence of exceptional and atypical items has distorted the incentive allowance calculation. Generally, minor distortions have been ignored. However, in response to representations, a special case has been made for companies where the level of exceptional and atypical items in 1998–99 exceeds the historical average level as these have a disproportionate effect on the incentive allowance.

6.4 Relative efficiency of water companies

The Director has set out in *Assessing the scope for future improvements in water company efficiency: a technical paper* (April 1998) his approach to assessing the relative efficiency of the companies. All companies are now more efficient than they were at the last review. Assessments of the latest relative efficiency used to inform this review are based on the latest reported company data.

These assessments, which have informed judgements as to the scope for future improvements in efficiency, are set out in Tables 13 and 14 (on pages 93 and 94) for the water and sewerage service respectively. These show the current assessment of the relative efficiency of the companies for both operating expenditure and capital maintenance expenditure in the water and sewerage services respectively. Changes have been made to efficiency bandings for a few companies compared to those shown in *Future water and sewerage charges 2000–05: Draft determinations* to reflect additional information about company-specific factors provided in companies' representations.

Some companies have argued that the comparisons are not robust and do not provide a sound basis for differential efficiency assumptions. However, the Ofwat approach has stood the test of time. Ofwat uses econometric techniques to assess relative efficiency, so taking into account differences in operating environments. The structured and open way in which the models are developed, checked for both operational and statistical plausibility, subject to rigorous external challenge and refined in the light of the debate, does give confidence that the comparisons are fairly drawn. Proper consideration is given to special factors, which are outside management control, before moving from the raw modelling results to robust judgements as to relative efficiency.

Some companies are more efficient in operating expenditure than capital maintenance expenditure and vice versa. In some instances this may be the result of the company's strategy, which required them to spend in one area to save in the other. Efficiency assumptions for the two areas have been considered together to limit potential bias and remove distortions to decision making.

The same minimum efficiency assumption has been applied in both areas and the catch-up assumptions are broadly equivalent in the two areas. The overall efficiency savings expected are broadly similar. This means that the 2.4% per annum efficiency savings assumed for operating expenditure in water and the 10% first year reduction to capital maintenance expenditure are broadly equivalent. Similarly, the 3.1% efficiency assumption for sewerage operating expenditure and the 12% first year reduction in capital maintenance expenditure are equivalent.

6.5 The scope for efficiency in operating expenditure

For base operating expenditure, the Director has assumed that all companies can make a minimum efficiency saving of 1.4% per annum for the five years 2000–05. This is in line with the efficiency savings which some of the more efficient companies are forecasting for themselves. Some companies have proposed relatively challenging targets for themselves of up to 3% per annum. A few propose increases in base operating expenditure because they believe that the costs of their inputs will rise. They consider that this is supported by research for Thames Water[10].

This conclusion runs counter both to the results of research commissioned by Ofwat and experience in recent years. Europe Economics[11] concluded that there was scope for efficiency savings in operating expenditure of about 2.5% to 3.5% per annum. In the light of submissions from a number of companies, Europe Economics updated their report in May 1999[12] but their conclusions were unchanged. Furthermore, it is not possible to reconcile the Bosworth and Stoneman research with the majority of companies' submissions.

The less efficient companies should catch up with the more efficient companies, and for this reason greater efficiency improvements are assumed within price limits. Some adjustments are made in the relative efficiency assessments for factors which apply to only one or two companies and are not reflected in the econometric analysis.

10 *An efficiency study for the water industry*, Professor Derek Bosworth and Professor Paul Stoneman, August 1998.

11 *Water and sewerage industries: general efficiency and potential for improvement*, Europe Economics and Professor Nick Crafts, October 1998. This paper is available from the Ofwat library.

12 *Water and sewerage industries: general efficiency and potential for improvement*, Europe Economics and Professor Nick Crafts, May 1999. This paper is available from the Ofwat library.

Table 13: Assessments of relative efficiency at November 1999 — water service

Relative operating efficiency						
	A Most efficient companies	Northumbrian		Southern Thames Yorkshire Dee Valley Portsmouth	Cambridge North Surrey	
	B	Anglian Bournemouth & West Hampshire	Severn Trent Wessex Sutton & East Surrey	North West Essex & Suffolk		York
	C		South Staffordshire	Bristol Tendring Hundred	Three Valleys	South West
	D			Dŵr Cymru Folkestone & Dover Mid Kent		
	E Least efficient companies			South East		
		E Least efficient companies	**D**	**C**	**B**	**A** Most efficient companies
		Relative capital maintenance efficiency				

Table 14: Assessments of relative efficiency at November 1999 — sewerage service

Relative operating efficiency						
	A Most efficient companies			Wessex		
	B			Thames		Yorkshire
	C	Severn Trent South West	Southern	Northumbrian	Anglian	
	D			Dŵr Cymru North West		
	E Least efficient companies					
		E Least efficient companies	**D**	**C**	**B**	**A** Most efficient companies
		Relative capital maintenance efficiency				

The price limits assume that 60% of the assessed gap between the most efficient group of companies and the others would be closed over the five-year period 2000–01 to 2004–05. It is assumed that these savings are evenly profiled over the period. All companies have a strong incentive to do better than these assumptions and, hence, to benefit from retaining the outperformance for a period of five years. After five years the lower costs will be reflected in future price limits.

When establishing the base level of costs to which the assumptions on the scope for future efficiency from 2000–01 onwards are applied, companies' operating expenditure for 1998–99 has been used. This has been adjusted downwards where costs have increased from the level in 1996–97.

Further adjustments have been made for multi-utilities that have reported higher expenditure because they have included an element of profit to other parts of the business in their water company's operating costs. This has been necessary because of the absence of adequate market testing of the services provided.

Some companies have been unable to demonstrate arm's length trading with other companies within the same plc group. Ofwat has assumed that the services provided by these companies to the water company are made at cost. The operating costs of these water companies have been adjusted accordingly.

Table 15 summarises the efficiency assumptions for operating expenditure underpinning the price limits.

Table 15: Operating costs efficiency assumptions 2000–01 to 2004–05

	Per annum	
Water service	Range	Average
Minimum annual efficiency	1.4%	1.4%
Catch-up element	0%–3.5%	1.0%
Aggregate	1.4%–4.9%	2.4%
Sewerage service		
Minimum annual efficiency	1.4%	1.4%
Catch-up element	0%–2.9%	1.7%
Aggregate	1.4%–4.3%	3.1%

6.6 The scope for efficiency in capital maintenance expenditure

The Director has assumed that all companies can make minimum efficiency savings of 1.4% per annum for the five years 2000–01 to 2004–05. This is in line with the efficiency savings forecast by some of the more efficient companies. The judgements on relative efficiency in capital maintenance are based on both the capital maintenance econometric models and comparisons of capital unit costs compiled from the cost base submissions. Taken together with assumptions in respect of the scope for minimum efficiency, these analyses have identified the scope for efficiency of around 10%, on average, as a first year reduction in costs for the water service and around 12%, on average, for the sewerage service.

In their Business Plans, companies identified scope for an average of around 5% as a first year reduction in costs for both the water service and the sewerage service, taking account of both minimum efficiency and the scope for catch up. However, some companies have argued that there is scope for minimum efficiency improvements of up to 2.5% per annum, equivalent to a 7% first year reduction.

The level of minimum efficiency assumed for capital maintenance expenditure is the same as has been assumed for operating expenditure. This level is well within the range identified by the Babtie

Group[13], which has conservatively suggested that there is still scope for efficiency savings of 2% a year available to even the best companies through improved working practices in particular, but also through the adoption of new technology. The Director's assumption for minimum efficiency is also similar to the level of minimum efficiency included by some companies in their Business Plans.

For the comparative assessments, the Director has taken an average of the assessments of comparative efficiency arising from the capital maintenance econometric models and the cost base.

These comparative assessments indicate that some companies have capital unit costs that are considerably higher than others, suggesting that there is still scope for the higher cost companies to become more efficient and catch up with their peers. It has been assumed that, from the first year of the next price limit period, the less efficient companies can catch up by the average of 50% of the gap arising from the cost base and 40% of the gap between them and the benchmark companies shown by the econometric approach.

A number of companies have raised concerns about the use of the cost base for assessing the scope for improvements in capital works efficiency. These concerns have been addressed in the preparation, analysis and judgements made by Ofwat and our consultants as set out in Appendix D. Appendix D also includes the company by company findings in a format similar to that published in December 1998[14].

The Director's overall judgements on efficiency for capital maintenance are, for some companies, similar to the overall efficiency assumptions for capital maintenance included in their Business Plans. Furthermore, the range of efficiency assumed by the Director for capital maintenance is similar to the range that some companies have previously reported in their annual returns. As for operating expenditure, all companies have a strong incentive to do better than these assumptions and to retain the outperformance for a period of five years, after which time the lower costs will be reflected in future price limits.

Following representations from companies, the assumptions on capital maintenance efficiency have been revised after further consideration of company-specific factors. In particular, adjustments have been made for some companies who had forecast reductions in capital maintenance expenditure in their Business Plans and considered it punitive for Ofwat to then apply its efficiency assumptions to these lower forecasts. This is set out in more detail in section 7.3.5.

Table 16 summarises the efficiency assumptions for capital maintenance expenditure underpinning the price limits.

Table 16: Capital maintenance efficiency assumptions 2000–01 to 2004–05

Water service	Range	Average
Minimum annual efficiency	1.4%	1.4%
Catch-up element*	0%–11%	6%
Aggregate*	3%–14%	10%
Sewerage service		
Minimum annual efficiency	1.4%	1.4%
Catch-up element*	0%–12%	8%
Aggregate*	4%–16%	12%

*The catch-up element is the immediate first year reduction expected in capital costs. The aggregate, also expressed as a first year reduction, combines this with the effect of the minimum annual efficiency in each of the five years.

13 *Report and opinion on the scope for adoption of lower cost technologies and practices in the water industry,* Babtie Group, January 1999. This paper is available from the Ofwat library.

14 *Capital works unit costs in the water industry,* Ofwat, December 1998. This paper is available from the Ofwat library.

6.7 The scope for efficiency in capital enhancement expenditure

6.7.1 Capital enhancement expenditure

In their Business Plans, companies identified scope for efficiency equivalent to an average first year reduction of around 5% for the water service and 4% for the sewerage service, taking account of both minimum efficiency and the scope for catch-up. As noted earlier, the companies have made substantial savings on capital enhancement expenditure in the current period and demonstrated that the scope for savings is greater in this area than for capital maintenance. The Director considers that the companies have significantly underestimated the scope for further savings.

The Director has assumed that all companies can make a minimum efficiency saving of 2.1% per annum for the five years 2000–05 for both the water and sewerage services (ie half as much again as the minimum for capital maintenance and operating expenditure).

In addition, judgements have been made on the scope for the least efficient companies to catch up with the most efficient ones by comparing the capital unit costs from the cost base submissions.

The cost base constitutes a representative sample of company investment programmes and so assessments of comparative efficiency arising from the cost base are applicable to all aspects of company capital programmes. Following detailed analysis of companies' cost base submissions in their Business Plans, Reporters' comments, and an extensive query process with the companies, robust comparisons can be made between companies' capital unit costs. Benchmark companies have been selected on the basis that their cost base estimates are consistently lower than those of their peers. Further details are set out in Appendix D.

The Director has set price limits on the basis that the less efficient companies could close 75% of the assessed gap between themselves and the benchmark companies in the first year of the next price limit period. Table 17 (overleaf) illustrates the Director's judgements in respect of the scope for future efficiency for the quality enhancement programmes. These judgements arising from the cost base analysis average around an 8% reduction in costs for the water service and 7% for the sewerage service.

Taken together, the minimum and catch-up efficiency judgements imply an average cost reduction in the first year of 13% for both the water and sewerage services.

The large investment programmes being carried out in the next five years afford all companies considerable opportunity to take advantage of productivity improvement initiatives in the construction industry at large. They also provide strong incentives to beat the Director's assumptions. As for operating cost and capital maintenance outperformance, companies would retain the benefits from any outperformance on enhancement expenditure for a period of five years, after which time the lower costs achieved would be reflected in future price limits.

Table 17: Enhancement expenditure efficiency assumptions 2000–01 to 2004–05

Capital expenditure		
Water service	Range	Average
Minimum annual efficiency	2.1%	2.1%
Catch-up element*	2%–19%	8%
Aggregate*	9%–24%	13%
Sewerage service		
Minimum annual efficiency	2.1%	2.1%
Catch-up element*	1%–12%	7%
Aggregate*	7%–19%	13%
Operating expenditure		
Water service	Range	Average[1]
Minimum annual efficiency	2.1%	2.1%
Catch-up element*	0%–21%	8.5%
Aggregate*	2%–23%	10.6%
Sewerage service		
Minimum annual efficiency	2.1%	2.1%
Catch-up element*	0%–21%	11.1%
Aggregate*	2%–23%	13.2%

*The catch-up element is the immediate first year reduction expected in capital or operating costs. The aggregate, also expressed as a first year reduction, combines this with the effect of the minimum annual efficiency in each of the five years.

1 unweighted averages

6.7.2 Operating expenditure arising from capital enhancements

In the draft determinations, operating expenditure arising from capital enhancements from 1997–98 onwards was assumed to change in line with the incremental changes incorporated in the 1994 price limits. In their representations, most water and sewerage companies and some of the water only companies explained that they had changed the profile of their programme and now expected to incur increments in operating expenditure at later dates from those assumed in 1994.

This means that companies believe that the operating expenditure carried over to 2000–01 in the draft determinations was not sufficient for them to finance their functions. These representations have been considered and in some cases the new company profile for incurring operating expenditure has been used as the starting position. These costs carried over from the last pricing period have been used as a starting position for this review and have been subject to the same future efficiency assumptions as operating expenditure for the base service.

These changes to the expected profile of expenditure have been recognised when calculating the incentive allowance for operating expenditure outperformance. Furthermore, the new company profile implies that a gain was realised during 1995–2000 as a result of the later than expected delivery of improvements. These gains do not correspond to efficiency savings. An offsetting downward adjustment against these gains has been made to the company's revenue over the 2000–05 period.

For additional operating costs associated with new projects which are completed after March 2000, higher efficiency assumptions have been incorporated into price limits. This reflects the demonstrably greater scope which the companies have to deliver efficiencies on new assets installed to meet new quality obligations.

When companies have or have planned to replace or refurbish assets, no additional operating expenditure has been included. There may well be a benefit to companies in such refurbishment since the quality enhancement obligations provide companies with the opportunity to reduce costs generally. There is also scope for companies to deliver greater savings when building new assets. The price limits have been set on the assumption that companies can achieve a minimum efficiency of 2.1% per annum on additional operating expenditure associated with quality enhancements (ie half as much again as the minimum for base operating expenditure).

In most instances, companies' estimates of additional operating expenditure resulting from quality enhancements will be based on their current experience. The price limits assume, therefore, that companies have the same level of relative efficiency in respect of this expenditure as for the base service. However, the price limits assume that greater levels of efficiency can be achieved by companies that are currently less efficient. They are set on the basis that companies can close 75% on average of the gap to the most efficient companies for all new operating costs from March 2000.

The companies' estimates for the operating expenditure for the treatment and disposal of sewage sludge were compared. The unit costs varied widely and, for this reason, they have been considered separately. Cost estimates were capped at a level of 25% above that for the industry benchmark company for the chosen treatment level. This approach provides for some company-specific factors and assumes that companies should all face a similar level of risk, while retaining incentives for companies to become more efficient by adopting cost-effective innovative technologies.

6.8 Service performance adjustment

As set out in *Prospects for Prices* and later confirmed in MD145, the Director has made an adjustment to price limits in 2000–01 to reflect the overall standard of service provided to customers. This will provide an incentive to improve services and a disincentive to companies to cut costs by reducing the standard of service provided. Where the standard of service is assessed as being significantly better than that provided by the industry generally, an increase in price limits in 2000–01 of 0.5% has been made; where service is particularly poor relative to the industry, a reduction of 0.5% has been imposed. For the remaining four years of the period to 2005, prices will therefore also be 0.5% higher or lower than they would otherwise have been. No company's performance was considered so poor as to warrant a reduction of 1%.

The adjustment is based on an assessment of a wide range of services in the period 1996–97 to 1998–99. The detailed approach was set out in MD139 (September 1998) and MD145. Since then, the measure has been improved by incorporating the broader assessment of water quality recently published by the DWI in place of the single iron parameter previously used. The weighting of this element of the assessment has accordingly been increased, as foreshadowed in MD145.

Results of the assessment for the three years 1996–97 to 1998–99 have been combined with equal weighting to give a single score. The results for water and sewerage companies are shown in Figure 17. The results for the water only companies are shown in Figure 18. In the light of this analysis, the Director has made adjustments in the price limits as set out in Table 18 (overleaf).

Figure 17: Performance scores for water and sewerage companies 1996–99

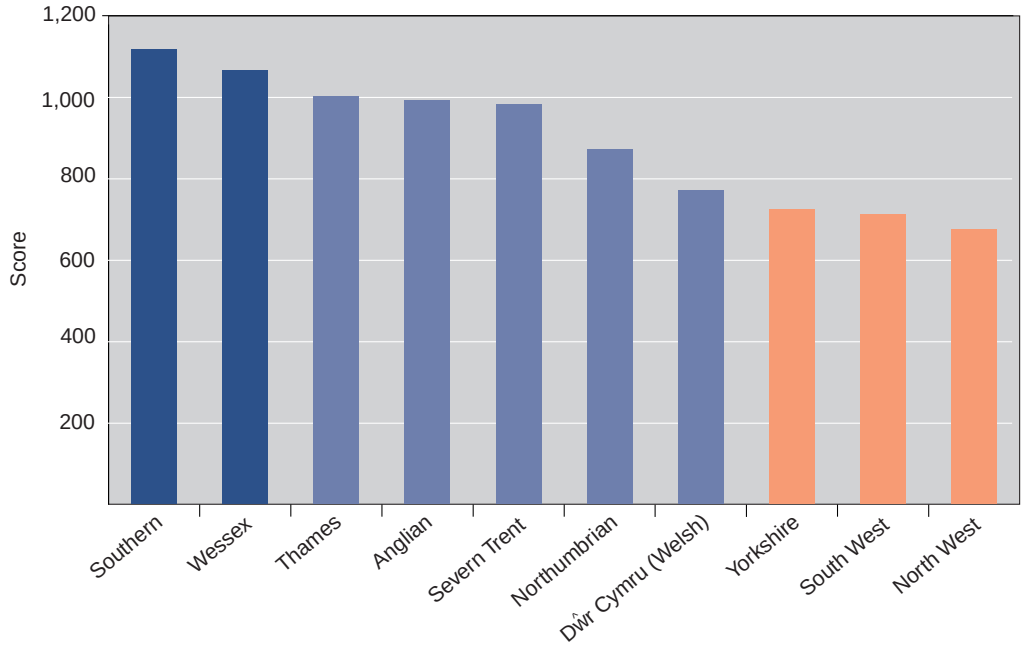


Figure 18: Performance scores for water only companies 1996–99

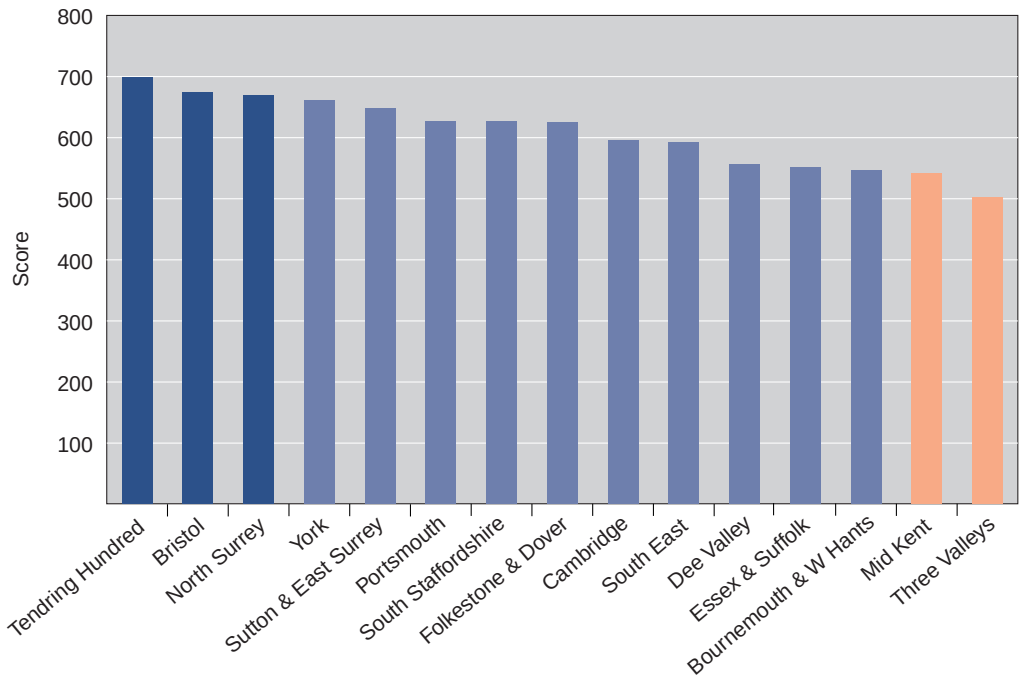


Table 18: Service performance adjustments by company

Adjustment to K factors in 2000–01	Company
+ 0.5	Southern, Wessex, Bristol, North Surrey, Tendring Hundred
- 0.5	North West, South West, Yorkshire, Mid Kent, Three Valleys
- 1.0	None

This is the first time such an overall performance assessment has been used to adjust price limits and the proposed adjustments are limited to those companies where performance can be clearly shown to be materially better or worse than the industry generally. In future, it may be desirable to develop the approach to enhance incentives, perhaps by moving to a rolling assessment or by making price adjustments on a sliding scale.

7. MAINTAINING SERVICE TO CUSTOMERS

In setting price limits, the Director has assessed the costs to companies of maintaining the service to customers provided by the networks of assets. These costs have two main elements: the day-to-day operating costs of delivering services to customers and the capital costs of maintaining the networks, both above and below ground.

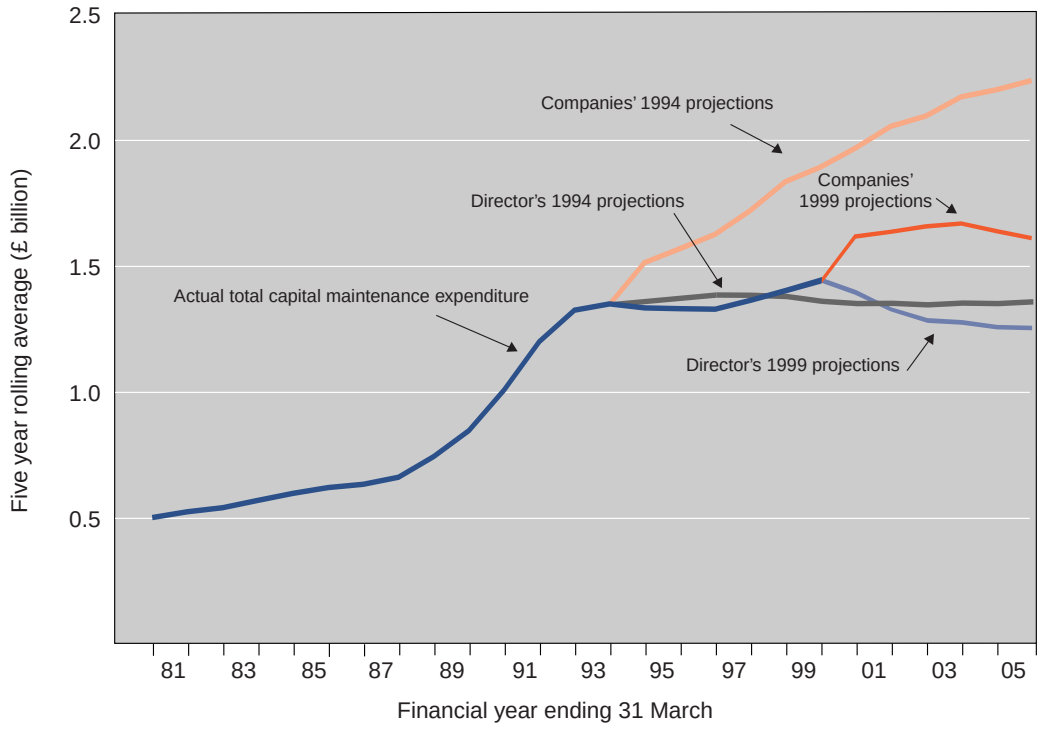
The assessment involves:

- examining the trends of service to customers to determine whether these have been maintained;
- an assessment of the operating costs needed to meet the service level expectations which reflects the scope for efficiency improvements outlined in Chapter 6; and
- an assessment of the expenditure and charges for capital maintenance to meet the service level expectations, which reflects the scope for efficiency improvements and takes account of the implications of the quality improvement programmes.

In summary, the judgements underpinning price limits are as follows:

- The trends in service to customers in nearly all companies are stable or improving. Achieved service improvements have been incorporated into the service expectations for the next period.
- There is considerable scope for improvements in efficiency such that base operating costs should fall over the next period. Base operating costs should be at least 13% lower in 2004–05 than currently. This compares with company projections of broadly level base operating costs over the period.
- The capital maintenance charges that reflect the judgements of expenditure needs are around 11% lower than current levels through improvements in efficiency. This compares with company projections of a rise in capital maintenance expenditure of around 15% over current levels as shown in Figure 19.

Figure 19: Total capital maintenance expenditure



7.1 Trends in service to customers and expectations for 2000–05

In general, across a broad range of measures, services to customers continue to improve or at least maintain a stable trend. In most companies this is the consistent pattern for both water and sewerage services. For a small number of companies, while the headline service indicators are stable, some underlying measures (such as the number of mains bursts or sewer collapses) are showing an unsatisfactory trend.

A policy of no deterioration has been adopted in setting price limits. Where services have improved over the current period, the best underlying performance has been adopted as the expectation of the deliverable level of service for the period 2000 to 2005. Where services are stable, these form the basis of expectations provided they incorporate improvements expected during the 1995–2000 period. Where underlying service measures are showing an unsatisfactory trend, the expectations of the 1994 Periodic Review continue with the requirement that the affected companies will reverse the decline very quickly.

7.2 Operating expenditure

Overall, the price limits are based on the projection that the base operating expenditure needed to deliver expected service to customers will be 13% lower than current levels of expenditure. After taking account of the additional operating expenditure arising from the quality improvements, the Director's assumptions imply that total operating expenditure will be about 5% lower in 2004–05 than in 1998–99.

In contrast, the companies in their Business Plans predicted that total operating expenditure needs would rise by 13%, between now and 2004–05 and that base operating expenditure needs would remain broadly stable.

The trends in operating expenditure in recent years are summarised in Figure 16 on page 90, together with the projections made by companies both at the last price review and in their current Business Plans. Despite expectations of increasing costs, the total operating costs show a fall of 11% over the current price limit period. The outperformance is welcomed. The lower operating costs now achieved form the base for looking forward to the next period.

The assessment of the scope for efficiency improvements in operating expenditure is set out in Chapter 6.

Most companies claimed that bad debt and debt collection costs would increase as a consequence of the Water Industry Act 1999, which prohibits the disconnection of household customers for unpaid charges. In MD145, the Director said that companies would need to consider alternative methods of debt recovery and pursue all avenues open to them. Their incentive should be to promote collection of debts from those who use the service and not to result in higher bills for the generality of willing payers. Companies have reiterated their concerns in their representations on the draft determinations.

Evidence presented in the Business Plans has been considered carefully, alongside advice from consumer bodies and evidence from those companies who do not currently disconnect. Bad debt has been assumed to continue at the level reported in 1998–99 after allowing for any exceptional charges made for bad debts in that year. On balance, the Director does not consider that, currently, there is sufficient evidence to justify assuming a material increase in bad debts and does not, therefore, intend to make an adjustment for this at this review. However, the Director has set out a notified item in respect of bad debt. This means that should there be an increase in the level of bad debts, companies can seek an interim adjustment to price limits, subject to meeting the materiality threshold. The proposed licence modification (detailed in section 1.3) will be relevant. The notified item is structured to maintain the incentives to collect bad debt. It will require the collection of additional information on debt collection costs and practices in order to identify benchmark companies in this area of

activity. To the extent that companies are genuinely unable to avoid an increase in base operating costs arising from the loss of the power to disconnect, this will be allowable in setting the base for the 2004 review.

The Water Industry Act 1999 also enables Ministers to make Regulations requiring companies to introduce protection from high metered bills for vulnerable groups. Companies will be allowed to recoup lost revenue from this group of customers from the generality of customers. However, administrative costs cannot be recouped in this way. The Director has assumed that no additional administrative costs will arise but if this is not the case, then changes in costs will be treated as a notified item.

Companies also claimed additional operating costs which they believed were likely to arise from changes to the business rating system. Ministers announced on 31 March 1999 that rateable values would continue to be prescribed for the water industry. The Director has included expected changes in business rates bills for the water industry in the final determinations.

Some companies claim that additional operating costs will arise from the Climate Change Levy, despite offsetting reductions in National Insurance contributions. In his pre-Budget Report on 9 November 1999, the Chancellor of the Exchequer indicated that the levy would be imposed at a lower rate than previously forecast and that higher rebates might be available. The impact on price limits is likely, therefore, to be small. Discussions are also continuing between the companies and the Government about any rebates which water companies could expect. No allowance has been made for the Climate Change Levy in the final determinations.

Companies have, as in 1994, made a number of claims for additional base operating expenditure, which amount to £330 million over 2000–05. These have all been considered carefully. Some allowances have been made for changes to pension contributions where these were justified. However, the other costs claimed by companies are assumed to be within the scope of normal business risk.

7.3 Capital maintenance expenditure and charges

The costs of capital maintenance activity are reflected in price limits in different ways. Capital maintenance expenditure on infrastructure assets is not depreciated but is instead allowed for in price limits through an infrastructure renewals charge based on the fifteen-year average of infrastructure renewals expenditure. Capital maintenance expenditure on above ground assets is depreciated in the conventional way. However, as set out in previous publications, the Director considers that in the long run such depreciation charges should be broadly equivalent to the actual capital maintenance expenditure on these assets. This principle is referred to as ‘broad equivalence’ and is discussed in section 7.3.8.

7.3.1 Capital maintenance expenditure

The price limits are based on capital maintenance expenditure totalling £6.4 billion over the period 2000–01 to 2004–05. This broadly reflects a continuation of current levels of capital maintenance activity but at improving levels of unit cost efficiency.

In their Business Plans, companies proposed a considerable immediate increase in capital maintenance expenditure, resulting in a total of approximately £8.3 billion over the same period. Their arguments for the increase have been based largely on assessments and projections of the condition, age or performance of assets rather than service to customers. Companies have not justified either the need for increases over current levels of expenditure or the economic rationale for increases. By concentrating on asset condition, companies have not addressed the central issue of the future service to customers nor taken account of past expenditure trends in the 1980s and 1990s. Age, condition and performance of individual assets are matters for the management of companies to consider in prioritising their capital maintenance programmes.

Figure 19 on page 102 shows the trend in capital maintenance expenditure since 1980. Five-year rolling averages are used to smooth the variations in annual expenditure reported by the companies. The actual expenditure by the industry doubled in the five years from privatisation in 1989 to over £1.2 billion per annum. This level of expenditure has been maintained during the last five years. The companies' projections in 1994 and again now show their wish to continue to increase the levels of capital maintenance expenditure despite improving services to customers and the lack of any measurable increase in the number of assets in poor condition.

In the absence of economic justification by companies for increases in capital maintenance expenditure, the Director sees no general case for increasing capital maintenance over the very substantial amounts that companies have been spending since 1992–93. This is also the view of the panel of senior industrialists. Overall the determinations have assumed a continuation of current levels of capital maintenance activity.

However, the position varies slightly from company to company. Each company's needs have been assessed using a five stage approach which looks in turn at historic expenditure, services to customers, asset condition, the scope for future efficiency, and finally the implications of the quality enhancement programmes for capital maintenance expenditure. Together, these lead to an allowance for capital maintenance expenditure in price limits of around £1.3 billion per annum for the next five years. Table 19 sets out the outcome of each of the five stages.

Table 19: The assessment of capital maintenance expenditure allowed for in the determinations for 2000–01 to 2004–05

Industry total	**Water service** Five year totals		**Sewerage service** Five year totals		**Total**
	Infrastructure (£m)	Non-infrastructure (£m)	Infrastructure (£m)	Non-infrastructure (£m)	Five year total (£m)
Companies' **Business Plan** projections	1,750	2,530	1,050	3,010	**8,340**
Ofwat's assessment of capital maintenance needs					
1 Starting point — the average expenditure over the period 1992–93 to 1998–99	1,260	2,380	980	2,500	**7,120**
2 Trends in service to customers and companies' expenditure projections	Reduction of 1%	Reduction of 1%	No change	Increase of 1%	**7,100**
3 Issues raised by the Asset Inventory	No change	No change	No change	No change	**7,100**
4 Scope for improvements in efficiency (both minimum and catch-up)	Reduction of 11%	Reduction of 10%	Reduction of 11%	Reduction of 12%	**6,320**
5 Implication of the quality programme for capital maintenance	Increase of £140m	Increase of £10m	Increase of £20m	Reduction of £80m	**6,410**
Overall assessment	**1,260**	**2,130**	**890**	**2,130**	**6,410**

Numbers rounded to nearest £10 million and percentages to nearest whole number.

7.3.2 The starting point

The starting point is the historical average expenditure over the period 1992–93 to 1998–99. Projected forward for the period of the price review, this amounts to £7.1 billion in total.

7.3.3 Service to customers

The trends in a range of broad, objective measures that describe the overall performance of the asset networks in delivering services to customers and the community have been assessed company by company. By examining trends over several years, a judgement has been made as to whether the capital maintenance activity has been sufficient to prevent service to customers from deteriorating. The key measures include: mains pressure, interruptions and bursts, contravention of coliform standards at water treatment works, sewer flooding, sewer collapses and pollution incidents and sewage treatment works compliance. Details of the approach to assessing service to customers have been set out in Ofwat Information Notes[15].

In the few instances where it appears that the trend in service to customers has been marginal an increase in capital maintenance has been assumed, with the requirement that any problems are reversed during the next price limit period.

Companies should as a minimum maintain current performance in respect of services to customers and the community. These future services are reflected in the base level of performance for the period of the next price limits as projected by companies in their individual Business Plans.

The capital maintenance expenditure assumed after the judgements about service to customers have been made is £7.1 billion over the five year period.

7.3.4 Issues raised by the asset inventory

Each company has carried out a systematic review of its asset stock. This was reported first in August 1998 in the asset inventory submission to Ofwat and then updated in each company's Business Plan. Some companies argue that substantial increases in capital maintenance expenditure are necessary to improve the age and condition of individual assets.

However, there has not been a measurable increase in the amount of assets in poor condition over the last five years. The asset stock in its current state has been sufficient to maintain the generally improving level of services to customers. The assessment of asset condition is only one element of a proper economic analysis of the appropriate level of expenditure on capital maintenance. No allowance has been made in price limits for additional capital maintenance to meet a specific objective set by a company to improve asset condition.

The quality improvement programme will, however, result in improvements to the general condition of the asset stock over the next price limit period.

7.3.5 Scope for improvements in efficiency

Improvements in efficiency and the benefits of the more accurately focused work resulting from the better information systems that are becoming available, mean that a continuation of historical average levels of capital maintenance should enable companies to improve serviceability to customers and achieve greater value for money during the next price limit period.

The basis of the assessment of the scope for savings through greater efficiency is set out in Chapter 6. The assessment of the need for capital maintenance after this stage in the process is a little over £6.3 billion for the five year period.

15 *Information Notes 35A and 35B — Serviceability of water company facilities in England and Wales up to March 1998*, Ofwat, February 1999.

Companies that forecast reductions in capital maintenance expenditure in their Business Plans raised concerns in their representations about the fairness of Ofwat applying its efficiency assumptions to these lower forecasts. These companies saw this approach as penalising them for putting forward reductions and said that it created the wrong incentives. The Director has taken account of these representations and a revised method has been used for the final determination. This compares the outcomes of the Ofwat analysis *after* efficiency savings with the company's forecast, taking the lower of the two numbers for infrastructure and non-infrastructure capital maintenance expenditure. This has resulted in changes to lines 2 and 4 of Table 19 compared with those shown in the corresponding table in *Future water and sewerage charges 2000–05: Draft determinations*.

7.3.6 The implications of the quality programme for capital maintenance

The work necessary to deliver the required quality improvements involves both substantial additional facilities and rebuilding poorly performing works at or near the end of their working lives. This has been the case in recent years and is forecast to continue through the next price limit period. Historical capital maintenance expenditure reported by companies has included some of the work needed to deliver the earlier quality improvement programmes. This has been estimated to be around £1.0 billion over the last five years.

In setting price limits, it has been necessary to assess whether the improvements required in the next five years that are to be delivered through targeted capital maintenance follow the recent trends. The assessment for the next five years is that around £1.0 billion of capital maintenance expenditure will be focused on the quality improvement programme. The position varies between the four classes of assets requiring maintenance: water and sewerage, above and below ground (ie non-infrastructure and infrastructure).

For water infrastructure, the Director's policy on work to meet water distribution undertakings, (namely that the extra cost of replacing pipes rather than rehabilitating them should be classified as capital maintenance expenditure), implies that a slight upward adjustment is required. For sewerage non-infrastructure assets the allocations to capital maintenance are significantly less than in previous years and this justifies a reduction in capital maintenance expenditure for similar reasons.

In their representations, companies argued that upward adjustments were needed for water non-infrastructure and sewerage infrastructure capital maintenance expenditure to reflect the amount of quality enhancement work that would need to be carried out on existing assets. In the final determination for some companies, these upward revisions have been made where the companies' projections of the amount of the quality programme impacting on capital maintenance in the next price limit period is greater than that which has been the case in the past.

Companies also argued that the degree of synergy between the quality and capital maintenance programmes assumed in the draft determinations was greater than they believed could be possible. The Director is of the view that in addition to synergies occurring for individual schemes, the greater synergies between the quality and capital maintenance programmes occur at the strategic level in a company. The substantial programme of quality enhancements during the period of the next price limits will continue to improve existing assets. This provides further opportunity for companies to review their capital maintenance programmes to take account of the additional improvements resulting from the enhancement programmes. The Director's view on this aspect of capital maintenance has not changed for the final determination.

At the industry level, there has been no material change to the allowed levels of capital maintenance expenditure to take account of possible overlaps and synergies associated with the quality programme, although this varies from company to company.

7.3.7 Infrastructure renewals charges

Infrastructure renewals accounting provides for a charge to be made each year against profits (the infrastructure renewals charge). The difference between the charge against profit and expenditure in a given year gives rise to an accrual or prepayment in the balance sheet, rather than influencing reported profits. In the price limits, the Director has assumed an infrastructure renewals charge that equals the average level of infrastructure renewals expenditure over the 15 year period from 1995–2010.

For some companies, a further adjustment has been made to the infrastructure renewals charge to reflect the utilisation of any accrual (or prepayment) which had not been taken into account in setting infrastructure renewals charges at the last review in 1994.

7.3.8 Current cost depreciation and 'broad equivalence'

Conventional current cost depreciation is used to derive the appropriate accounting charge to cover the capital maintenance needs of the above ground assets subject to the test that there is broad equivalence between such charges and the actual and expected levels of capital maintenance expenditure.

The total current cost depreciation for the period 2000–05 allowed for in price limits is shown in Table 12 in section 5.5. This comprises two elements: depreciation on the pool of base assets existing as at 31 March 1998 and their maintenance, renewal or replacement; and depreciation on new assets created since that date. The new assets arise largely as a result of the drinking water quality and environmental enhancement programmes described in Chapter 8.

In their Business Plans, all of the water and sewerage companies and some of the water only companies assessed their projections to be broadly equivalent. Four companies included an explicit reduction to depreciation charges to meet the test. Some water only companies had not made an assessment of their broad equivalence position since their profile of capital maintenance expenditure was lumpy because of their small number of works. The Director recognises that broad equivalence may not be appropriate for some small companies. In addition, future depreciation charges for many companies were reduced as a consequence of reductions in the Modern Equivalent Asset valuations of the asset base carried out by companies as part of the Business Plan process.

The Director has assessed the broad equivalence between current cost depreciation on base service assets and his projections for capital maintenance expenditure for all companies except the smallest. For some companies, this results in reductions to the current cost depreciation allowed in the price limits and hence lower bills.

The reassessment of current cost depreciation should not affect the present value of future cash flows since depreciation charges will also affect the regulatory capital value. If current cost depreciation is reduced, the regulatory capital value will be correspondingly higher and remunerated by the return on capital. Hence, only the timing of future revenues is affected, not the overall level of remuneration.

8. QUALITY PROGRAMME AND OTHER ENHANCEMENTS

8.1 Drinking water quality and environmental improvements

Most of the £15.6 billion capital investment programme which is financed in the price limits will preserve or enhance the environment. Expenditure on capital maintenance is critical to maintaining existing achievements. At least £1.0 billion of this expenditure directly relates to improvements in the distribution and sewerage systems. The price limits will also finance a very substantial programme of quality and environmental improvements. This programme deals both with improvements to drinking water quality and to the water environment, namely wetlands, inland waters, estuaries and coastal waters.

In *Future water and sewerage charges 2000–05: Draft determinations*, the Director stated that some elements of the programme required further investigation. Some have been reviewed since then and others still require further investigation. There are also likely to be new obligations, for example, in relation to the implementation of the lead standard, which will need to be complied with during the period 2000–05. The relevant figures are set out in Table 20 (overleaf).

The scope of quality and environmental improvements has been widely debated over the last three years. The current position has evolved as both European and national legislation and government policies have changed. This process has involved Ministers, as the standard setters, as well as the quality regulators — the DWI, the EA — and other statutory bodies such as English Nature and the Countryside Council for Wales. Customers, water companies and groups representing environmental interests have also been involved in the consultation process.

In guidance to the Director in *Raising the quality* (September 1998), Ministers set out a substantial programme of quality and environmental improvements to be delivered which they believed was consistent with a 10% cut in prices and generally stable bills thereafter. This programme would meet EU and domestic statutory obligations and would enable a significant amount of non-statutory work driven by government environmental policy to be carried out. The Environment Minister supplemented the guidance in March and November 1999. The Director has taken account of this guidance.

In setting price limits, the Director must comply with his statutory duties. They involve making judgements about the proper functions of the companies and ensuring that companies can finance them. He has a further duty to promote economy and efficiency by companies in carrying out these proper functions. He also has a statutory duty to protect the interests of customers.

Table 20: Cost estimates for quality enhancements

Drinking water & environmental improvements	Companies' Business Plans capital expenditure £m	Ofwat's assumptions	
		Capital enhancement expenditure £m	Capital maintenance expenditure £m
Meeting the standards and timetables set out in the new (EU) **Drinking Water Directive**	3,330	2,140[1]	560
Dealing with the adverse effects on **Habitats Directive** sites, **SSSIs** and **low flow rivers**	300	230	
Improving the water environment by: – Ensuring that all significant sewage discharges receive at least secondary treatment **(UWWTD)** – Improving **unsatisfactory sewer overflows** – Making substantial progress towards meeting **River Quality Objectives** – Improving bathing waters (**Bathing Water Directive** & towards **Blue Flag** status) – Protection of shellfish waters and reduction of eutrophication – Meeting higher standards for the disposal of sewage sludge	6,920	5,310	470
Currently identified quality improvement programmes	10,550	7,680	1,030
		8,710	
Provision for other **new obligations** which may arise during 2000–05 (based on interim determinations and logging-up during AMP1 and AMP2)		700	
Final quality improvement programmes		**9,410**	

The Director has dealt with the final quality improvement programmes as follows:		
Included in price limits for financial years 2000–01 to 2004–05 inclusive	7,380	1,030
Roll-out of above programmes for delivery by December 2005 (in financial year 2005–06)	70	
Total for April 2000 to December 2005	**7,450**	
Not included in price limits pending reassessment and reconfirmation of the need for certain schemes to:		
– Reduce the impact of water abstraction	110	
– Make further progress towards meeting **River Quality Objectives**	120	
Provision for **other new obligations** which may arise during 2000–05 (not included in price limits)	700	
Likely final quality improvement programmes	**8,380**	**1,030**
Total expenditure on quality and related maintenance	**9,410**	

1 Includes improvements given technical support by the DWI since the draft determinations (not all of which were included in the Business Plans).

8.1.1 The quality improvement programme for 2000–05

Companies submitted a large number of proposals for improvement schemes in their Business Plans to meet and in some instances exceed the ministerial objectives. Over six hundred projects were put forward for the water service, in addition to those programmes to deal with continuing progress on improvements to the distribution system and meeting the new requirements for lead. For the sewerage service, in excess of 2,500 projects to deal with improvements in sewage treatment and over 4,800 schemes to deal with unsatisfactory intermittent discharges were included. Companies forecast that they will need to treat and dispose of over 60% more sewage sludge each year by 2005 compared with 1998–99. Companies estimated that the quality improvement programme would cost £10.5 billion.

The companies' proposals have been reviewed for the appropriate enhancements to be included in price limits, the timescale for delivering these improvements and the appropriate assumptions about costs to assume. All of the proposals were tested against the principles set out in *The quality framework* (April 1998) and refined in MD145. In order for work to be considered as part of the quality enhancement programme:

- the requirement for the work proposed must be supported by the quality regulator and must be in response to a legal obligation that will be enforced through Regulations;
- the timetable for compliance must be clearly defined and in line with Regulations;
- the company must have defined the asset improvements required and carried out a robust assessment of the effectiveness of the method for implementing the new standards; and
- the costs of these improvements should have been identified and these estimates should have been subject to rigorous challenge.

In translating ministerial objectives into robust, costed and deliverable programmes to be included in price limits, the Director has also considered the following questions:

- Has there been sufficient consideration of the extensive programmes of work (which are to be implemented in short timescales) to minimise the risk that value for money might fall short of the optimum?
- Has there been sufficient time for studying and identifying the best means of solving particularly difficult problems?
- Could the short timescales prevent companies from planning optimal solutions for construction?
- Does the level and pace of capital investment result in bankability problems for companies which would increase the financing costs of the investment above the cost of capital?

The process for defining the quality programme has been carried out over the last two years. Most of the proposals that companies included in the Business Plans have the support of the EA or received technical support from the DWI.

Companies' Business Plans did not always reflect the timetable required to comply with legal standards. In these instances, the programmes have been rephased to be consistent with legislative requirements. For example, the Director has assumed that progress with work in three companies to meet the requirements of the UWWTD (amounting to about £65 million) will run on into the last nine months of the calendar year 2005. The total value of programmes which have been rephased is £70 million.

Some of the Business Plans were weak in justifying a number of the asset improvements proposed by companies to deliver the more exacting standards. These weaknesses were particularly apparent in companies' proposals in two areas:

- dealing with the alleviation of low flow in some rivers and the other environmental effects of water abstraction; and

- improvements to river water quality to meet Ministers' objectives.

In the draft determinations, six schemes had been identified where a reappraisal of the solutions proposed was required before they were suitable for incorporation into price limits. These schemes are designed to alleviate the environmental impact of water abstraction. Three of the six schemes have been reappraised and are now included in the final determinations. However, the other three still require further review. Where work is required before 2005, the procedure set out in Appendix E will apply.

For work to meet the Ministers' wishes on meeting river quality objectives, companies put forward more than 700 schemes. Approximately 550 of these schemes are primarily aimed at either improving or preventing deterioration in 4,400km of rivers, based on the cost driver first listed by the EA on their March 1999 spreadsheets. The price limits include provision for nearly 3,700km of river to be protected or improved. It has been assumed that schemes to improve a further 275km of rivers will be completed before the end of December 2005. The Director is not satisfied in 62 cases that companies have proposed the most cost-effective solutions to achieve the objectives for a further 300km. These schemes should be subjected to further reappraisal to identify a more cost-effective way of delivering the improvements. Schemes covering the remaining length have been excluded for failing to meet all the criteria set out above.

The Director's view of such schemes has been borne out since the draft determinations. For example, the reappraisal of one such scheme has resulted in an alternative solution that is acceptable to the EA and for which the estimated cost is around one twentieth of the cost of the original proposal, a saving of about £10 million. This alternative solution has been included in the price limits.

If, following a full appraisal of the options for meeting drinking water and environmental objectives, companies are required to carry out these improvements before the end of 2004–05, then the proper net additional costs of the new obligations would be taken into account at the next Periodic Review of prices in 2004 or, if material, at an interim determination before then. The procedures for quantifying and incorporating such additional expenditure are set out in Appendix E.

After ascertaining the scope and appropriate timescale for the work proposed, the cost estimates included by the companies were reviewed and challenged. The reports from the independent Reporters and previous submissions by the companies on costing the scope of quality enhancements were fully considered. Evidence was sought to show that companies had adequately explored different ways to achieve the outputs required, in view of innovations in technology. The approach to the process adopted was also assessed, for example whether companies had adopted conservative assumptions to risks compared with the design and operation of their existing assets. Reporters' comments informed the judgements as to whether or not the costs of the quality enhancement programme were consistent with the information on standard costs (ie the cost base information included with the Business Plans).

The approach to costing was generally reviewed at the programme level, but individual assumptions were made relating to specific work programmes, such as the reduction of risk from cryptosporidium, replacement of lead communication pipes, the improvement of intermittent discharges and the disposal of sewage sludge. When these adjustments are considered in conjunction with the efficiency assumptions described in section 6.7, price limits assume that the likely costs of delivering quality enhancements will be on average 27% lower than those included by companies in their Business Plans (prior to the application of their own efficiency assumptions). There have been reductions

applied to the costs in companies' Business Plans ranging from 5% to 67% for the water service and from 7% to 41% for the sewerage service.

A similar approach was taken in assessing what the reasonable and justified additional operating costs associated with the enhancements should be. Generally the company programme was assessed as a whole, the treatment and the disposal of sewage sludge being the only significant area in which operating costs were reviewed separately.

The overall effect of these assumptions on companies' proposals, and the provision made in the price limits, are shown in Tables 21a and 21b.

The work programme expected from companies to improve their assets to deliver more exacting quality standards is substantial. The two maps, Figures 20 and 21, indicate the capital expenditure per property allowed for in price limits for each of the companies in aggregate for the five years 2000–01 to 2004–05 for the water and sewerage services respectively. The breakdown of this expenditure by obligation and the amount of work assumed on a national basis is shown in Tables 22a and 22b.

Table 21a: Assessing the likely costs of the quality enhancement programme 2000–05 — water service

The water service	Activity and outputs expected			Expenditure
	Distribution mains renovated	Lead communication pipes replaced under quality	Water treatment works & sites improved[1]	Capital expenditure assumed
	Km	000s	Nr	£m
Companies' Business Plans[2]	23,430	1,150	612	3,260
After reviewing work included	22,020	970	531[3]	2,870
After assessing companies' approach to work				2,610
After applying catch-up to less efficient companies				2,410
After applying future efficiency assumptions				2,260
Assumed in price limits	22,020	970	531	2,260
Difference between Business Plans and final determinations	(1,410)	(180)	(110)[3]	(1,000)

1 Number of projects included by companies in the supplementary information submitted with the Business Plans.

2 Companies' gross costs allocated to quality (before any future efficiency assumptions).

3 This figure includes 29 schemes included after companies had submitted their Business Plans. These schemes have been excluded in arriving at the difference between Business Plans and final determinations.

Table 21b: Assessing the likely costs of the quality enhancement programme 2000–05 — sewerage service

The sewerage service	Activity and outputs expected							Assumed expenditure	
	Intermittent discharges dealt with		Sewage treatment works improved		River lengths improved or protected from deterioration		Sewage sludge dealt with	Capital expenditure assumed	Rephased capital expenditure into 2005–06
	Nr		Nr		km		Ttds	£m	£m
	2000–05[1]	2000–06[2]	2000–05[1]	2000–06[2]	2000–05[1]	2000–06[2]	2004–05	2000–05	2005–06
Company Business Plans[4]	4,692[3]	4,824[3]	2,168[3]	2,171[3]	4,377	4,377	1,479	7,000	
After reviewing work included	4,682		1,903		3,967		1,376	6,340	
After assessing companies' approach to work								6,020	
After applying catch-up to less efficient companies								5,600	
After applying future efficiency assumptions and further % adjustments								5,190	
After rephasing work to be completed	4,495	4,682	1,790	1,903	3,692	3,967		5,120	70
Assumed in price limits	4,495	4,682	1,790	1,903	3,692	3,967	1,376	5,120	
Difference between Business Plans and final determinations	(197)	(142)	(378)	(268)	(685)	(410)	(103)	(1,880)	

1 Dealt with in the five years 2000–01 to 2004–05.

2 Dealt with in the six years 2000–01 to 2005–06.

3 Number of projects included by companies in the supplementary information submitted with the Business Plans.

4 Companies' gross costs allocated to quality (before any future efficiency assumptions).

Table 22a: Outputs expected from companies for the period 2000–05 — water service

Specific quality improvements	Enhancements planned before March 2005		Capital expenditure (£m)	Additional operating expenditure[1] £m/year
			2000–05	2004–05
1 Obligations arising from existing legislation				
Works to overcome exceptional problems of **deteriorating raw water quality**	Improvements to treatment works with a design flow of 2,150 Ml/day sufficient to serve 8 million consumers	68 projects	140	3.0
Renovation of water distribution systems to overcome quality problems by 2010	22,020 km of water distribution mains rehabilitated		1,030	2.0
Required measures to reduce risk from **cryptosporidium**	Improvements to treatment works with a design flow of 8,700 Ml/day sufficient to serve 30 million consumers	189 projects	470	11.0
2 Compliance with new EU Directives				
Improvements to treatment works and distribution systems required to meet the new **Drinking Water Directive**				
(a) new **interim lead standard** by 2003	Improvements to treatment works with a design flow of 4,670 Ml/day sufficient to serve 15 million consumers	108 projects	20	4.0
(b) progress towards the **long-term lead standard**	971,330 communication pipes		320	0.0
(c) meeting other parameter standards	Improvements to treatment works with a design flow of 3,670 Ml/d sufficient to serve 15 million consumers	85 projects	160	18.0
Works required to reduce **over-abstraction** (a) at designated sites under **Habitats** and **Birds Directives**	Improvements to treatment works with a design flow of 210 Ml/day sufficient to serve <1 million consumers	24 projects	50	1.0
3 Obligations arising from national legislation				
(b) affecting **SSSIs**	Improvements to treatment works with a design flow of 70 Ml/day sufficient to serve <1 million consumers	20 projects	10	<1.0
(c) other priority sites **(low flow rivers)**	Improvements to treatment works with a projects design flow of 880 Ml/day sufficient to serve 3 million consumers	37 projects	60	<1.0
Totals			**2,260**	**40**

1 Additional operating expenditure in 2004-05 associated with schemes delivered after March 2005 incurring operating expenditure before March 2005.

Table 22b: Outputs expected from companies for the period 2000–05 — sewerage service

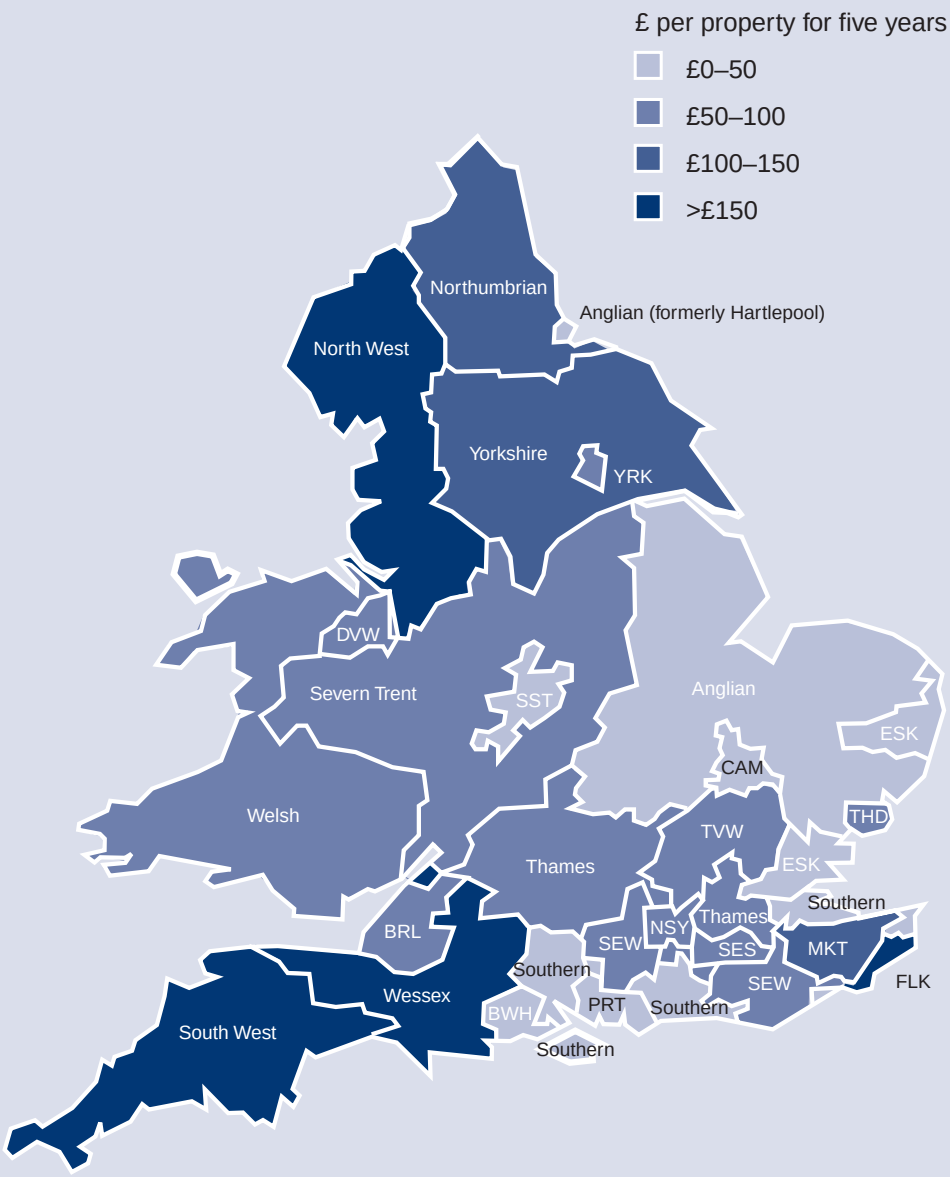
Specific quality improvements[1]	Enhancements planned before December 2005		Capital expenditure (£m)	Additional operating expenditure[2] £m/year
			2000–05 ***[2000–06]***	**2004–05** ***[2005–06]***
4 Obligations arising from UWWTD and BWD				
Installing high quality sewage treatment infrastructure to comply with the **Urban Waste Water Treatment Directive**	Improvements to works with a capacity of 18.6 million population equivalent	902 sites	1,310 *[1,310]*	72 *[82]*
Works to comply with mandatory standards under the **Bathing Water Directive** and further improvements to assist achieving **Blue Flag** status at key holiday resorts	Improvements to works with a capacity of 8.0 million population equivalent	75 sites	230 *[230]*	6 *[6]*
5 Compliance with other EU Directives				
Improvements to comply with imperative standards and endeavour to observe guideline standards for: **(a) Freshwater Fish Directive**	Improvements to works with a capacity of 4.4 million population equivalent	245 sites	250 *[250]*	4 *[4]*
(b) Shellfish Waters Directive	Improvements to works with a capacity of 1.8 million population equivalent	48 sites	50 *[50]*	1 *[1]*
Other improvements to effluent discharges (a) At designated sites under the **Habitats** and **Birds Directives**	Improvements to works with a capacity of 0.8 million population equivalent	33 sites	20 *[20]*	1 *[1]*
(b) Affecting other **SSSIs**	Improvements to works with a capacity of 0.1 million population equivalent	34 sites	20 *[20]*	1 *[1]*
(c) For compliance with **Surface Water Abstraction Directive**	Improvements to works with a capacity of 0.1 million population equivalent	4 sites	10 *[10]*	<1 *[<1]*
6 Obligations ensuing from national guidance and legislation				
Improvements to unsatisfactory intermittent discharges **(combined sewer overflows)**	Improvements to 4,682 unsatisfactory overflows		1,700 *[1,760]*	6 *[8]*
Improvements in the disposal of **sewage sludge** (a) Phase out of raw sludge to land by end of 2001 (b) Restrictions on treated sewage sludge to land (c) Disposal of additional sewage sludge	A total of 1,380 thousand tonnes dry solids sludge disposed of satisfactorily		800 *[800]*	46 *[46]*
Improvements to reduce current shortfall on **River Quality Objectives**	2,953 km river protected from deterioration; 1,014 km river improved	487 schemes	490 *[500]*	6 *[12]*
7 Other environmental improvements				
To meet demands for **First Time Sewerage** and other requirements	Provision of sewerage to a population equivalent of 0.08 million	315 schemes	240 *[240]*	11 *[11]*
Totals			**5,120** ***[5,190]***	**154** ***[172]***

1 Enhancement categories are based on the first-listed cost driver in the EA's March 1999 spreadsheets. This may not correlate with the individual company's allocation of expenditure between the various categories.

2 Additional operating expenditure in 2004-05 associated with schemes delivered after March 2005 incurring operating expenditure before March 2005.

Figure 20: Cost of quality enhancements in the water service included in the price limits for each company

£ per property of capital expenditure in the period 2000–05

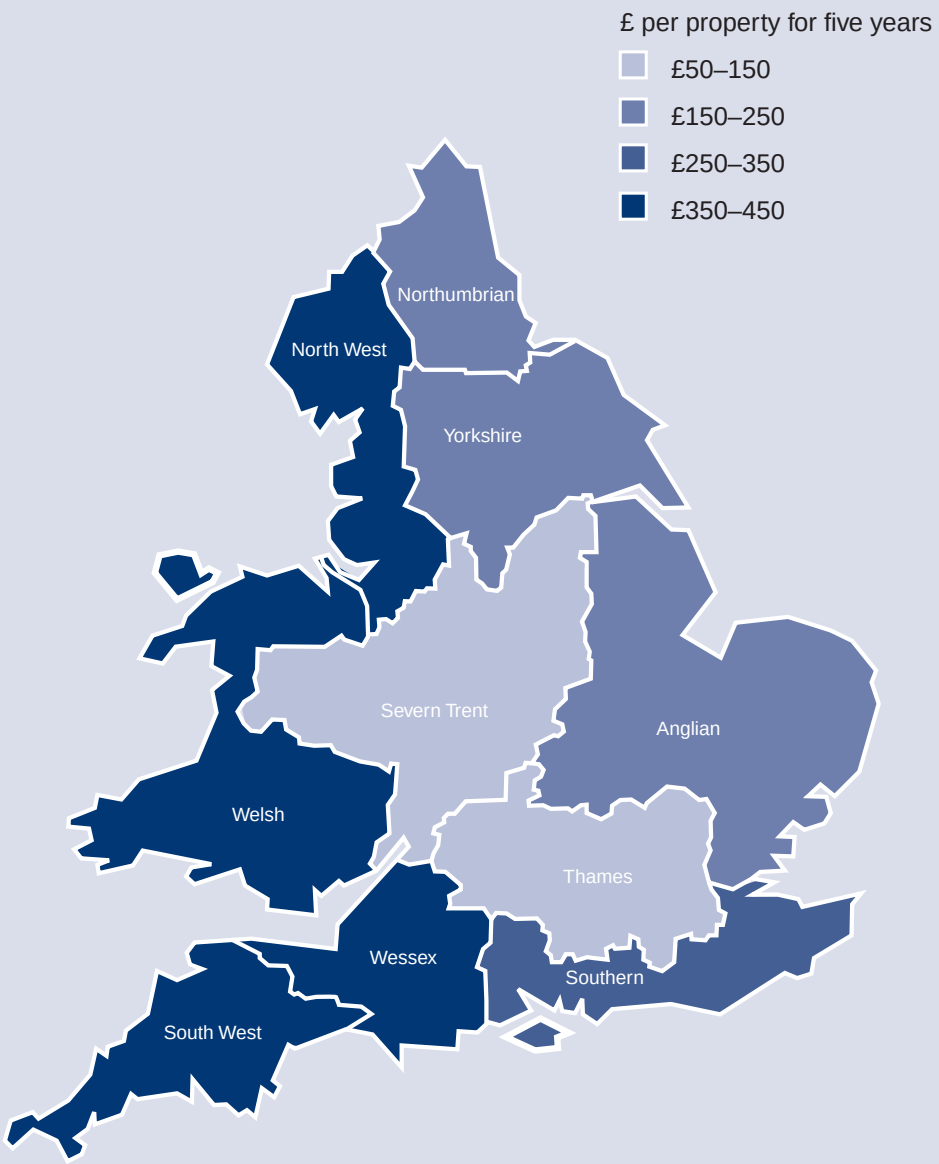


KEY:

BWH Bournemouth & West Hampshire
BRL Bristol
CAM Cambridge
DVW Dee Valley
ESK Essex & Suffolk
FLK Folkestone & Dover
MKT Mid Kent
NSY North Surrey
PRT Portsmouth
SEW South East
SST South Staffordshire
SES Sutton & East Surrey
THD Tendring Hundred
TVW Three Valleys
YRK York

Figure 21: Cost of quality enhancements in the sewerage service included in the price limits for each company

£ per property of capital expenditure in the period 2000–05



8.2 Other enhancements

In their Business Plans, companies proposed investment of £640 million to improve customer service, 60% of which related to sewer flooding. As set out in Chapter 4, the Director has allowed in price limits for a reduction in the levels of sewer flooding and low water pressure experienced by customers.

In deciding what allowance to make to reduce sewer flooding, Ofwat has examined the historic performance by companies, the degree of customer support and the cost effectiveness of the investment proposed by each company.

8.2.1 Sewer flooding

The Business Plans of the water and sewerage companies included proposals to solve 7,200 problems at a cost of £370 million. The Director has allowed in price limits for 4,500 problems to be solved, at a cost of around £137 million, leading to a reduced average incidence of around 2 in 10,000 properties experiencing sewer flooding in any one year. In their responses to *Future water and sewerage charges 2000–05: Draft determinations*, customers and customer groups, particularly the CSCs, argued for more to be done to tackle sewer flooding. The CSCs believe that customers attach a high priority to this issue and would regard it as better value for money than some of the proposed environmental projects. The Director recognises the strength of these arguments but has concluded, reluctantly, that because of the financing issues caused by the size of the environmental programme there is limited scope, except for Thames Water, to increase the provision made to further alleviate sewer flooding. However, small additional allowances have been made for several companies. This does not of course preclude companies from making more rapid progress should they find they are able to do so within the price limits set, or by giving a high priority to these schemes in their sewerage capital maintenance programmes.

The level of improvement allowed for takes account of the fact that solving sewer flooding problems becomes increasingly expensive as the easier problems are solved and the more difficult ones remain to be dealt with. Also, there is scope for companies to better understand how sewer flooding may be addressed most cost effectively. In these circumstances, the Director considers that sewer flooding should continue to be reduced at a rate which allows time for the development of cost-effective solutions and to avoid unnecessarily high costs.

All water and sewerage companies proposed some reduction in sewer flooding in their Business Plans. Historic incidence of sewer flooding, whether caused by inadequate infrastructure or other causes are particular problems for Dŵr Cymru (Welsh Water), North West, Severn Trent and Yorkshire Water. The Director proposes to allow for sufficient problems to be solved to bring the level of incidents in these companies closer to the industry norm in recent years of around 2.5 per 10,000 connected properties each year.

The unit costs of solutions proposed by all companies ranged from £17,000 to £150,000 per problem solved. Ofwat has considered the justification for these costs, particularly the extent to which companies have proposed low-cost solutions. The price limits include, therefore, a cap of around £52,000 per problem solved. This will provide companies with a strong incentive to seek cost-effective solutions, while accepting that the cost of dealing with individual problems will vary.

In addition to those companies where a particular problem needs to be addressed, the Director has made an allowance in the price limits of several companies where there is evidence of customer support and where the company has proposed low cost solutions to solve sewer flooding problems. Costs proposed by those companies have also been subject to efficiency assumptions on future operating and capital costs.

8.2.2 Low pressure

Six companies proposed investment to reduce problems of low pressure. Of these, the Director accepts that there is justification and customer support for investment to bring performance closer to the industry norm for Bournemouth & West Hampshire Water and Dee Valley Water. He has allowed a total of nearly £1 million to reflect this.

8.2.3 Other improvements

The Director does not consider that prices need to be increased to allow for other improvements to customer service proposed by the companies. Much has been achieved by the companies over the last five years without any specific allowance in prices and a number of companies have committed

themselves to making further service improvements from efficiency savings. The Director believes that the right approach is to provide strong incentives for cost-effective improvement in the areas most valued by customers. The Director will reward good customer service through the overall service performance adjustment as described in section 6.8.

9. MAINTAINING THE BALANCE BETWEEN SUPPLY AND DEMAND

At the national level the demand for water is projected to fall in the medium term. The price limits make allowance in aggregate for £1.7 billion of investment over the five years to enable companies to maintain the balance between supply and demand for water and sewerage services. This expenditure will largely be offset by new revenues to companies so the impact on bills for the generality of customers has been kept to a minimum.

Expenditure on local distribution networks to connect new customers should be financed largely from the proceeds of infrastructure charges or, where appropriate, requisitioning. The additional costs of first time sewerage are allowed for in price limits as part of the quality programme.

Falling demand from non-households, together with the metering of new properties and of high non-essential users will help to accommodate increases in demand from new and existing households. In addition, expenditure on further reductions in leakage and small-scale resource development in a number of companies will ensure that the balance between supply and demand is maintained.

For some companies, primarily in South East England, the balance between supply and demand is under greater pressure. In these cases, additional expenditure is needed to address current and projected resource deficits and to ensure the continuity of essential supplies to customers and provide acceptable levels of service. Since the draft determinations, Ministers have published a consultation paper on Regulations[16] provided for by the Water Industry Act 1999. This includes prescribed conditions for selective metering in areas of water stress. At present, this could allow, in due course, Essex & Suffolk Water and Folkestone & Dover Water to selectively meter existing households. For both companies, price limits allow for significant expenditure to improve the current balance between supply and demand. Any future scope for selective metering would not, therefore, be expected to necessitate any additional expenditure over and above the levels already allowed for in price limits.

In January 1999, Ministers published *Maintaining public water supplies*[17], which was their response to water resource issues identified in *Prospects for Prices* and to the EA's open letter to Ministers.[18] Since that time, companies have submitted to the EA final Water Resources Plans and set out in their Business Plans their proposed investment plans for balancing supply and demand. Ofwat has reviewed those Water Resource Plans in consultation with the EA. This has helped to ensure that companies' investment plans properly reflect the Water Resource Plans agreed between companies and the EA. In its representations on the draft determinations, the EA was concerned that the Director's assumptions on metering could impact on the implementation of the Water Resource Plans. The Director supports metering for demand management purposes where it is cost-effective. The Water Industry Act 1999, however, limits the scope for metering for this purpose and emphasises customer choice as the driver for further household metering. This is reflected in the approach which the Director has taken on optional metering.

Ministers emphasised that interruptions to essential public supplies were no longer tolerable and advocated the adoption of a precautionary principle in both water resource planning and allowances for expenditure to balance supply and demand. Ministers also agreed with the Director's approach that price limits should allow only for those costs which are necessary to maintain an adequate balance between supply and demand and which cannot be recovered through tariff mechanisms.

The Director has recognised the need to ensure that customers receive a secure supply of water for domestic purposes and, pending legislation, agreed a licence amendment to provide for automatic compensation for loss of supplies, even in a drought. Temporary bans on the use of hosepipes for non-domestic purposes should be dealt with differently in the absence of widespread metering (and more sophisticated measured tariffs). The Director believes that demand management and tariff development are essential to ensure that public water supplies are maintained without excessive cost burdens being imposed on all customers. He expects all water companies to develop charging policies to secure economy in the use of water.

16 *The Water Industry Act 1999 Consultation on Regulations*, DETR, October 1999.

17 *Maintaining public water supplies*, DETR, January 1999.

18 *Draft water company resource plans*, Environment Agency, December 1988. This letter was sent to the Minister for the Environment, DETR and the Secretary of State for Wales.

9.1 Demand and revenues

Table 23 provides an overview of the projected water delivered to customers for the period to 2004–05 that has been assumed in setting price limits.

Table 23: Projected changes in water delivered to customers

Component	Level in 1999–00 Ml/d	Change in Ml/d by 2004–05	Percentage change
Water delivered to households	8,356	+133	+1.6%
Water delivered to non-households	3,845	-174	-4.5%
Total water delivered	12,201	-41	-0.3%

Note: Ml/d equals 1 million litres per day.

The table highlights a significant reduction in projected non-household demand. By 2004–05, water delivered to household customers is projected to increase by 133 Ml/d (or about 1.6%). This overall increase results from around 0.7 million new households over the same period (an increase of about 3.5%).

Companies also expect to reduce water into supply by 142 Ml/d, reflecting the anticipated impact of companies achieving mandatory leakage targets set by the Director and moving towards economic levels of leakage.

Companies' Business Plans in contrast forecast a larger reduction of 160 Ml/d overall in water delivered, comprising a reduction of 207 Ml/d for non-households offset by a smaller increase of 47 Ml/d in water delivered to households.

In *Prospects for Prices*, the Director identified future demand from non-households and households as a key uncertainty. This is because it impacts upon both companies' revenue projections and investment plans to maintain the balance between supply and demand. The approach taken by the Director in setting price limits reflects two main factors.

First, on non-household demand, the key influences can be identified as:

- forecast economic activity;
- structural changes within water-intensive industrial sectors; and
- efforts by commercial customers to become more economical in their use of water, for example by investing in more water efficient process technologies.

It is well established that non-household demand for water, more so than for households, reflects general economic conditions. Also, the relative decline of manufacturing industry and structural changes within water-intensive industries such as brewing have contributed to a steady long-term decline in demand.

The Director believes, however, that the view that some companies have taken on the extent of future economies by commercial customers has not been soundly based and is not substantiated by recent evidence. This was acknowledged by a number of companies prior to the submission of the Business Plans and, subsequently, the projections set out in their Business Plans included more modest declines in non-household demand.

In their representations to the Director, some companies provided further specific evidence of reductions in current non-household demand greater than that anticipated in their Business Plans. The Director has recognised this and revised downwards the assumptions for forecast demand from non-household customers for a number of companies.

The second factor relates to the savings made by households associated with optional metering. Section 5.3.3 explains that price limits assume that no more than 15% of the 1999–2000 unmeasured household base will opt for a meter by 2004–05. This equates to about 1.6 million optional meter installations compared with the companies' projection of 3.1 million. In MD145 in March 1999, the Director also indicated to companies that he was minded to assume that optional metering would achieve no more than a 5% saving in household water consumption, unless companies could present compelling evidence to the contrary. This position reflects the findings from the National Metering Trials[19] of savings in average demand of around 10% for selectively metered households and a view that the households who opt for meters do so largely for financial gain and so have less incentive to reduce their water consumption. This, together with evidence that the average demand for water by households is not very responsive to price, suggests that it is appropriate to assume more modest savings of no more than 5%.[20]

Table 24 sets out the projected change in industry revenues by 2004–05 assumed in price limits. Overall, revenues from households are expected to rise by less than the rise in household water delivered (reflecting the impact of lower revenues from meter optants offsetting the increase in the number of households from new connections). Non-household revenues for the water service will decline, reflecting the projected fall in demand, while for the sewerage service there is a slight increase. The latter reflects the fact that sewerage revenues are generally less linked to volumes (due to higher fixed charges). The impact of declining industrial demand is more evident for large users.

Table 24: Industry revenues

£m	Water service		Sewerage service	
	1999–00	Annual % change to 2004–05	1999–00	Annual % change to 2004–05
Total tariff basket revenues	3,132	+0.1	3,533	+0.2
Household revenues	2,338	+0.2	2,693	+0.3
Non-household revenues	794	-0.1	840	0.0
Revenues from large users	119	-3.6	89	-4.5

Note: Large users are customers with demand not less than 250,000m³ per annum.

In contrast, companies' Business Plans projected falls in household revenues (at constant prices) of about 0.4% per annum. This reflects their higher projections for optional household metering and differences in the characteristics of those switching to metered charges. For non-households, companies were expecting their revenues (at constant prices) to decline by around 1% per annum and for large users by around 4.3% per annum. This again reflects their more extreme view of falling demand from non-households. In combination, the companies' revenue projections would lead to higher bills for customers.

In the representations received from some companies (and one business customer group), it was argued that large industrial customers should benefit from the initial price adjustment and that this should be reflected in companies' forecast revenues from those customers (notwithstanding that the charges from such customers are not included in the tariff basket for all but one company). The Director has consistently stated throughout the Periodic Review that the initial price reduction should not automatically apply to tariffs for large users, as this could result in them falling below the continuing costs of supplying such customers — the long run marginal cost (LRMC).

19 *Water metering trials final report*, The National Metering Trials Working Group, 1993; *The effects of metered charging on customer demand for water from 1 April 1989 to 31 March 1993*, WRC, 1994.

20 As highlighted, for example in the review of international evidence set out in *Towards an environmentally effective and socially acceptable strategy for water metering in the UK*, 1998, UKWIR and *A review of tariffs for public water supply. A report to the Environment Agency*, 1998, National Water Demand Management Centre.

Where companies can demonstrate that such tariffs could be lowered on the basis of a robust estimate of LRMC, the Director will take account of this when he approves companies' charges schemes. Nevertheless, the assumptions of large user revenues in the final determinations anticipate a decline in income from large users, which allows both for a reduction in real prices as well as a fall in sales. There is, therefore, justifiable scope for rebalancing for large user tariffs. Indeed, there is scope for reducing large user tariffs through lowering the volumetric rate for initial tranches of water (in line with standard household volumetric rates) or reducing fixed charges (which in some cases would lower the threshold). Consistent with the principles set out previously[21], the Director has allowed in price limits for reductions in large user tariffs where these are presently in line with standard tariffs. This is most relevant to charges for sewerage services. He has also allowed for reductions to large user tariffs to prevent them from being above standard tariffs.

9.2 Costs of maintaining the balance between supply and demand

Table 25 sets out the expenditure allowed for in price limits to balance supply and demand. This expenditure relates to the costs of connecting new customers, accommodating any growth in demand from new and existing customers and to enhance the current security of supply for a number of companies. The table also indicates the allowance in price limits for optional meter installations.

Table 25: Expenditure to maintain the balance between supply and demand

£m	Total expenditure 2000–01 to 2004–05		
Water service	Capital expenditure	Operating expenditure	Expenditure with net impact on price limits
New development	602	31	No
Growth in demand (excluding optional metering)	212	14	No
Optional metering	202	53	Yes
Enhanced security of supply	113	15	Yes
Sub-total	1,129	113	
Sewerage service			
New development	360	36	No
Growth in demand	196	82	No
Sub-total	556	118	
Total supply/demand	1,685	231	

To connect new customers and to match the supply and demand for water, companies in their Business Plans projected capital expenditure of around £2.0 billion and £0.2 billion of operating expenditure. For the sewerage service the equivalent figures are £0.6 billion of capital expenditure and £0.1 billion of operating expenditure.

However, the net impact of these costs on the price limits has to take into account the capital receipts and new revenues that companies will receive from the connection of new customers in the form of infrastructure charges and new sales. As shown in Table 25, the expenditure for connecting new customers and expenditure (excluding optional metering) to accommodate growth in demand, therefore, broadly have no net impact on price limits. Expenditure allowed for in price limits for optional metering is discussed in section 9.2.1 and for enhancing the security of water supplies in section 9.3.

21 *MD144: Proposed changes to the treatment of large users and to the unmeasured tariff basket – modifications of licence condition B.* Ofwat, February 1999.

The capital receipts which offset the costs of new development include receipts from infrastructure charges for new domestic connections. The level of these charges is subject to a limit set by the Director. The limit for 1999–2000 is £226 and the Director's final determinations for the years 2000–01 to 2004–05 would index this figure by RPI inflation. Assuming inflation of around 1.3% for the year to November 1999, then the infrastructure charge is expected to be £229 for 2000–01. This keeps the level of infrastructure charges in real terms at the same level that was determined at the last price review (£200 in 1995–96 prices).

At the re-determination of the price limits of South West Water[22] the then Monopolies and Mergers Commission (now the Competition Commission) agreed with the Director that the main issue in setting infrastructure charges was the distribution of charges between new and existing customers. It also agreed that a limit of £200 indexed by inflation was a reasonable approach for broadly ensuring a fair balance in those charges. The limits for infrastructure charges in the next five years are intended to maintain this balance.

Earlier this year, Water UK submitted to the Director a paper examining Ofwat's approach to assessing expenditure in respect of the balance between supply and demand[23]. This disagreed with the principle that expenditure to meet growth in demand should be offset by new revenues from new customers and new demands. Some companies, but not all, indicated support for the paper's conclusions in correspondence with Ofwat and in their Business Plans.

The Director believes that these conclusions are flawed for two principal reasons. First, in competitive markets businesses would be expected to finance the costs of meeting new demands from increases in revenues. Also, because of competitive pressures, this increase in revenue would not generally arise from increases in prices to customers. Ofwat's approach, therefore, acts as a proxy for these commercial disciplines, and gives incentives to companies to develop charging structures which ensure that revenues from new demands are reflective of the costs of meeting these new demands.

Secondly, these arguments presume that growth in unmeasured demand is the essential driver of overall growth. Table 23, however, shows that overall water delivered to customers is actually expected to fall. For households the dominant factor behind the small increase in water delivered is demand from new households which are, generally, metered. These new households (whether metered or not) provide new revenues to companies.

The majority of the expenditure proposed by companies relates to metering, both optional and selective. For most companies, the Director considers that expenditure other than for optional metering can, generally, be met from new revenues. Optional metering is considered further in section 9.2.1

For selective metering and programmes to increase water efficiency, price limits allow for costs where these are demonstrated to be economic options for balancing supply and demand. Expenditure on these demand management measures has been assessed using companies' views on the long-run marginal cost of supply to establish the benefits of any water savings. The costs allowed for selective metering programmes assume that such meters are installed externally. This recognises that companies may have less flexibility, in terms of meter location, with customers who are selectively metered.

22 *A report on the determination of adjustment factors and infrastructure charges for South West Water Services Ltd*, Monopolies and Mergers Commission, 1995.

23 *The supply demand balance: A paper for Water UK*, NERA, March 1999.

9.2.1 The costs of optional metering

The price limits allow £202 million of capital expenditure and £53 million of operating expenditure for the costs of installing optional meters. This assumes that companies are managing the free meter option in the best interests of all customers. Companies are, therefore, expected to provide for the entitlement of household customers to a free meter installation in the most cost-effective manner possible. It will be for companies to decide on the most appropriate way to achieve this objective, subject to any criteria for the annual approval of their charges schemes. The Director responded in MD152 (September 1999) to issues raised in the consultation paper[24] on the criteria proposed for the approval of optional metering policies.

In their representations, companies argued that a policy of exclusively internal installation would be neither practical nor necessarily the most cost-effective option. The price limits assume, therefore, that companies could meet the objective of cost-effective installation of optional meters by installing internal household meters (except where a space for the meter already exists at the highway boundary) in 80% of cases. For the remaining 20%, allowance has been made for an external installation including a new boundary box. This is consistent with the experience of those companies who have followed a policy of internal installation.

Many households will benefit financially from exercising their entitlement to a free meter installation, but the Director does not believe that it would be reasonable for this to lead to excessive costs being imposed on customers generally through higher prices. A policy which focuses on the internal installation of meters is also likely, over the longer term, to increase the prospect of customers economising on their water use in response to the incentives offered by the development of more sophisticated tariffs because they will be more readily able to read their meters.

9.3 Enhanced security of supply

Table 25 shows that the price limits allow £113 million of capital expenditure and £15 million of operating expenditure for enhancements to the security of water supplies.

Ofwat has assessed expenditure to enhance the security of supply against the criteria of need and evidence of customer support. Evidence of need has been based on an assessment of the margin between supply and demand, and where relevant, at water supply zone level. Account has also been taken of recent experience of supply restrictions and drought orders. Finally, companies have needed to demonstrate customer support for bill increases to pay for improvements to the security of their supplies.

Companies for which expenditure has been allowed for in price limits to improve the current margin between supply and demand are Essex & Suffolk, Folkestone & Dover, North West, Severn Trent, Southern and Thames Water, as set out in section 4.5.

A number of smaller water only companies presented cases in their Business Plans for expenditure to ensure that there is continuity of essential supplies where those supplies rely on single sources. In these cases, allowance has been made in the price limits where the proposed solutions for minimising the risk of interruptions to essential supplies have been demonstrated to be cost-effective relative to a range of options. This applies specifically in the cases of Bristol Water, Bournemouth & West Hampshire Water and North Surrey Water.

24 *MD152: Approval of companies' charges in 2000–01, a consultation paper,* Ofwat, June 1999.

9.4 Water resources in the South East of England

In 1997, the then Monopolies and Mergers Commission concluded in its deliberations on the proposed takeover of Mid Kent Water by General Utilities plc and SAUR Water Services plc that water companies in the South East of England should work together to identify a solution to the resource problems for Folkestone & Dover Water and South East Water. It also indicated that Ofwat and the EA should use the legal powers available to them to facilitate any solution.

Since then, Ofwat, the EA and the companies in the South East of England have together identified cost-effective solutions that benefit customers and the environment. In their Business Plans, the companies' proposals set out a solution to meet resource deficits in the South East of England. These plans were primarily based on the transfer of water from surplus to deficit areas through bulk supplies.

The Director's price limits allow for the costs of bulk supplies to Folkestone & Dover, Southern and South East Water. For the exporting companies — Mid Kent, Portsmouth and Southern Water — the Director's determinations take account of the additional revenues gained. Given the nature of these bulk supply agreements, the Director has, however, assumed slightly lower revenues than the costs incurred by the recipient company. This provides a small additional incentive for the exporting companies through their price limits.

In the particular case of South East Water, the EA requested a revised Water Resource Plan for its Kent and Sussex zones. This was because a projected deficit between supply and demand in dry years of about 5 Ml/d remained by 2004–05[25]. The company has provided a revised Water Resource Plan which now, like those of other companies, is partially acceptable to the EA. The revised plan has had no impact on the price limits for that company.

9.5 The economic level of leakage and leakage targets

The economic level of leakage is the level which minimises the cost to customers of lost water on the one hand, and leakage repairs on the other.

All companies stated in their Business Plans that they intend to reach an economic level of leakage within the next few years. Where companies have provided a robust analysis to support their proposed levels, the Director has set targets for 2000–01 on the basis of their economic levels. Where analysis is less than robust, leakage targets will continue to be set on a pragmatic basis but within the framework of economic levels.

By setting leakage targets at an economic level, or a proxy for the economic level where this has not been adequately assessed, leakage targets do not impact on customers' bills. Leakage targets set below economic levels, however, would unnecessarily increase customers' bills.

25 *Planning public water supplies, The Environment Agency's report on water resources plans to the Secretary of State for the Environment, Transport and the Regions and the Secretary of State for Wales*, Environment Agency, June 1999.

10. FINANCIAL ISSUES

10.1 The framework for the financial projections

This chapter summarises the approach taken on a number of financial issues, in particular regulatory capital values, the cost of capital and bankability. Overall, the Director has sought to pass on to customers immediately the benefits of efficiency improvements and a lower cost of capital, while ensuring that the water companies continue to be able to raise funds efficiently in the capital markets.

The price limits have been determined using a financial model developed by Ofwat. An explanation of the principles adopted in the model was set out in the report, *Financial model rule book: A technical paper* (October 1998). Deloitte & Touche have undertaken an independent review of the model and have certified to the Director that it complies with the stated framework[26] for the 1999 Periodic Review and that proper accounting policies are followed.

The central principle of the financial modelling is that price limits should allow companies sufficient revenue to cover their operating costs, depreciation and infrastructure renewals charges and provide a reasonable return on a company's capital base (as measured by the regulatory capital value).

In setting price limits, the Director is concerned only with the appointed businesses. The Regulatory Accounts prepared under the terms of a company's licence are designed to ring-fence the appointed business and report its financial affairs separately from the other activities of the company, as if it was undertaken by a free-standing plc.

The opening balance sheets for the model reflect the financial position of the companies at 31 March 1998 taken from the audited 1997–98 Regulatory Accounts. For some companies, it has been necessary to adjust the balance sheets in order to achieve a free-standing position.

10.2 Regulatory capital values

The regulatory capital value starts with a direct measure of the value placed on each company's capital and debt by the financial markets following privatisation (or a broadly similar measure for water only companies which were not floated). This is then adjusted to take account of projected new capital expenditure, net of current cost depreciation.

The regulatory capital value established at the 1994 review needs to be adjusted to reflect past capital efficiencies and hence pass the benefit of these efficiencies to customers. In order to preserve sufficient incentives for companies to achieve further efficiencies, the benefit of past capital efficiencies is retained by them for five years and then captured in the regulatory capital value through a rolling adjustment. The basis of the calculations was explained in *Setting price limits for water and sewerage services* and refined in MD145.

The regulatory capital value for each company at 31 March 2000 also includes expenditure related to new statutory obligations affecting companies since the last determination in 1994. This expenditure has been subject to the efficiency assessments set out in section 6.7. Conversely, for some companies, the regulatory capital value has been reduced where they have delivered (or are delivering) the expected outputs, for which allowance was made in price limits, but not to the timescales expected at the last review. The net impact of these increases the regulatory capital value by nearly £600 million.

26 The methodology for the 1999 Periodic Review is set out in *Setting price limits for water and sewerage services: The framework and business planning process for the 1999 Periodic Review.* Changes to the methodology were set out in MD145, *The framework for setting prices*, which was sent to the water companies in March 1999.

As a result of the companies' investment programmes, the aggregate regulatory capital value is expected to evolve as set out in Table 26 below:

Table 26: Movement in the industry aggregate regulatory capital value from 2000 to 2005

	£ billion
Regulatory capital value at 31 March 2000	28.1
Net new investment (after depreciation) from 2000 to 2005	6.6
Adjustment for roll-out of past capital efficiencies	(2.2)
Regulatory capital value at 31 March 2005	**32.5**

A consequence of an increasing regulatory capital value is that companies' profits will also show an increasing trend as companies will earn a return on the growing capital base. However, the actual return achieved by a company will only be higher than that implied by the allowed cost of capital if the company is able to consistently outperform the operating or financial efficiency assumptions or provides a superior service for customers.

The Director stated in *Setting price limits for water and sewerage services* that supplementary investment made by companies in the period to 2000 to enhance levels of service for customers would only be reflected in the regulatory capital value if it has been financed from efficiency savings. As set out in MD145, this has been considered on a service specific basis by reviewing water and sewerage separately. MD145 stated that exceptions to this would require clear evidence that customers had been consulted, that the investment was a clear priority for them and that they were prepared to pay higher bills. Furthermore, these tests would be applied more rigorously where companies' expenditure has exceeded the total investment projected at the last review on an aggregate basis.

Many water and sewerage companies and some water only companies have invested considerably more in the water service than was projected at the last review. The Director has considered the evidence put forward for this in their Business Plans and, in a number of cases, has accepted that the criteria have been met and that the appropriate investment should be included within the regulatory capital value. No company invested more in the sewerage service than was projected at the last review.

10.3 The cost of capital

The Director considers that the post-tax cost of capital for an efficiently financed water company is in the range 4.25%–5.25% in real terms. This range excludes any small company or embedded debt premia, which are discussed below.

The cost of capital is a critical element in the Periodic Review because of the industry's need to finance the £15.6 billion investment programme. It is not, however, intended to provide a floor on returns. Actual returns for any one company could potentially fall below the cost of capital as a result of poor management. Conversely, as set out in section 5.5, companies may earn returns above the cost of capital. However, this should only be the result of superior service or because a company has outperformed the challenging assumptions underpinning its price limits.

The Director has assessed the cost of capital to be used in setting price limits on a forward-looking basis assuming that companies have efficient capital structures. He considers that the combination of a forward-looking cost of capital and an allowance for embedded fixed rate debt provides a more focused assessment of required returns than can be given by historical averages. The Director has, however, taken a cautious approach to the use of current market evidence from index-linked gilts in assessing the risk free rate, because of certain temporary structural factors specific to the UK. In arriving at his assessments, he has consulted widely in the financial markets and taken advice from both his financial advisors, Singer & Friedlander, and the panel of senior industrialists.

In the assessment of the cost of capital, it has been assumed that companies can achieve efficient capital structures. The financial projections underpinning price limits assume that companies will achieve, on average, gearing levels of about 50% (measured as debt to total capital) over the period of the price limits. This is consistent with their maintaining solid investment grade ratings for their debt.

The range of 4.25%–5.25% represents a fall from the level assumed in the 1994 review when a cost of capital in the range of 5.0%–6.0% was used. The principle reasons for this lower cost of capital are:

- real interest rates have fallen;
- the market's view of the premium required to invest in equities has remained broadly constant;
- water companies can sustain higher levels of gearing; and
- companies will benefit from the tax deductibility of debt finance as they begin to pay mainstream corporation tax.

These changes are discussed in more detail in Appendix C: The cost of capital.

In the draft determinations, the Director chose to adopt a fairly cautious approach and applied a single cost of capital of 4.75%, in the middle of his range, primarily because of structural factors which were suppressing yields in the index-linked gilt market. Since then, there has been an increase in the short term risk free rate, although within the margin allowed for in the draft determinations, while company debt spreads have remained fairly stable. The beta factors of water companies, which measure the riskiness of equity capital relative to the stock market as a whole, have fallen. On balance, these changes have not resulted in a change to the Director's assessment of the appropriate range for the cost of capital.

Table 27 sets out the ranges for the components of the weighted average cost of capital used in price limits.

Table 27: Components of the weighted average cost of capital

Risk-free rate	2.5%–3.0%
Debt premium	1.5%–2.0%
Post-tax cost of debt	2.8%–3.5%
Equity risk premium	3.0%–4.0%
Adjusted equity beta factor	0.7–0.8
Post-tax cost of equity	4.6%–6.2%
Gearing	Around 50%

In the determinations, a cost of capital on new investment of 4.75% has been assumed for all water and sewerage companies.

Although there is some market evidence for a figure lower than this, the Director has also had to take account of the need to ensure that companies retain solid investment grade credit ratings in order to finance their capital investment programmes. Taken together these lead to a judgement of a cost of capital in the range 4.25% to 5.25%.

A reduction in the cost of capital means lower bills for customers. At a national level, it is estimated that a single percentage point reduction in the cost of capital lowers the average household bill by around £9.50. The profile of bills set out in Chapter 5 assumes that the benefits of the lower cost of capital are passed immediately to customers through the initial reduction in prices in 2000–01.

In their Business Plans, the companies argued for generally higher costs of capital, ranging from 5.7%–6.6% for the water and sewerage companies and 6.0%–6.9% for the water only companies, all on a real post-tax basis.

The companies' arguments for a higher cost of capital focused on three issues: the use of historical averages compared with current market rates; the equity risk premium; and the overall risk inherent in water companies. These arguments were, generally, reiterated in companies' representations but with particular focus on the first of these issues.

10.3.1 Use of current market rates

In arriving at the cost of capital, the Director has taken a forward-looking view. He believes that highly liquid and well-analysed financial markets provide the most efficient and best-informed view of the trend of future interest rates and stock prices, which are key elements in the assessment of the cost of capital. Consequently, a greater emphasis has been placed on current market levels rather than historical averages, in particular for the risk-free rate on index-linked gilts. The use of current market information has been endorsed by the Director's financial advisors and senior industrialists, as well as by some water companies and their advisers. It is also the approach most widely used by City practitioners.

Although not unanimous on the point, companies in general have used historical average rates in their assessments of the cost of capital. The companies argue that this is more in keeping with regulatory precedent and the findings of the Competition Commission, particularly citing the recent Cellnet and Vodafone case[27]. However, the use of historical averages by the Competition Commission to assess the risk-free rate has not been without controversy, even in academic circles. A recent London Business School paper[28] states that standard cost of capital analysis always uses 'current market' opportunity rates. The Director notes that the authors of this report also act as advisers to Thames Water, which, in its Business Plan, used a current market risk-free rate in calculating the cost of capital.

A number of companies considered in their representations whether market based or historical average based methodologies were more appropriate for deriving the cost of capital. They argued that at any given time historical averages provide better predictors of future interest rates than the current market rate, citing a recent article in The Utilities Journal.[29]

However, this contention that historical rates are the best predictors of future rates runs counter to market behaviour, both as to best practice in estimating the cost of capital for corporate acquisitions and the activities of arbitrageurs. It also over-simplifies both the way financial markets work and Ofwat's cost of capital methodology.

Furthermore, as the current five year historical average is higher than the current market yield of, say, ten year gilts, allowing historical averages into the cost of capital would allow the companies to adopt the strategy of locking in immediately to current rates, thereby obtaining a windfall profit at customers' expense for the next five years. If, at the next Periodic Review in 2004, the situation were to be reversed so that the current market rate were higher than the, then, five year historical average, the companies could argue that they would need to be allowed the market rate in order to be able to finance their immediate functions (ie the demonstrable cost of borrowing at the time). In that case, companies may not, in fact, be seeking to use historic averages, but rather the higher of the average and the market rate. This would provide their investors with a return, in the long run, in excess of the cost of capital.

27 *Cellnet and Vodafone–Report on references under Section 13 of the Telecommunications Act 1984 on the charges made by Cellnet and Vodafone for terminating calls from fixed line networks,* Monopolies & Mergers Commission, December 1998.

28 *The cost of capital for the UK water sector,* Professor D Currie and Professor I Cooper published by London Business School, May 1999.

29 *What's the real rate?* An article by Professor C Mayer and Dr T Jenkinson, The Utilities Journal, July 1999.

10.3.2 The equity risk premium

The equity risk premium encapsulates the risk associated with investment in UK equities. Ofwat's approach looks forward and is based on market expectations about the continuance of a low inflation environment and assumes an equity risk premium of 3.0%–4.0%, which is similar to that used in the 1994 review.

Generally, companies have based their assessments on an analysis of historic risk premia, despite a consensus of opinion among the investment community that the widely ranging historical estimates are of questionable relevance. The companies' range for the equity risk premium is 3.5%–9.0%. Nevertheless, a London Economics paper prepared for Water UK[30] concedes that market evidence from the Dividend Growth Model points to a range of 3.25%–4.25% which is comparable to that used by Ofwat.

Furthermore, the Director considers that historical rates significantly overstate the current expectations of actual equity investors. Evidence from recent surveys[31] (including one conducted for water companies) of institutional investors points to a premium in the range of 2.5%–4.5%.

10.3.3 Risk

Despite its significant capital investment requirements, the water industry is perceived by investors as relatively low risk and certainly presents lower risk than the UK stock market as a whole.

Compared with companies in other industries, water companies are distinguished by the predictability of their revenues and earnings. Changes in their markets and operating environments tend to occur in a comparatively slow and gradual manner. This view is supported by the Director's panel of senior industrialists.

The measure of undiversified risk faced by investors in the water companies relative to equities generally is the beta factor in the cost of capital calculation. Ideally the cost of capital would be based on a forward-looking beta factor reflecting future risk rather than a measure of past risk which may no longer be relevant. The Director's assessment uses the latest available five year beta factors published by the London Business School since robust forward-looking alternatives are not available. This is generally consistent with the approach taken by the companies.

However, in considering the cost of capital, a number of companies have included risk premia which they argue are necessary to reflect asymmetric risks not captured by the beta factor. The Director has not been convinced by the arguments set out in the Business Plans. From a business perspective, it is considered that there are such risks in all industries and there is no evidence that the market systematically underestimates the risk of the water sector relative to other industries.

Some companies have argued for 'headroom' in the cost of capital. It has not been considered necessary to include any, for two principal reasons. First, in the assessment of the cost of capital, the mid-points of ranges have been used. Secondly, it is not appropriate to build 'headroom' explicitly into the cost of capital, when Ofwat's approach to the assessment of the bankability of the financial projections of the company (described in section 10.4) already incorporates some margin within those consistent with investment grade ratings.

Consequently, no premium on the cost of capital to create 'headroom' between the market's requirement and the companies' forecast returns has been included in the cost of capital calculation.

30 *A response to the Director General of Water Services' assessment of the cost of capital*, prepared for Water UK by London Economics, February 1999.

31 *Risk and return in the UK sector: An independent survey of institutional investors*, Credit Lyonnais Securities Europe, October 1998; *Yorkshire Water: The City perspective*, SRU Limited, April 1998; and *Survey of water industry cost of capital and risks following "Prospects for Prices"*, NERA, January 1999.

Some companies argued in their representations that licence amendments agreed in 1994 expose them to greater risk in respect of construction prices compared with the three companies which have retained the right to an interim determination if there is a material movement in construction prices compared with that forecast. This risk, it is argued, warrants an increase in the cost of capital for these companies. The Director does not believe that such a premium is justified and does not believe that the market reflects any such differentiation in the cost of capital experienced by companies. In addition, there was no specific premium in the cost of capital for the licence changes at the last review and there is no expectation that construction prices would trigger an interim determination in the period 2000–05. In any event, an overwhelming majority of companies do not have this protection and, therefore, the current measures of risk (ie the beta factors) used in the Director's assessment will capture any change in risk since 1994.

10.3.4 Embedded debt

In response to *Prospects for Prices*, companies argued that the Director's assessment of the cost of capital did not allow them to finance the cost of existing fixed rate debt and that such debt could not be refinanced without equivalent costs. As set out in MD145, these arguments have been accepted. A premium on the cost of existing capital has been included to reflect the cost of this embedded debt.

This approach should address the historic legacy of debt but should not alter the balance of incentives for decisions on financing. The Director believes that this approach would be broadly neutral with regard to incentives.

Two companies argued that there should also be a premium for the cost of fixed rate preference shares. The Director does not consider that high fixed returns to holders of preference shares should be borne by customers through a premium on the cost of capital. Rather, this should be considered a matter of the distribution of income between the holders of different classes of share capital.

The assessment of the premium is based on the industry average cost of embedded debt of 7.9% nominal (which compares with the rates generally achieved by UK companies over a similar period). This rate has been applied to the actual proportion of fixed rate debt in companies' balance sheets at 31 March 1999. The industry-wide rate takes account of historical nominal interest rates since privatisation and the actual costs faced by companies. The embedded debt premium included in the overall post-tax cost of capital ranges from 0%–0.4%.

10.3.5 Small company premium

To reflect their more limited access to capital markets and higher than average cost of capital, a premium of 0.75% has been allowed on the post-tax cost of capital for all water only companies, with the exception of the three largest water only companies which have been allowed a smaller premium of 0.4%.

These premia apply to all independent water only companies. Those which are subsidiaries of large groups have accepted licence amendments to guarantee their independence. These licence amendments ensure that such companies operate on an arm's length basis from other group companies, including their parent company and hence can be considered as small, independent companies. The companies which have agreed to such licence amendments are Bournemouth & West Hampshire, Essex & Suffolk, Folkestone & Dover, North Surrey, South East, Tendring Hundred and Three Valleys Water.

The premium has been assessed on the assumption of an efficient capital structure. The Director recognises that the smaller companies are also less able to sustain the same level of gearing as the larger companies. He has, however, chosen to address this issue, not through a further adjustment to the cost of capital, but as a factor in deciding the appropriate level of financial indicators.

10.4 Financial projections and bankability

The Director must set price limits in the manner in which he judges best calculated to ensure that each company's functions are properly carried out and that it is able (in particular by securing reasonable returns on its capital) to finance that outcome. This is interpreted to mean not only that companies should receive a return on investment at least equal to the cost of capital but in addition to companies' revenues, profits and cash flows are such that they can finance the required capital investment as necessary in the debt markets. Borrowings (unlike equity) are usually subject to contractual arrangements, sometimes including financial covenants. Such considerations are sometimes referred to as 'bankability'.

The price limits have been set to allow companies to maintain both an adequate level and trend of critical financial indicators, consistent with maintaining solid credit ratings (within investment grade), as well as ensuring that they are able to earn, on average, a return at least equal to the assessment of the cost of capital.

The Director has consulted in the financial markets to ascertain which financial indicators are those most commonly used, particularly among the credit rating agencies, in credit assessment or in financial covenants. These critical indicators are historic cost accounting interest cover and cashflow based indicators such as cash interest cover (EBITDA[32]/interest) and cashflow to total debt. The cashflow based indicators generally measure the ability of companies to service their debt burden. Details of the indicators used are set out in Appendix C.

Market practitioners have emphasised that the trend of such financial indicators, considered as a package, is generally more important than the level for any particular indicator in any particular year. This applies equally to financial covenants. The Director has used the flexibility of year-specific price limits to achieve satisfactory trends in the indicators while minimising the overall effect on customers' bills.

There are various reasons why the profile of a company's financial projections might appear to be unsatisfactory, despite being allowed an adequate return on capital. Some of these relate to the relative size and phasing of the company's investment programme, but others concern the relative amount of debt in the company at the beginning of the period in question (ie 2000–01) as well as its type (for example, fixed or floating rate), maturity and cost. Since 1994, many companies have geared up their balance sheets, through share buy-backs or special dividend payments, in order to reduce their cost of capital and increase returns for shareholders or to finance the windfall tax.

The Director does not consider it appropriate for such actions to result in higher bills for customers than would otherwise be the case because of the impact on financial projections. Consequently, before considering the critical financial indicators, some adjustments have been made for a few companies either to ensure that the phasing of capital investment programmes (within required timescales) minimises the necessary impact on price limits, or to write back special dividends (or other debt-for-equity swaps) into companies' balance sheets.

In summary, the price limits ensure that when considered as a package each company has a satisfactory trend of critical financial indicators consistent with solid investment grade ratings. In addition, they have been set such that the trend of these financial indicators will be sustainable beyond 2005.

10.5 Taxation

Profits need to be sufficient to remunerate investors and lenders; but they also need to cover business taxes which are a cost to the companies which must be financed from customers' bills. Business taxes faced by companies in 2000–05 are expected to increase as companies move towards a full corporation tax-paying position. This will lead to increases in bills to customers.

32 Earnings Before Interest, Tax, Depreciation and Amortisation.

Recent changes to the corporation tax regime (for example, the changes to capital allowances announced in 1996 and the abolition of Advance Corporation Tax credits on dividends) will lead to higher levels of business taxes and will, therefore, exert further upward pressure on bills. There are, however, timing issues for each company. The corporation tax positions of the companies vary but the impact of companies' tax payments would be significant in the bills of some customers. Up to 1995, the effective tax rate ie the proportion which the tax charges bear to profits, were very low — averaging less than 2%. This is now rising and, in the price limits, the financial projections show the effective tax rates rising to 17% in 2004–05.

The price setting methodology used in both the 1994 and 1999 Periodic Reviews assumes that the return required by investors and lenders is a post-tax one. The cost of capital has been assessed on this basis. However, companies need to earn sufficient to pay this return and also cover their tax payments, ie they need an adequate pre-tax return.

The financial modelling undertaken to achieve this used a different approach from that of 1994. For the current review, returns have been modelled on a post-tax basis and the companies' projected tax costs added to the revenue required in order to allow them to earn an adequate pre-tax return to enable them to finance their functions. In 1994, returns were modelled on a pre-tax basis but this pre-tax return included a generic, theoretical tax wedge. The companies have accepted the treatment of tax at the 1999 review. Tax advisers Deloitte & Touche have confirmed that the model accurately calculates the profile of tax charges in accordance with current tax legislation given the opening tax position of the companies and based on assumptions relating to the tax profiles of the companies, and their projected capital investment programmes.

The projected tax charges set out in the Business Plans of some companies have been adjusted to ensure that they are consistent with the capital structure assumed for the weighted average cost of capital and, in exceptional circumstances, as a result of yardstick adjustments to reflect prudent tax planning.

The price limits determined for 2000–05 take no account of the one-off windfall levy in July 1997 paid by the privatised water companies. The Director considers that this levy is properly borne by shareholders and not by the customers of the water utility.

11. THE REVIEW PROCESS

The Director has engaged in a two-year dialogue with the companies' Boards leading up to the final determinations. A phased process has allowed timely debate of the issues and enabled stakeholders to make informed contributions. Time has been allowed to expose and inform issues relevant to the determinations.

The process comprises:

- establishing the framework and exposing the issues; and
- decisions and determinations.

11.1 Establishing the framework and exposing the issues

The Director set out his proposed timetable for the review in February 1997, in a letter to Managing Directors of the companies. He then published two consultation papers in the summer of 1997 seeking the views of stakeholders on the approach to the methodology of setting price limits, the business planning process, customer consultation and information requirements. In light of the responses, he set out in February 1998 his intended approach in setting prices, together with the business planning process and information requirements.

The interaction of environmental and economic issues is particularly strong in this review. The Director published in April 1998 an open letter to Ministers asking for their guidance on what environmental obligations he should allow for, when considering the proper carrying out of functions by companies.

The Director published in April 1998 a technical paper on his approach to assessing the scope for the companies to achieve further capital and operating efficiencies. To advise him on this issue and on wider strategic aspects of the review, the Director appointed, in January 1998, a panel of five senior industrialists. The group has advised the Director at all of the major stages of the review.

During the summer of 1998, the companies submitted a number of key information returns to the Director, as follows:

- the annual July Return and Regulatory Accounts including additional data for comparative efficiency studies, logging-up additional environmental improvements and key financial information;
- a report on asset inventory and system performance, describing the audit of the current asset stock, value, condition and age profile;
- a cost base report, detailing capital expenditure unit costs for present and future operations;
- a supply/demand balance submission, setting out proposals for matching supply and demand in the light of a full economic appraisal, including levels of leakage and tariffs;
- a customer consultation and strategic options return, to report on consultations with customers and to set out companies' proposals on their preferred business strategy for 2000–05.

Information submitted by companies has been placed in the public domain.

In September 1998, Ministers set out their guidance on the scope and timing of national and regional environmental programmes in *Raising the quality*. Ministers selected from the range of environmental

options, indicating what was on the table nationally, but without specifying how much belonged on each region's plate.

In October 1998, the Director published *Prospects for Prices*, identifying the key issues in quantitative terms for progressing the review. The paper set out possible ranges of bills for customers of each company for the period 2000–05. It identified critical issues for individual regions while focusing on the national picture. It allowed stakeholders to see the impact on customers' bills of the environmental obligations which companies may face, taking into account levels of service to customers and expected improvements in efficiency.

11.2 Decisions and determinations

The Director works closely with Ministers, the EA and the DWI to clarify the nature and timing of current and future environmental obligations and the scope for other improvements. After *Prospects for Prices*, the companies revised their costs in the light of the September 1998 guidance from Ministers. Ofwat challenged these costs by comparing the relative capital procurement efficiency and incorporated assumptions about future efficiency. By using independent reporters, Ofwat was able to challenge the consistency and integrity behind the companies' assumptions and numbers. In January 1999, the Director published an open letter to Ministers about revised costings. This drew attention to those regions where customers would potentially face the largest bills. In the light of this, Ministers supplemented their September 1998 guidance in a letter to the Director in March 1999 and gave further guidance in November 1999.

Prospects for Prices fostered regional debate about customers' priorities. The issues raised were important to customers themselves, the CSCs, the companies, the EA and other regional customer and environmental organisations, national customer and business organisations.

The Director held a formal meeting with each of the companies during January and February 1999. These helped the companies to finalise their Business Plans, submitted to the Director in April 1999.

The companies' Business Plans set out their proposals for 2000–01 to 2004–05, explaining the basis of the price limits proposed and their reasons, so that the Director could take proper account of the companies' views in his determinations of price limits. The plans drew together the series of 1998 information returns and provided for a restatement of the material elements of the data submitted earlier in the process. This enabled the latest positions to be assessed and for the determinations to be based on the most up-to-date information.

Public versions of the Business Plans were placed in the Ofwat library and one-page summaries added to the Ofwat website. A reference copy of the non-confidential elements of the Business Plan for each of the companies will be placed in the Ofwat library when all the determinations are settled, including any re-determinations by the Competition Commission.

Reporters worked closely with companies during the formulation of their Business Plans to check that they complied with Ofwat's reporting requirements and guidelines, and to ensure that all material assumptions were exposed. The scrutiny by Reporters enables the Director to make informed comparisons between companies which take account of factors affecting the consistency and comparability of individual company information.

The Director approached his review of the companies' Business Plans on the basis that material issues were already known, and would have been raised at the formal meetings. It was not practical to deal with issues which were then raised for the first time. He considered carefully the arguments and evidence presented in the plans as well as the findings of studies commissioned by the companies and Ofwat. Some of this analysis has already been published by Ofwat in earlier reports. His staff carried out an industry-wide analysis, using comparative information in the plans and the 1999 July Returns. They analysed the key parts of the plans, the supporting information and the reports from the

Reporters and Auditors and advised him on their implications for price setting. The issues material to price setting have been considered under six headings:

- **Strategic options.** The balance to be struck between service delivery and price, reflecting both customers' priorities and environmental objectives.

- **Efficiency.** Assessing the scale of past efficiency improvements and the scope for future efficiency.

- **Quality functions.** The environmental outputs required from the companies, their cost and phasing.

- **Maintaining serviceability for customers.** Assessing the companies' past performance in maintaining the operating capability of their assets to deliver service to customers and the implications for the future.

- **Maintaining the balance between supply and demand** for water in an economic and efficient way for current and future customers, taking account of environmental costs and the risks of climate change.

- **Financing functions.** Achieving the right balance between customers, investors and lenders to enable prudent and well managed companies to be financed efficiently.

The Director published his draft determinations on 27 July 1999. They were placed in the public domain in the form of a public document, *Future water and sewerage charges 2000–05: Draft determinations.* These were supplemented for each company by a confidential detailed report.

The publication of the draft determinations provided a final opportunity for companies, customers and others to express their views. These representations have been summarised in Chapter 3 and Appendix B of this document and they will be placed in the Ofwat library (except where specifically requested) when all the determinations are settled, including any re-determinations by the Competition Commission.

11.3 Monitoring and assessment of company performance

The price limits and infrastructure charges will take effect on 1 April 2000. Companies will have the choice of either accepting the Director's final determinations or requiring a re-determination by the Competition Commission.

The considerations underpinning monitoring and assessment of company performance over the period 2000–01 to 2004–05 will be: delivery of outputs; prices; serviceability for customers; and comparative competition. Ofwat will not be specifically monitoring companies' expenditure. It will be up to them to deliver outputs in the most cost-effective way. Ofwat also needs to be prepared for the price review in 2004.

Companies' performance in delivering outputs will be monitored year by year through the July Returns and separate reports from the quality regulators. Their performance will be assessed against the minimum outputs set out in the final determinations. Price monitoring will focus on the annual Principal Statements and Charges Schemes. The Director will take the necessary steps, including enforcement action, if companies do not deliver the service standards, serviceability for customers and improvements to the environment allowed for in price limits.

APPENDIX A: RESPONDENTS TO 'FUTURE WATER AND SEWERAGE CHARGES 2000–05: DRAFT DETERMINATIONS'

Water companies

Anglian Water Services Ltd
Dŵr Cymru Cyfyngedig (Welsh Water)
North West Water Ltd
Northumbrian Water Ltd
Severn Trent Water Ltd
South West Water Ltd
Southern Water Services Ltd
Thames Water Utilities Ltd
Wessex Water Services Ltd
Yorkshire Water Services Ltd
Bournemouth & West Hampshire Water plc
Bristol Water plc
Cambridge Water plc
Cholderton & District Water Ltd
Dee Valley Water plc
Essex & Suffolk Water plc
Folkestone & Dover Water Ltd
Mid Kent Water plc
South East Water plc
North Surrey Water Ltd
Portsmouth Water Ltd
Sutton & East Surrey Water plc
South Staffordshire Water plc
Tendring Hundred Water Ltd
Three Valleys Water plc
York Waterworks Co Ltd
Water UK

Environmental groups

Aim Klean
Campaign for the Protection of Rural Wales (Ymgyrch Diogelu Cymru Wledig)
English Heritage
English Nature
Environment Agency
Environment Agency (South West Region)
Friends of the Earth (Cymru)
Mersey Basin Campaign
National Association of Fisheries & Angling Consultatives
North West Development Agency
North West Regional Assembly
North West Regional Environmental Protection Advisory Committee
Pembrokeshire Coast National Park
Regional Fisheries, Ecology and Recreation Advisory Committee (South West Region)
River Conservation Society
Royal Society for the Protection of Birds
Sea Fish Industry Authority
Seaham Environmental Association
South East England Development Agency

South West Regional Environmental Protection Advisory Committee
Surfers Against Sewage
Sustainability North West
The Wildlife Trusts
Wiltshire Fishery Association
Wiltshire Wildlife Trust

Organisations representing customer interests

Age Concern (Canterbury)
Burntwood Citizens Advice Bureau (Debt Advice Unit)
National Water Charges Advisory Service
National Association of Citizens Advice Bureaux
National Consumer Council
National Union of Residents' Associations
Ofwat Customer Service Committees (10)
Welsh Consumer Council
Wessex Water Customer Liaison Panel
Wessex Water Northern Customer Liaison Panel member

Trade bodies, suppliers and contractors

Chartered Institution of Water and Environmental Management
Chemical Industries Association
Concrete Pipe Association
Confederation of British Industry
Confederation of British Wool Textiles Ltd
MBA Consultancy
Society of British Water Industries
Water Industry Suppliers Group

Trade unions

GMB Energy and Utilities Section
UNISON Water & Environment (two representations)
UNISON Midlands Regional Water Service Executive
UNISON Severn Trent Branch
UNISON & GMB (Bristol Water branches)

Members of Parliament

R Berry MP
H Blears MP
Rt Hon M M Beckett MP
H Best MP
B Blizzard MP
P Bottomley MP
P Bradley MP
J Brazier MP
S Chapman MP
G Clifton-Brown MP
J Cousins MP
P Cormack MP
J Corston MP

M Fallon MP
Dr L Fox MP
J Gray MP
P Hain MP
L Hoyle MP
Dr B Iddon MP
B Jenkins MP
R Kelly MP
B Laxton MP
D Lock MP
L Lynne MEP
P Marsden MP
B Michie MP
O Paterson MP
T Pendry MP
K Purchase MP
A Rowe MP
B Simpson MEP
M Singh MP
D Skinner MP
P Snape MP
Rt Hon Sir J Stanley MP
G Titley MEP
D Twigg MP
S Webb MP
R Whitney MP
A Winterton MP
N Winterton MP
D Wyatt MP

Local government organisations

Association of Greater Manchester Authorities
Dorset Association of Parish & Town Councils
Dudley Metropolitan Borough
Durham County Council
East Peckham Parish Council
Gloucestershire County Council
Harborough District Council
Hartley Parish Council
Kent County Council
Lancashire County Council
North Yorkshire County Council
Rolvenden Parish Council
Somerset Association of Local Councils
Sefton Council
Tonbridge & Malling Borough Council
Tunbridge Wells Borough Council
West Kingsdown Parish Council
Wigan Metropolitan Council

Members of the public

Sister M Ambrose
T Ball
D O Burt
R Clifton
J Dale
G Daniel
R Dunning
R Frankham
F Goodey
J Harfleet
C J Hunt
T D Kendall
P Knowles
A E Lindsay
J L Pemberton CBE
C Perraton
F Pithie
B Pittaway
C Poole
D Scott
P Scull
S Shah
S J G Smith
D Swann
G Wakeman
A C Wells

Others

University of Aberdeen
University of Kent

APPENDIX B: SUMMARY OF THE REPRESENTATIONS ON THE DRAFT DETERMINATIONS

Appendix A sets out the respondents to *Future water and sewerage charges 2000–05: Draft determinations.* This appendix summarises the representations made by companies, the CSCs, customers and consumer groups, environmental groups, MPs and local government organisations, financial institutions and other interested parties.

Companies

The representations from companies were, generally, specific to the individual company. The issues raised have been considered and, where appropriate, responded to in the confidential reports on the final determinations that have been sent to each company with its final determination. There were, however, a number of common themes and issues.

Many representations reiterated positions taken by the companies concerning the framework of the review and methodology in specific areas. The framework for setting price limits has been subject to extensive consultation over a lengthy period so although most representations on methodological issues have been noted by the Director, there has been no amendment to price limits resulting from these. There have been no changes to policies in the key areas of the methodology — efficiency, serviceability to customers and the cost of capital.

In a small number of cases, the application of certain general policies to specific companies had produced an inconsistent outcome and, in these instances, the outcome has been reconsidered for those companies. For example, the application of industry-wide assumptions to specific companies (in many cases smaller ones) produced anomalous results. In other cases, errors relating to interpretation of companies' Business Plans have been corrected. Where applicable, factual misunderstandings have been rectified which have, in some cases, resulted in changes to the draft price limits. Consideration has been given to dealing with specific areas of uncertainty and proposals put forward.

A brief summary of the common themes from companies' representations are set out below. They have been grouped under the same headings as Chapters 5 to 10 of this document.

The profile of bills and prices

- **The overall position**

  Many companies stated that, in their view, customers wished to see stable prices and not an initial price reduction. They also argued that the draft determinations were not bankable and did not allow them to finance their functions. This resulted from a difference in views about costs and revenues (including the opening position in the year 2000 for each), rather than the terms of a viable financial package.

- **Materiality for interim determinations and the balance of risks**

  Companies argued in their representations that they faced additional costs from a number of areas (for example business rates, increased bad debt levels, the Climate Change Levy and the numbers of meter optants) which had not been included in the draft price limits because of uncertainty about the impact on companies. This, companies argued, increased the risks faced by them. Although for some of these items companies could seek interim determinations to reset price limits, companies felt that the materiality limits were too high and did not afford them sufficient protection. The Director has recognised some of these arguments and has agreed to widen the assessment of materiality in companies' licences as set out in section 1.3.

- **Meter optants**

  Companies did not consider the Director's assumptions on optional household metering to be realistic. In their representations, a number of companies presented new information to either substantiate, in their view, the projections in their Business Plans or to revise the original Business Plan projections. In the light of their representations, the Director has reviewed his assumptions for meter optants for all companies and, for the final determinations, has adopted a banded range for the rates of take up of meters. This is considered more fully in section 5.3.3.

- **The initial price reduction and large users**

  Many companies raised the issue of how the initial price reduction would apply to tariffs for large industrial customers. Companies argued that such customers would expect to share in the benefits of outperformance. The Director agrees, in principle, that all customers should benefit from the improved efficiency of the companies. He also believes that large users' tariffs should be set with reference to robust estimates of the continuing costs of augmenting supply (or long run marginal cost). The final determinations make allowance for real reductions in charges to large industrial customers.

- **The long-term prospects for prices after 2004–05**

  Some companies noted that the draft price limits did not provide a clear view of the profile of prices after 2004–05. This partly related to the likelihood of interim determinations noted above but also to the uncertainty regarding the regulatory framework. In setting price limits, the Director has had regard to the likely profile of prices after 2004–05. He has not set price limits for 2000–05 in such a way that would necessitate significant increases in price limits in the immediate period after 2005. The Director will not, however, be publishing shadow price limits for 2005-10 since a price review in 2004 is mandatory[33]. As regards the regulatory framework, the Director has provided incentives to companies which should endure for future reviews in order to be properly effective, although he cannot fetter the discretion of a future Director General.

Efficiency and incentives

- **The effect of exceptional and atypical items on the calculation of the incentive allowance**

  Companies commented that the incidence of exceptional and atypical items distorted the calculation of the incentive allowance. The Director wishes to encourage companies to deal with restructuring and other one-off costs in the future within a framework of progressively declining base operating expenditure and has not, therefore, made any changes to price limits in respect of minor distortions. He has, however, amended the incentive allowance for the greater distortion caused by exceptional and atypical costs incurred in 1998–99 where they exceed the historical average level. This is set out in section 6.3.

- **The treatment of restructuring costs**

  A number of companies made representations that restructuring cost should be explicitly allowed in price limits. They argue that it is such costs which generate future efficiencies and, therefore, that it would be consistent with the medium-term incentive framework to allow restructuring costs in price limits. The Director does not share this view, which is discussed further in section 6.3.

33 Sutton & East Surrey Water did not accept the licence modification to reduce the period between mandatory price reviews from ten years to five years. For this company only, the Periodic Review at 2004 remains, legally, only an option but it is likely that the Director will require one.

Maintaining service to customers

- **Business rates**

  In their representations, companies argued that, despite the uncertainty about final valuations, the price limits should include an allowance for the changes in business rates which will be faced by the water industry as a result of the revaluation of prescribed rateable values in 2000. Since the draft determinations, the changes to business rates have been decided and the Director has allowed for the expected changes in the final determinations.

- **Disconnections and bad debts**

  Companies have made further representations about the effect of the ban on disconnections imposed by the Water Industry Act 1999. Companies argue that allowance should be made in price limits for increased levels of bad debt because of the loss of this sanction. The Director has considered the arguments but no further allowance has been made in the price limits. The Director has, however, included as a notified item in the final determinations the level of bad debt. This is explained in section 7.2.

- **Efficiency in capital maintenance expenditure**

  Companies which had forecast reductions in capital maintenance expenditure in their Business Plans raised concerns about the fairness of Ofwat then applying its efficiency assumptions to these lower forecasts. The Director has acknowledged this and adjustments have been made to avoid the double-counting of expected efficiency savings in the final price limits for some companies, as set out in section 7.3.5.

- **The apportionment of investment into depreciation categories by asset life**

  Many water only companies argued that an industry-wide standard for the apportionment of investment into depreciation categories by asset life did not properly represent their investment programme. It would result, in their opinion, in an understatement of depreciation charges allowed in the draft price limits. The Director considers that the unconstrained use of company-specific apportionments is not justified by companies' explanations of the differences between companies. He has, however, recognised that the mix of assets for large companies may be different from that for small ones. He has, therefore, used different standard apportionments for the allocation of investment for water and sewerage companies and for water only companies.

- **The additional needs, overlap and synergies of capital maintenance associated with the quality programme**

  Many companies argued that the degree of synergy between quality and capital maintenance programmes assumed in the draft determinations was unrealistic. Some argued that greater capital maintenance expenditure was needed to achieve quality objectives. The Director has not changed his views on the extent of synergy available but has allowed in the final price limits for some increases in capital maintenance for quality objectives. This is set out in section 7.3.6.

Quality programme and other enhancements

- **Clarity on obligations from the EA and DWI**

  A number of companies were concerned that the EA and DWI expected certain schemes to be completed but these had not been included in the draft determinations. Some companies, particularly those providing a sewerage service, explained that it was difficult to plan an integrated programme when there was still some uncertainty surrounding the scope and timing of work to be completed within the next five years and some of the outputs expected by the EA and DWI. Most

of these issues have been resolved in the final price limits and there is now a high degree of certainty about the water quality and environmental obligations required of companies. The Director has also clarified the mechanism for dealing with the remaining uncertainty as set out in section 1.3 and Appendix E.

- **The profile of operating costs arising from quality enhancements**

  Most of the water and sewerage companies, and a few of the water only companies, explained in their representations that they had changed the profile assumed for the delivery of quality enhancements in 1994. The increases in operating costs were being incurred later than anticipated. Companies argued that the approach used in the draft determinations had underestimated the operating cost requirements between 1997–98 and the start of the next price review period. This has been recognised in the final determinations (together with its implications for the incentive allowance and the financial impact of the reprofiling) and is discussed further in section 6.7.2.

Maintaining the balance between supply and demand

- **The assumption of internal installation for household meters**

  Companies questioned whether it was practical or reasonable to assume that all household meters should be installed internally, for which costs are generally lower. Some companies also questioned whether this approach was consistent with the principle, set out for the approval of charges schemes, that companies should decide meter location subject to offering customers a choice. Account has been taken of these representations in the final determinations as described more fully in section 9.2.1.

- **Forecasts for non-household demand**

  The draft determinations assumed a reduction in non-household demand of around 1.5% per annum. Some companies presented new evidence in their representations on current trends in non-household demands. These show even greater reductions than those anticipated at the time of the Business Plans. This point is addressed in section 9.1.

Financial issues

- **Cash flow between 1998 and 2000**

  The projected financial position of companies (and consequently the level and trend of financial indicators) over the review period is dependent on the level of debt at 1 April 2000. Some companies argued that the estimates of the cash flow between April 1998 and the start of the price limit period (1 April 2000) in the draft determinations had been overstated. Where audited information was available (for example for 1998–99), the Director has taken account of this. However, there remain differences between companies' projected net debt at 1 April 2000 and that used by Ofwat because the Director is concerned only with the appointed businesses and treats them as if they were free-standing plcs. This is set out in further detail in section 10.1.

- **The use of market rates rather than historical averages in the cost of capital methodology**

  Many companies reiterated in their representations that the historical average should be used in the estimation of certain of the key components of the cost of capital. They argued that this provides a better estimate of the future cost of capital than the market estimates used by the Director. The Director is not convinced by these arguments and has not changed his views on the cost of capital. These arguments are set out further in section 10.3 and Appendix C.

- **Construction price inflation and the cost of capital**

  Some companies argued in their representations that licence amendments agreed in 1994 expose them to greater risk in respect of construction price inflation compared with the three companies who retained the right to an interim determination if there is a material movement in construction prices compared with that forecast. This risk, it is argued, warrants an increase in the cost of capital for companies who do not have this protection. The Director has considered these arguments but does not believe that such a premium is justified. This is set out in more detail in section 10.3.3.

The CSCs

Overall the CSCs believe that customers welcomed the draft determinations as striking a good balance between improvements to water quality, the environment and services, and passing back to customers the benefits of past efficiency in the form of lower bills. They particularly welcomed the initial reduction and the prospect of stable bills thereafter. They considered that the price profile of the draft determinations would restore or maintain confidence in incentive regulation and it would be adequate redress for the fact that, hitherto, shareholders had received more benefits from the companies than customers.

There are two particular aspects of the draft determinations where a number of CSCs suggest reconsideration by the Director. The first concerns the provision for reducing the incidence of sewer flooding. CSCs believe that customers see this as the highest priority and that it should also be considered as a high priority by the water and sewerage companies. They would welcome more progress being made over the next five years, although Central (covering Severn Trent Water), North West and Yorkshire CSCs recognise that this has to be balanced against the implications for bills. Others, such as Eastern (covering Anglian Water) and Northumbria CSCs, would be happy to see bills rise, particularly if performance in this area is below the national average.

The second concerns the Director's assumptions in the draft determination about the number of customers who will opt for a meter. Some CSCs, many in areas where there is already a high rate of take up of the meter option, recognise the need to manage the impact on bills for unmeasured customers and that the Director agreed that there should be a mechanism to adjust price limits should the assumptions prove to be wrong. They believe, however, that the assumptions about the future in the draft determinations were not realistic, taking account of the current high switching rate, and that interim adjustments to price limits in the future should be avoided where possible. Notwithstanding the proposal for an interim determination mechanism, some CSCs would be happy for bills to rise a little to allow for more optional meter switching in the final determinations (Eastern, South West, Thames and Wessex CSCs). Most CSCs considered that the effect on average and unmeasured bills of possible interim determinations should be made clear to customers from the outset.

CSCs generally supported the Director's approach to the phasing of the quality programme and his requirement that some schemes be reappraised. Some indicated that they would have preferred an even more critical look at some elements of the quality programme. Many CSCs are concerned that they have been unable to obtain from the EA a convincing explanation of how it had appraised the benefits of schemes in relation to the likely costs. They were, therefore, far from convinced that the process has been consistent or would lead to value for money for customers.

CSCs would have liked more information about why certain environmental schemes had been deferred or not included in price limits pending reappraisal. This would have enabled them to explain this to customers. Two CSCs (Southern and Wessex) support the decision to defer environmental projects and in some instances would wish for more deferral. There is no support from the CSCs for advancing environmental schemes as they believe that this could create triple inefficiencies (of project scheduling, construction prices and financing costs). Alleviation of sewer flooding should take priority.

Wessex CSC, in particular, made strong representations about Wessex Water's proposals to alleviate low flow in certain rivers. These had not, it felt, been properly reviewed against alternatives and should not be included in price limits. In any case, customers should not have to pay in price limits while the existing legal mechanism of compensation for the loss of abstraction licences was available to the company.

The CSCs have said that they are not able to comment on the Director's views about the scale of expenditure required to maintain the company's assets. They do, however, emphasise the importance that customers attach to companies maintaining current levels of service. Standards of service should not decline. CSCs will look to the Director to use his powers to ensure that they do not. Many improvements in service (for example, alleviation of sewer flooding problems) may be achieved by more effective use of existing resources rather than by increasing customers' bills.

CSCs approve of the performance adjustment mechanism as an incentive to companies to maintain and improve standards of service.

CSCs would not want leakage targets to be set which were below the economic level as this would cause customers' bills to rise unnecessarily.

Two CSCs (Central and Yorkshire) believed that the cost of capital used by Ofwat is too high. In view of the low risks of the businesses, they argued, customers should be given the benefit of the doubt by Ofwat using the lower end of its quoted range (ie 4.25%).

Customers and consumer groups

All the customers and consumer groups which responded broadly welcomed the draft determinations.

Both the National Consumer Council (NCC) and the National Union of Residents Associations believe that the initial price reduction should have been greater than the average 14% announced on 27 July. The Welsh Consumer Council commented that price reductions should not increase the risk of take-over of Dŵr Cymru (Welsh Water's) parent company, Hyder plc, by a non-Welsh company.

The NCC argued, as in previous responses to Ofwat documents, for greater transparency in the Regulatory Accounts, particularly in relation to dividend payments and loans between the regulated businesses and their parent companies. The NCC supported Ofwat's view on the cost of capital. The NCC argued for an explicit error correction mechanism as part of price controls, and that Ofwat should consider if it required further enforcement powers in respect of leakage.

The Chemical Industries Association (CIA) was the only representative of business customers to make a representation. The CIA commented that large users of water should benefit from the initial price reduction and disagreed with the application of long run marginal cost (LRMC) to large user tariffs. These are views shared by other business customer groups who have expressed similar arguments to Ofwat in the recent past.

Environmental groups

The EA, statutory environmental bodies and other environmental interest groups commented on the environmental programme. Representations from smaller local groups focused on individual schemes and commented primarily on work affecting their locality. These organisations generally express the wish that even more environmental improvements should have been included in price limits.

The EA has expressed concerns about the scale and timing of the environmental programme included in draft price limits. It did not accept that the schemes submitted for re-appraisal were not cost-effective although it welcomed investigations into solutions that were more cost-effective. It also

suggested that the assumed profiling of schemes introduced a risk that the UK would not meet statutory deadlines in 2005 under the UWWTD.

English Nature requested a completion of the reappraisal of six water resource schemes in time for their inclusion in the final determination. Three of these schemes have been included in the price limits after reappraisal resulted in a significant reduction in costs. English Nature also said that the profiling of the environmental programme into the first year of the next price review period (2005–06) to achieve reductions in customers' bills was not in line with public opinion surveys. Concern was expressed that work affecting SSSIs had been scheduled towards the end of the 2000–05 period, and that some of this work was relatively low cost.

The Royal Society for the Protection of Birds (RSPB) wanted all works to deal with abstraction problems included. While accepting the decision of Ofwat to challenge the cost-effectiveness of some schemes and investigations, the RSPB hoped that reappraisals could be carried out so that revised proposals could be included in the final determinations.

The Director understands these desires and the price limits do incorporate the largest ever programme of improvements which affect the aquatic environment. However, a small number of the proposed schemes have not been included, either because the company has not properly defined them, the solution proposed requires reappraisal or the financial constraints on the company have necessitated a slight lengthening of the timescale for completion of the work. Even these schemes delayed to beyond March 2005 would be completed before the statutory EU deadlines.

The Director has carefully considered these views and any changes to policy and their impact on price limits are explained in Chapter 8.

MPs and local government organisations

Over 40 representations were received from MPs and MEPs commenting on the content of Ofwat's draft determinations. They expressed a wide range of views.

While welcoming the benefits of the proposed price cuts, for customers, some concerns were expressed about local issues, including the scope of the environmental programme, the possibility of job losses and the future of service levels to customers.

Eighteen local government representations were received. These were split between a need to deliver price reductions to customers and a call for further investment in environmental programmes and/or reduction in sewer flooding incidents.

Financial institutions

No formal representations have been received from institutional shareholders, independent merchant bankers, broking analysts or others in the City. The Director has, as for other key stakeholders, kept financial institutions informed through seminars.

The draft price limits were set to allow companies to maintain both an adequate level and trend of critical financial indicators consistent with the maintenance of solid investment grade ratings. Northumbrian Water Ltd and Southern Water Services Finance plc (a wholly owned subsidiary of Southern Water Services — the appointee) are the only companies to have been the subject of credit downgrades since the draft determinations. North West Water and Dŵr Cymru (Welsh Water), which are part of multi-utility groups and face both water and electricity price reviews, have been put on credit watch but have not been downgraded. Yorkshire Water Services Ltd has also been placed on credit watch with negative outlook. However, it is important to note that all water companies would

still maintain solid investment grade status even if those companies subject to credit watch were to be downgraded.

Other interested parties

Sewer flooding was a key concern of both Unison's Severn Trent Branch and Midlands Region, each arguing for greater funding. All four Unison representations and that of the GMB raised the possibility of significant job losses if the draft determinations were confirmed. Unison also questioned whether Ofwat's assumptions on meter take-up rates were realistic.

APPENDIX C: THE COST OF CAPITAL

1. Summary

This appendix amplifies the reasoning set out in section 10.3 to 10.5 for the Director's assessment of the cost of capital and its components used in setting the price limits.

The Director's assessment of the cost of capital for the water and sewerage companies is 4.25%–5.25% in real terms, after business taxes. This judgement is based on advice from Singer & Friedlander, his financial advisors. This compares with a range of 5% — 6% used in the 1994 determination of price limits.

A post-tax cost of capital of 4.75% for new investment has been assumed for all water and sewerage companies. In order to take account of the higher cost of capital faced by smaller companies, the water only companies have been given an additional premium of 0.75%, with the exception of the three largest water only companies that have a premium of 0.4%.

In response to companies' submissions on the cost of capital, the Director has included a premium to reflect companies' embedded fixed rate debt which cannot be efficiently refinanced in the short term. The premium is specific to each company and reflects the industry average cost of embedded debt and the actual proportion of fixed rate debt in the company's latest balance sheet. The embedded debt premium is added to the post-tax cost of capital applied to existing assets only and ranges up to 0.4%.

Although there is some market evidence for a cost of capital that is slightly lower than the middle of the Director's range, in his assessment he has taken account of the need to ensure that companies retain solid investment grade ratings in order to be able to finance the £15.6 billion investment programme.

Ofwat's financial modelling has had regard to the level and trend of a package of critical financial indicators, including cashflow to interest, cashflow to debt, historic cost accounting interest cover and gearing, in order to meet the market criteria for solid investment grade ratings. The ranges for such indicators are set out in Table 28.

Table 28: Ranges for critical financial indicators

Indicator	Water & sewerage companies	Large water only companies	Small water only companies
Historic cost interest cover	Min 2x	Min 2.25x	Min 2.5x
Average gearing 2000-05 (D/D+E)	45–55%	45–55%	45–55%
Cash interest cover (EBITDA basis)	Min 3x	Min 3.4x	Min 3.75x
Cash interest cover (EBIDA basis)	Min 2x	Min 2.25x	Min 2.5x
Debt payback period (EBITDA basis)	Max 5 years	Max 5 years	Max 5 years
Debt payback period (EBDA basis)	Max 7 years	Max 7 years	Max 7 years
Cashflow to capex ratio (EBDA basis)	Min 40%	Min 40%	Min 40%

2. Methodology

The cost of capital is a very significant element in the determination of price limits. This is doubly true in that it is applied not merely to marginal investment, but to the entire capital base of each company.

The cost of capital is the return required by the capital markets for investing in a particular company, given its risk. Assessing it is not a mechanical process, in part because it concerns market perceptions about the future. Although modern finance theory provides useful tools, there are still many judgements to be made.

In his assessment, the Director has placed considerable emphasis on consultation in the financial markets. This has involved discussions with institutional shareholders, City analysts, finance academics, banks, bond investors, credit rating agencies and other regulators. He is also aware of the considerable academic literature on the subject. He has received advice from Singer & Friedlander, his financial advisers, as well as his advisory panel of senior industrialists. He has also had regard to the results of surveys[34] of institutional investors (by Credit Lyonnais Securities Europe (CLSE) in October 1998, by SRU Limited on behalf of Yorkshire Water in April 1998 and a more narrowly focused survey[35] by NERA on behalf of Northumbrian Water in January 1999).

The Director's assessment relies primarily on the Capital Asset Pricing Model (CAPM), supplemented by the Dividend Growth Model (DGM). The DGM primarily provides a check on the results of the CAPM. This approach was widely endorsed by water companies and other respondents to Ofwat's June 1997 and October 1998 consultations. The CAPM is simple and widely used, both in the UK and the US financial markets, by other utility regulators and by the Competition Commission. Other more sophisticated models, such as the Arbitrage Pricing Theory, exist but are not yet widely used or understood. Also, because they rely on input variables for which independently collated data do not exist over a sufficiently long period, they would be likely to prove impractical and of dubious robustness.

The Director has placed greater emphasis on the current market levels than on historical averages for the various elements of the cost of capital and in particular the risk-free rate. Not only is the methodology more appropriate, in that the market already discounts views about past trends of prices and yields as well as future ones, but it avoids the practical difficulties of judging over what past period historical rates should be considered. This is also the view of his financial advisers and the panel of senior industrialists.

The Director considers that the combination of a forward looking cost of capital and an allowance for embedded fixed rate debt provides a more focused assessment of required returns than can be given by historical averages.

The recent use of historical averages by the Competition Commission[36] to assess the risk-free rate has been challenged by two of the UK's foremost academics in a recent London Business School paper[37]. The authors, who also advise Thames Water on cost of capital issues, state that:

"The unsatisfactory innovation of the MMC (now referred to as Competition Commission) was to incorporate their own speculative view of the future course of interest rates into UK regulatory policy. This does not correspond to standard best practice in the estimation and use of the cost of capital."

A number of companies in their representations have addressed the issue of using market based or historical average methodologies for deriving the cost of capital. This is set out perhaps most clearly in an article in The Utilities Journal of July 1999 by Professor C Mayer and Dr T Jenkinson[38]. The main and rather revolutionary contention is that at any given time historical averages provide better predictors of future interest rates than the current market rate.

34 *Risk and return in the UK sector: An independent study of institutional investors*, Credit Lyonnais Securities Europe, 19 October 1998; and *Yorkshire Water: The City perspective*, SRU Limited, April 1998.

35 *Survey of water industry cost of capital and risks following Ofwat's "Prospects for Prices", A report for Northumbrian Water Limited*, NERA, January 1999.

36 *Cellnet and Vodafone–Report on references under Section 13 of the Telecommunications Act 1984 on the charges made by Cellnet and Vodafone for terminating calls from fixed line networks*, The Monopolies and Mergers Commission, December 1998.

37 *The cost of capital for the UK water sector*, Professor D Currie and Professor I Cooper, published by London Business School, May 1999.

38 *What's the real rate?* An article by Professor C Mayer and Dr T Jenkinson, The Utilities Journal 1999.

This analysis over-simplifies both the way financial markets work and Ofwat's cost of capital methodology. The Director has not simply used the current market rate for the risk-free rate in the cost of capital. This is primarily because there is no single current market rate. Instead, there is at any time a continuum of rates for different maturities of debt, represented by the yield curve. This is driven by the net market position at the time and represents the rates that will prevail over the periods to the relevant maturities.

The contention that historical rates are the best predictors of future rates runs counter to market behaviour, both as to best practice in estimating cost of capital for corporate acquisitions and as to the activities of arbitrageurs. In addition, the evidence that historical rates are better predictors is thin, looks over a relatively short period of time, and is silent as to statistical significance.

As the current five year historical average is higher than the current market yield for, say, ten year gilts, allowing historical averages into the cost of capital would allow the companies to adopt the strategy of locking in immediately to current rates, thereby obtaining a windfall profit at customers' expense for the next five years. If, at the next Periodic Review in 2004, the situation were to be reversed so that the current market rate were higher than the, then, five year historical average, the companies could argue that they would need to be allowed the market rate in order to be able to finance their immediate functions (ie the demonstrable cost of borrowing at the time). In that case, companies may not, in fact, be seeking to use historical averages, but rather the higher of the average and the market rate. This would provide their investors with a return, in the long run, in excess of the cost of capital.

The price setting methodology used in both the 1994 and 1999 reviews assumes that the return required by lenders is a post-tax one. Theoretically, this should measure the returns to investors after all taxes ie both personal and corporate, but in practice only corporate taxes are considered since there is insufficient knowledge of the personal tax positions of all investors. However, the approach taken in respect of corporate tax is different in this review from that in 1994. At this review, the individual tax positions of each company and, hence, corporation tax payments are added into companies' revenue requirements in arriving at the pre-tax return rather than allowing a generic fixed tax wedge between pre- and post-tax returns as used in 1994.

3. The cost of equity

The assessment of the cost of equity capital is founded on the market's view of the risk associated with UK equities generally, and the relative risk of the water companies. The Director has, as stated above, consulted on these issues widely within the City, and has taken account of the results of the CLSE and NERA surveys.

The risk associated with investments in UK equities generally is encapsulated in the cost of equity through the equity risk premium. The size of the equity risk premium and the most appropriate methodology for calculating it has been the subject of considerable debate amongst analysts, academics, regulators and the regulated companies. There is, however, broad agreement that the wide range of historical estimates of the premium are of questionable relevance and all significantly overstate the current expectations of actual equity investors. Such, for example, is the view of the Chairman of the US Federal Reserve Board[39]. This is also borne out by the CLSE survey, which revealed that investors, on average, believe that the cost of capital for the water industry is 7.9% (nominal). After allowing for views at the time on inflation of between 2.5%–3.3% (being the underlying and headline RPI, respectively), this would imply an equity risk premium in the range of 2.4%–4.7%. The NERA survey concluded that the premium was in the range 3%–4%. Recent research published by equity analysts at a broad range of investment banks shows a range of 2%–4%[40]. A Price Waterhouse survey found a range of 2.7%–4.5%[41]. Certain academic studies, which use a partially forward-looking approach (estimating expectations about future returns on bonds), find premia of about 3.5%[42].

39 *Measuring Financial Risk in the Twenty-first Century*, speech in Washington DC, 14 October 1999.

40 Source, various recent analysts' reports.

41 *Reporting in Search of Shareholder Value* by Andrew Black, Philip Wright and John Bachman, Pitman Publishing 1998.

42 *The Equity Risk Premium; Another look at history* by Dr T Jenkinson, The Utilities Journal, April 1998.

The Director considers that it is important to establish the market's expectations looking forward, based upon expectations about the continuance of a low-inflation environment. Nevertheless, he believes that to adopt the more aggressive views on the equity risk premium expressed by some analysts and commentators — as low as 1% to 2% — might be inconsistent with his duty to secure that the companies can finance the proper carrying out of their functions. This may be the case if the actual cost of equity were to increase above the level implied by this range as a result of a downswing in the UK economy during the period 2000–05. The Director considers that, currently, a more appropriate range for the equity risk premium is 3%–4%. This is slightly higher than the range set out in *Prospects for Prices*, and reflects further consultation and the results of the NERA survey.

Water companies have variously argued for higher premia in the range 3.5% to 9.0%. However, a London Economics paper[43] prepared for Water UK states that evidence from the DGM points to a range of 3.25%–4.25% which is comparable to the range assumed by the Director.

Under the CAPM, the measure of a company's undiversified risk relative to equities generally is its beta factor. There are many ways that beta factors may be derived. Those most commonly used are the five-year monthly figures published by the London Business School. For the quoted holding companies of the water and sewerage companies, these have decreased from about 0.6 in 1994 to about 0.5 currently (unweighted). After adjusting for gearing, the underlying betas have also decreased. This is despite the fact that the period includes times when the water industry was subject to risks that may no longer be applicable: for example, the general election in 1997 and the uncertainty of a Labour government, the windfall tax, and the government's reviews of regulation, including proposals for profit sharing and error correction mechanisms, and for the methods of charging. An alternative to the five-year historical beta would be the use of a forward-looking measure of risk. Unfortunately, forward-looking betas are neither sufficiently standardised nor accredited as robust alternatives.

For the final determinations, the Director has used the latest available five-year beta factors (for the listed water and sewerage companies, excluding the multi-utilities). Adjusted for the capital structure assumed (see section 6 of this appendix), these produce geared equity betas of, on average, 0.7 to 0.8.

4. Debt

The cost of debt depends primarily on the term structure of loans and the credit worthiness of the borrower. Water companies have long-life assets and this tends to influence the maturity profile of their loans. The Director has considered the cost of debt in terms of the premium required over the risk-free rate.

4.1 Risk-free rate

Yields on index-linked gilts are the most suitable proxy for the risk-free rate. Currently, average redemption yields on index-linked gilts are in the range 2.2%–2.3%, although these averages reduce to 1.8% to 1.9%, for maturities of 5 to 30 years. Average real yields on conventional gilts of similar maturities are in the range 2.2%–2.7%, using an annual inflation assumption of between 2.5% and 3.0%.

Although the yield curve is currently "inverted", so that long-dated gilts are yielding less than those of shorter maturity, over recent years the differential between index-linked yields of varying maturities has been fairly small. Hence the blend of maturities chosen does not materially affect the risk-free rate.

Some water companies state the risk free rate to be as low as 2%.

43 *A response to the Director General of Water Services' assessment of the cost of capital.* Prepared for Water UK by London Economics, February 1999.

Companies in their representations have argued that the index-linked gilts market is one of questionable liquidity and hence its value in determining the risk-free rate is limited. This argument has little force for a number of reasons. First, the index-linked market is a large and sophisticated market in the UK (unlike in other countries); second, the Director has explicitly taken account of structural factors currently obtaining in that market as outlined in the Bank of England inflation report, May 1999; third, account has been taken of redemption yields in both the index-linked and conventional markets in order to avoid any structural bias in the former market.

Although UK index-linked yields have recently risen slightly, in particular since the draft determinations, it is widely thought that yields on index-linked gilts are currently being held down by temporary structural factors specific to the UK. For example, the Minimum Funding Requirement for UK pension funds has led to strong institutional demand for bonds, particularly index-linked gilts, at a time when relatively little new index-linked stock has been issued. Furthermore, index-linked yields in the UK are lower than those in the US. Although focussing on current yields, the Director has taken account of the potential effect on such yields of these structural factors in assessing the risk-free rate for the cost of capital.

He currently considers that an appropriate range to adopt for the risk-free rate, representing the blend of maturities of water company debt, is 2.5% to 3.0%. This compares with the range 3.25%–3.75% used in the 1994 Periodic Review.

4.2 Debt premium

All water and sewerage companies' debt (at the regulated business level) is of solid investment grade quality. The current weakest ratings are A– or A3 (ie three 'notches' above the lowest investment grade rating). This includes the de-ratings since the publication of *Prospects for Prices* in October 1998. Significant further deterioration is not expected in the financial markets.

Margins on companies' debt over government bonds of equivalent maturity has risen over the last year. For debt raised over the summer of 1998, margins range from about 30 basis points (bp) on loans from the European Investment Bank, through leasing at around 40 bp to bonds and bank lending at 60–90 bp. The European Investment Bank is the single largest lender to the sector. At the time of publication of *Prospects for Prices* the spread on corporate bonds issued by the water companies had widened considerably to about 110–175 bp. The current range is around 115–250 bp with an average of 150 bp. Excluding Hyder, which is unrepresentative of other BBB+ rated utility companies, the range is 115–160 bp with an average of 135 bp.

Ofwat's analysis of the cost of debt assumes that the regulated businesses will generally be able to accommodate higher levels of gearing (and lower debt coverage ratios) than currently. This is matched by expectations in the capital markets. Such higher gearing may lead, for some companies, to some deterioration (by one or perhaps two notches) in credit ratings, while still leaving companies solidly within the investment grade range. At present, the average debt spread for BBB or equivalently rated UK utilities (including Hyder) is approximately 150bp. Allowing for this and taking into account the different types of borrowing available to companies and the costs of issuance, the Director considers that an appropriate range for the margin over the risk-free rate is 150–200 bp.

There does not seem to be any significant capacity constraints in debt markets for water companies despite considerable turbulence last year in international markets. Water companies have been able to issue over £3,150 million of bonds since *Prospects for Prices*.

Combining the risk-free rate and debt premium and taking into account the tax deductibility of interest payments, the current assessment of the cost of debt on a post-tax basis is, therefore, 2.8%–3.5%.

5. Embedded fixed rate debt

In the determinations, the weighted average cost of capital has been set with greater emphasis on future rates than historical trends. However, it is recognised that there should be an adjustment to the cost of capital that takes account of companies' continuing costs of existing fixed-rate debt which cannot now be refinanced except at equivalent cost.

This approach should address the historic legacy of debt but should not alter the balance of incentives for decisions on financing. The Director believes that this approach would be broadly neutral with regard to incentives.

Two companies argued that there should also be a premium for the cost of fixed rate preference shares. The Director does not consider that high fixed returns to holders of preference shares should be borne by customers through a premium on the cost of capital. Rather, this should be considered a matter of the distribution of income between the holders of different classes of share capital.

The premium of the cost of capital reflects the industry average cost of fixed rate debt (approximately 7.9% in nominal terms) and the actual value of fixed rate debt on each company's balance sheet. The embedded debt premium will not be added to the cost of capital applied to assets acquired after 2000. The embedded debt premium ranges from 0% to 0.4%.

6. Capital structure and financial indicators

There is a broad consensus that the water utilities can generally sustain higher levels of gearing. Consultation indicated that levels of gearing of about 50% (debt: debt plus equity) and accounting historic cost interest (EBIT) covers of about 2.0 times are consistent with maintaining a solid investment grade rating if coupled with acceptable cashflow profiles and ratios. Indeed, the rating agencies would generally countenance lower ratios for BBB– rated water companies (the lowest class of investment grade).

Borrowings, unlike equity, are usually subject to contractual arrangements, sometimes including financial covenants. The capital programmes will largely be financed through new debt and the price limits need to ensure that the companies' revenues, profits and cash flows are such that companies can raise such finance.

Cash based financial indicators, such as the ratio of net cash flow (EBITDA) to interest and funds from operations to total debt are considered to be important measures of bankability by lenders and analysts. Trends in such measures are seen as more important than the absolute figures in any one year. This applies equally to financial covenants. There is, however, no universal use of any single set of definitions.

The ranges for the package of critical financial indicators used by the Director are set out in Table 28 in section 1 of this appendix.

In deriving the cost of equity, companies' equity betas have been adjusted where necessary to take account of the greater risk to equity resulting from the assumption of more efficient capital structures. It has been assumed for the purposes of assessing the cost of capital that an efficient capital structure for water companies will have gearing averaging 45%–55% (debt to total capital) throughout the period.

7. Position of small companies

In *Prospects for Prices*, it was suggested that a premium to reflect the more limited access to capital markets and a higher than average cost of capital should only be included in the cost of capital for the four smallest independent water only companies. The Director now intends to include a premium for

all water only companies, although the premium will be smaller for the three largest water only companies. He considers that such a premium over similar costs for the water and sewerage companies would be unlikely to be larger than about 40–80 bp (post-tax) on the cost of debt and the cost of equity. Assuming an efficient capital structure, this results in a small company premium on the post-tax cost of capital of 0.4% for the three largest water only companies and 0.75% for the remaining water only companies.

The Director considers that companies that are subsidiaries within large groups should demonstrate that they operate on an arm's-length basis from other group companies, including their parent company, before being treated as independent companies and hence eligible for the small company premium. An adequate demonstration of independence would be for companies to amend their licence conditions to guarantee that they are ring-fenced from the rest of the group. All the relevant water companies ie Bournemouth & West Hampshire, Essex & Suffolk, Folkestone & Dover, North Surrey, South East, Tendring Hundred and Three Valleys Water have agreed to do so and such licence modifications have been made.

The assessment of the cost of capital assumes that companies have efficient capital structures. However, there is evidence that smaller companies are less able to sustain the same levels of gearing as larger companies and this is taken into account, for example, in credit assessment methodologies. In reviewing companies' financial projections, the Director has mirrored the market's approach to the assessment of credit ratings by assuming more stringent tests for water only companies on the critical financial indicators as set out in Table 28 in section 1 of this appendix.

APPENDIX D: CAPITAL WORKS UNIT COSTS: THE COST BASE APPROACH

The *cost base* is used to assess the relative efficiency of water companies in the delivery of capital investment programmes. The method is based on the comparison of costs for a range of standardised capital projects (standard costs) that have been estimated in the same way. If, on balance, a company's standard costs are high compared to its peers, then this suggests that there is scope for delivering the overall capital works programme in that company for less than suggested by the company's standard costs.

The method was developed in the 1994 Periodic Review where it was used to adjust the projected capital programmes. Since 1994, the industry has outperformed the capital efficiency improvements assumed in price limits. Companies with the highest standard costs in 1994 (ie the least efficient) have been able to make the largest reductions in capital unit costs from those prevailing in 1994.

Ofwat has built on the success of the cost base approach for the 1999 Periodic Review. *Capital works unit costs in the water industry* (December 1998), set out the cost base approach and summarised the judgements about relative capital efficiency included in *Prospects for Prices* (October 1998). These assessments were based on the estimates of standard costs in each of the companies' Cost Base Submissions which were submitted to Ofwat in June 1998.

Companies updated their standard cost estimates in their Business Plans submitted in April 1999.

A number of companies have raised concerns about the use of the cost base for assessing the scope for improvements in capital works efficiency. The concerns relate to: the choice and coverage of standard costs; comparability; accuracy of the estimates and the selection of benchmarks. Ofwat has addressed all of these concerns in the preparation, analysis and judgements made as part of the final determinations.

1. The choice and coverage of standard costs

The standard costs and their specifications have been developed and refined in the light of representations made by companies over a period of nearly two years. The number and coverage of standard costs were selected to give a representative sample across both current and future capital investment programmes. The standard costs are stylised to exclude many site-specific factors that arise in actual projects. In some cases, the standard costs directly reflect projects that companies are likely to carry out. In other cases, actual projects may only be reflected in part by the standard costs collected. The standard costs do, however, contain the major elements of capital works programmes for both the water and sewerage services.

The coverage of the standard costs was discussed with companies in order to ensure that the costs included in the cost base exercise provided a sample that was sufficiently representative of their overall capital programmes.

2. Ensuring comparability between companies

The reporting requirements for the Business Plans included checklists to assist judging comparability of the estimates. The two submissions (in June 1998 and April 1999) enabled companies to improve the consistency of the reported costs. Ofwat's analysis has found that most companies followed the specifications and took broadly similar approaches when estimating standard costs.

Reporters were asked to be particularly vigilant when checking companies' compliance with the standard cost specifications. For some companies, Reporters commented that the standard cost estimates had been prepared in a manner that was inconsistent with the methods used to compile the investment projections contained in their Business Plans.

Ofwat has reviewed thoroughly the consistency between companies' standard cost estimates. Ofwat has sought explanations for deviations from the prescribed specifications and asked for re-submissions of estimates contained in the Business Plan. Ofwat has taken account of company-specific circumstances where this was considered appropriate. Adjustments have been made to the submitted estimates on the advice of Ofwat's consultant, the Babtie Group, to ensure equitable comparisons between the standard costs submitted by different companies. The Reporters' reports provided valuable input to this analysis.

Ofwat and its consultants are satisfied that reasonable comparability of standard costs between companies has been achieved.

3. Accuracy of the standard cost estimates

Most companies submitted standard costs based on reliable data derived from actual company experience in capital works. Most companies reported that their estimates were accurate to within +/-20%. A number of the estimates are accurate to within +/-10%.

4. Selection of benchmark companies

Ofwat selected benchmark companies for groups of standard costs rather than individual costs. This avoids the problems of cherry picking.

Most of the companies that were selected as benchmarks for the standard costs had submitted estimates that were accurate to +/-20% or better; a number were within +/-10%. These companies had complied with the specifications.

Ofwat sought independent estimates of standard costs from its consultants and these generally supported the benchmarks chosen.

5. Cost base in the price limits

Table 29 sets out the catch-up improvements arising from the analysis of the cost base used to support the scope for the efficiency assumptions included within the final determinations. The industry averages shown are simple averages only, ie they are not weighted by company expenditure.

The approach taken for the price limits follows that set out in *Capital works units costs in the water industry* and used in September 1998 to inform Northumbrian Water's interim determination.

Northumbrian Water has reported that it is endeavouring to deliver the work included in the interim determination within the assumptions made by Ofwat.

For capital maintenance expenditure, econometric models and the cost base have both informed the judgements on the catch-up of the scope for improvements. The cost base factors for capital maintenance assumed there was the potential to close 50% of the gap to the benchmark companies in 2000–01.

For capital enhancement expenditure, the catch-up element of the scope for improvements has been informed by the cost base analysis only. The cost base factors for capital enhancement assumed there was the potential to close 75% of the gap to the benchmark companies.

Evidence from recent experience supports the view that the greatest potential for cost savings in capital investment occurs early in a project during the feasibility and design stages, although there is potential for savings throughout the whole of the construction period. This indicates that the scope for efficiency savings should not be phased over a period but that a first year reduction should be assumed.

The Director has not changed the approach to the cost base for the final determination. There have been minor changes to the assumptions for some companies, where additional information has been provided following the publication of the draft determination.

Table 29: Summary of the catch-up improvements arising from the cost base assumed in the final determinations for capital maintenance and enhancement efficiency

	WATER SERVICE					
	Underground assets (infrastructure)			Above ground assets (non-infrastructure)		
	Band	Cost base factors		Band	Cost base factors	
		Capital maintenance	Capital enhancement		Capital maintenance	Capital enhancement
Anglian Water	above average	–5%	–7%	average	–5%	–8%
Dŵr Cymru (Welsh Water)	average	–8%	–12%	average	–6%	–9%
North West Water	average	–7%	–10%	above average	–3%	–4%
Northumbrian Water	average	–7%	–10%	average	–8%	–11%
Severn Trent Water	average	–10%	–15%	average	–8%	–11%
South West Water	above average	–2%	–2%	above average	–2%	–3%
Southern Water	below average	–17%	–25%	average	–5%	–7%
Thames Water	above average	–4%	–5%	average	–4%	–7%
Wessex Water	above average	–3%	–5%	above average	–2%	–3%
Yorkshire Water	above average	–2%	–3%	above average	–2%	–3%
Water only companies						
Bournemouth & West Hampshire Water	average	–10%	–15%	below average	–13%	–19%
Bristol Water	below average	–12%	–19%	above average	–2%	–3%
Cambridge Water	average	–8%	–12%	below average	–10%	–15%
Dee Valley Water	above average	–5%	–7%	average	–5%	–8%
Essex & Suffolk Water	average	–8%	–12%	average	–9%	–13%
Folkestone & Dover Water	average	–11%	–16%	average	–5%	–7%
Mid Kent Water	average	–8%	–12%	average	–8%	–12%
North Surrey Water	average	–9%	–13%	average	–7%	–11%
Portsmouth Water	average	–8%	–12%	below average	–11%	–17%
South East Water	average	–10%	–15%	average	–5%	–8%
South Staffordshire Water	below average	–13%	–19%	below average	–11%	–17%
Sutton & East Surrey Water	above average	–4%	–5%	below average	–10%	–15%
Tendring Hundred Water	average	–8%	–12%	below average	–10%	–16%
Three Valleys Water	average	–7%	–10%	average	–8%	–12%
York Waterworks	average	–6%	–9%	average	–6%	–9%
INDUSTRY AVERAGE		**–8%**	**–11%**		**–7%**	**–10%**

	SEWERAGE SERVICE					
	Underground assets (infrastructure)			Above ground assets (non-infrastructure)		
	Band	Cost base factors		Band	Cost base factors	
		Capital maintenance	Capital enhancement		Capital maintenance	Capital enhancement
Anglian Water	below average	–6%	–8%	average	–5%	–8%
Dŵr Cymru (Welsh Water)	below average	–6%	–9%	below average	–9%	–13%
North West Water	average	–3%	–5%	above average	–1%	–2%
Northumbrian Water	above average	–1%	–2%	above average	–2%	–3%
Severn Trent Water	average	–3%	–5%	below average	–10%	–15%
South West Water	average	–3%	–4%	average	–7%	–10%
Southern Water	average	–4%	–6%	below average	–9%	–13%
Thames Water	average	–4%	–6%	average	–8%	–11%
Wessex Water	above average	–1%	–1%	above average	–2%	–2%
Yorkshire Water	above average	–1%	–1%	above average	0%	0%
INDUSTRY AVERAGE		**–3%**	**–5%**		**–5%**	**–8%**

APPENDIX E: PROTOCOL FOR CHANGES IN COMPANIES' OBLIGATIONS AND CONSENTS AFTER THE FINAL DETERMINATIONS

This appendix sets out the procedures to be followed for changes in quality improvement requirements from those assumed in the final determinations in order for them to be recognised by Ofwat. The procedure provides for the reasonable net additional costs arising from the prescribed changes to be reflected in revised price limits. These costs could be reflected in price limits through an interim determination application any time up to the end of September 2003 or by using the 'logging-up' mechanism for inclusion in the closing regulatory capital value and thus be taken account of at the next Periodic Review.

The appendix also deals with requirements associated with changes in water abstraction licences, cryptosporidium monitoring and lead pipe replacement requirements and those associated with revisions to sewage effluent discharge consents or the requirements for the disposal of sewage sludge. It also deals with the issue of the imposition of stringent planning requirements.

1. The starting position

The Director's judgements on the quality improvement requirements included in the final determinations were informed by guidance from Ministers, the views of the respective quality regulators, companies' Business Plans and subsequent representations following the draft determinations and the audit reports from the Reporters.

Details of the quality improvement requirements and their phasing, consistent with the final determinations, have been set out for each company in the documentation accompanying the final determinations. The company-specific information has been forwarded to the respective quality regulators. This information will be placed in the Ofwat library on completion of the review or the conclusion of any Competition Commission referrals.

Changes may nevertheless occur. In most cases, the Water Resources Act 1991 or companies' licences already contain provisions to deal with such eventualities. The Director believes that these existing mechanisms should be used to the full before price limits are increased, either at the next Periodic Review in 2004 or before then via an interim determination.

2. Criteria for new or amended quality improvements

Since 1994, Ofwat has established the following criteria for non-trivial new or amended quality improvement requirements to be recognised as changes for the purposes of interim determinations or, if they are not sufficiently material to trigger an interim determination, then to be logged-up.

The Director must have received formal and direct guidance from Ministers of the new or changed requirement being over and above the obligations included in the final determination package. Such guidance to the new or changed obligation or timetable would be both company and obligation specific. The Director would expect an indication of the estimated net additional costs of the amended requirement to be provided with the guidance from Ministers.

The amended requirement must be in response to a legal obligation that will be enforced through Regulations.

The company must have exhausted all appropriate means of challenging the imposition of the requirement and/or its timetable where this is in advance of the just-in-time date set down in regulations or directives. The Director will assume that a company that chooses not to challenge the

new requirement would be deemed to have accepted that it can absorb the implications of the change without increasing price limits.

The company must demonstrate that it has selected the least total cost option for meeting the new or changed requirement and that the chosen solution is not unreasonably expensive or low risk.

The actual and/or estimated net additional costs arising from the new or changed requirement must have been audited and challenged by the Reporter.

New or amended requirements meeting all of the above criteria will be recognised by Ofwat. The reasonable net additional costs carried forward into price setting would be those identified, but may be adjusted to reflect Ofwat's judgements of the efficiency of the company relative to the industry benchmarks.

Ofwat would ignore new or amended requirements where the present value of the net additional costs (both capital and operating costs up to March 2005) are forecast to be below a triviality threshold of 1% of turnover in the report year relevant to the application.

Nothing in these criteria relieves a water company from its statutory duty to comply with all the legal requirements placed upon it.

3. New or amended requirements associated with water abstraction licences

The reasonable net additional costs of reductions in, or loss of, water abstraction licences that have been *agreed* between all the relevant parties (Ministers, the EA, English Nature (or the Countryside Council for Wales), the affected companies, the relevant CSC(s) and Ofwat) have been included in the final determination package. Initiatives where there has not been a full consensus have not been included in the price limits.

If, in future, agreement on the desirability and cost of a scheme which was not allowed in price limits is reached between all of the designated parties, this will be recognised as a changed requirement for the purposes of logging-up or interim determinations. The Director considers that existing legal mechanisms are appropriate where full consensus has not been reached between the parties.

The procedure for dealing with revisions to water abstraction licences is laid down in the Water Resources Act 1991. The EA proposes a change to the terms of a licence. The licensee either accepts the change or appeals to the Secretary of State. A formal inquiry is held before the Secretary of State, who decides whether to confirm, amend or reject the change. The Lands Tribunal has the final say on the level of compensation to be paid by the EA to the affected licence holder.

It would be open to the Government to meet the costs of this compensation from central funds or to require the EA to recover the costs through increased charges on all water abstractors.

Thus a water company which faced a change to a current water abstraction licence would be able to recover directly the net additional costs arising from the change via compensation from the EA.

Non-trivial increases in abstraction fees arising from Lands Tribunal compensation decisions would be recognised by Ofwat as a relevant change in circumstance which could trigger an interim determination application. This route would be open to all affected water companies, not just the company receiving compensation.

4. New or changed requirements associated with sewage discharge consents

The confidential company-specific reports provided to companies by the Director with the final determinations include the definitive listings of changes in discharge consents, works by works, that have been assumed in price limits. For major changes, these have been linked to expected compliance dates. In other circumstances, there is some flexibility in timing within an overall output profile year by year.

The Water Resources Act 1991 provides an appeal procedure for dealing with disputes about changes in discharge consents. It is expected that all changes not consistent with the final determination package will use this procedure if the affected company considers that the net additional costs need to be recognised by the Director. Any company that decides not to challenge a proposed change in discharge consent that is more stringent than that assumed will be deemed to have accepted that the cost implications of the change are trivial and, therefore, not relevant to any future setting of price limits.

Priorities within the overall programme are likely to change. The local EA and water company will keep the timing of the programmes under review in the light of better information, actual progress and unanticipated delays. The local EA and water company should agree advancement of initiatives which are broadly in balance, in net present value terms, with those being delayed. DETR, the Office of the Welsh Assembly, EA (HQ) and Ofwat need to be kept informed, at least annually, of these cost neutral changes through updates of the output schedules together with associated explanations. The onus is on the water company to demonstrate maintenance of the net present value balance and for this to be reviewed by the Reporter.

In some instances, it will be sensible to short circuit the case by case procedures of the Water Resources Act 1991, particularly where there are likely to be generic issues which need to be resolved and applied consistently over all or some discharges. In these instances, a clear policy decision should be sought from Ministers or the National Assembly for Wales (NaFW). It is expected that EA (HQ) would draft a submission that sets out the reasons for the changes, the benefits arising and expected net additional costs for each water company. This draft would be subject to formal consultation between all interested parties before its formal submission to Ministers or NaFW. Clear policy guidance from Ministers or NaFW on the issues put before them that involve changes in the consent assumptions made in the final determination will be accepted as new legal obligations for the purposes of setting future price limits.

4.1 RQO reappraisals

A limited number of initiatives associated with RQOs have been omitted from the final determinations pending further justification of their value for money. It is expected that the reappraisal of these initiatives will take place in the early years of the price limit period, with full consultation on the results prior to decisions as to whether to proceed or not.

It is expected that these case by case reappraisals will:

- identify and quantify the benefits arising from the proposals using the Benefit Assessment Manual approach and contrasting this with the earlier benefit analysis;
- ensure that the appropriate solutions are identified, together with estimated net additional costs;
- examine the relative costs and benefits of the proposal with respect to initiatives in other EA regions; and
- test the viability of the proposal against achieving the required RQO improvements through better control of other non-sewage effluent discharges to the affected river.

The EA may decide to proceed with a RQO initiative in the light of a particular reappraisal. If this is endorsed by DETR/Office of the Welsh Assembly officials acting on behalf of their Ministers then the change will be accepted by Ofwat as a new legal obligations for the purposes of future price limit determinations.

4.2 Flow consents

A considerable number of sewage treatment works operate at above consented flows but within the determinand requirements. No provision has been made in price limits for capital works associated with proposed changes in discharge consents to limit pollution loads to the product of consented flows and consented determinand concentrations where the individual works currently meet the requirements of the UWWTD. It is expected that proposed tighter consents arising from dealing with non-compliance with old flow consents would need to be justified on the same basis as other initiatives to maintain or achieve RQOs as described above. The procedures of the Water Resources Act 1991 should be used where an affected water company sought recognition of the implications of the change in future price limit determinations.

5. Stringent planning requirements

The Director considers that decisions on whether to impose stringent planning requirements on works necessary to meet quality improvements should rest with government rather than local planning authorities and water companies. Stringent requirements are those that would result in substantial additional costs over and above those for more conventional solutions that have been tailored to reasonable local needs. Examples might be a requirement for a fully buried sewage treatment works, or the full enclosure of a works coupled with sophisticated odour control, or restrictions on location that force the use of very expensive sites or the need for excessive pumping of sewage or effluent.

The assumptions allowed for in the final determinations are based on reasonable solutions that do reflect local circumstances but do not reflect stringent planning requirements.

If a planning authority imposes stringent requirements on a proposed development then the water company has two options. The company could decide to accept the stringent requirements or appeal to the Secretary of State. If a company chose the first option, Ofwat would assume that the company has decided to absorb the net additional costs and so waive any possibility of having these costs recognised for the purpose of interim determinations or for logging-up.

If a company appealed the planning authority decision, then the reasonable net additional costs associated with the final decision by the Secretary of State would be recognised by Ofwat as a Relevant Change in Circumstance. The company would be required to substantiate the net additional costs and demonstrate that it had made appropriate representations at the planning inquiry that exposed these costs.

Of course it is expected that companies will plan their proposals to give adequate time for resolution of planning issues so that completion dates are met.

GLOSSARY OF TERMS AND DEFINITIONS

Appointed business: The business providing water (and sewerage) services. Typically the appointed business is carried out in a subsidiary company known as the Appointed Company, which acts under an Instrument of Appointment (or Licence).

Bankability: The ability of companies to finance their functions in the debt markets. The Director's duty to ensure that companies can finance the proper carrying out of their functions is interpreted to mean not only that companies should receive a return on investment at least equal to the cost of capital but, in addition, companies' revenues, profits and cash flows are such that they can borrow as necessary in the debt markets. Both cash and accounting based financial indicators have been used to assess the financial profiles, as set out in Appendix C.

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

Beta factor: This is a coefficient (ie a number) which measures the riskiness of equity capital. Individual equity shares tend to be more or less risky than the overall equity market. The riskiness of a stock, as measured by beta, is the volatility of its return in relation to that of a market portfolio. The beta factor is a component of the Capital Asset Pricing Model (qv) which is used to estimate the cost of equity capital.

Broad equivalence: The proposal that the capital expenditure to maintain the serviceability of a group of assets should be broadly in line with the current cost depreciation charged on those assets over an appropriate period of time.

Business Plans: The submission to the Director in April 1999 which sets out the company Board's view of the price limits needed for the period 2000–05 and its reasons for them.

Bulk supplies: Supplies of treated or untreated water traded between individual water companies. These supplies are often traded under long-term contracts and on non-standard terms. The Director has power to determine the terms of such supplies if so requested.

Capital asset pricing model (CAPM): An economic model used to provide an estimate of the expected rate of return on a financial investment. One of the cornerstones of modern finance theory.

Capital base: See Regulatory capital value.

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

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

Charging year: A year commencing on 1 April (except for Portsmouth Water whose charging year is from 1 July).

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

Comparative efficiency studies: Comparisons of companies' operating costs, taking into account factors outside management control which influence costs. Such factors include the make-up of inherited asset stock (outside short-term control), economies of scale, population density and the nature of the terrain. From these comparisons it is possible to rank or band companies by relative efficiency and to assess relative scope for reducing costs.

Cost of capital: The minimum return that providers of capital require to induce them to invest in or lend to a business, given its risks (also weighted average cost of capital).

Cryptosporidium: A waterborne parasitic micro-organism, believed to originate from livestock. Cryptosporidia have been identified as responsible for a small number of acute diarrhoea cases (cryptosporidiosis).

Current cost accounting: A method of accounting originally designed to deal with the problem of showing the effect of inflation on business profits. Instead of showing assets at their historic cost (ie their original purchase price), less depreciation where appropriate, the assets are shown at their current cost (replacement cost) at the time of producing the accounts. This method of accounting is used in tandem with historic cost accounting (HCA) in the water industry because of the extensive nature of capital assets and the fact that historic costs do not reflect the asset's true worth.

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

Demand management: By increasing the efficient use of water by both companies and customers, the need for new water resources to meet increases in demand can be deferred. Demand management strategies, such as selective metering, appropriate tariff structures, leakage reduction and promoting efficiency measures by customers, play an important role in maintaining a company's supply/demand balance.

Demand related tariffs: Tariffs that are structured so that they encourage the efficient use of water by those whose demands impose additional costs of supply, e.g. Sprinkler users and other peak users.

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

Design flow of water treatment works: The size of improvements related to the water service is expressed in terms of Ml/day design flow. Water treatment works do not usually work at the full design capacity, and therefore the total design flow of works is in many cases greater than the volume of water supplied by the company. When expressing the volume of water produced by works as the number of consumers supplied, it has been assumed that each consumer uses on average 280 litres per day.

Discharge consent: Under the Water Resources Act 1991, discharges of sewage or trade effluent to controlled waters require consent. The discharge consent is a licence issued by the Environment Agency which sets out the conditions under which the licence holder may make a discharge.

Dividend cover: The number of times a company's dividends to ordinary shareholders could be paid out of net profits after tax in the same period.

Dividend growth model (DGM): A financial model used to provide an estimate of equity returns by reference to the expected growth in dividends.

Economic leakage level: The point at which further leakage control activity would cost more than alternative means to bridge the gap between supply and demand. In determining this, it is important to include consideration of environmental and social costs as well as other costs.

Economic life: The economic life of an asset is the period for which an asset remains useful.

Economies of scale: Economies or savings resulting from the use, management or production of goods in large quantities. A lower cost per unit of output is achieved than would have been the case if smaller quantities were produced.

Embedded debt: Debt, due in more than one year, in company balance sheets as at 31 March 1999 which attracts a fixed rate of interest rather than a floating rate.

Enhanced service levels: Permanent, identifiable and measurable improvements in service levels that are above the most recently established company-wide base levels of service and which are additional to improvements resulting from expenditure in other purpose categories.

Equity finance: The risk-sharing part of a company's capital. Usually referred to as ordinary share capital.

Equity risk premium: The equity risk premium is the difference between the expected return on the equity market portfolio and the risk free return. The additional return is required by investors to reflect the extra risk of the equity instruments compared with government securities.

Eutrophication: The enrichment of water by nutrients, especially compounds of nitrogen and/or phosphorus, causing an accelerated growth of algae and higher forms of plant life which produces disturbance to the balance of organisms present in the water and to the quality of the water concerned.

Financial indicators: Certain financial ratios specified in Appointed Business licences, such as gearing, interest cover and dividend cover. These are used to measure the financial performance of a company.

First time sewerage: The provision of a public sewer, where none existed previously, by a sewerage undertaker, to be used for the drainage for domestic sewerage purposes of premises which satisfy certain conditions (set down in section 101A of the Water Industry Act).

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

Geometric average: A form of average which is calculated by taking the nth root of a series of n items which are multiplied together (e.g. The fifth root is calculated for a series of five items). Although less common than an arithmetic average, it is more appropriate to use this average when items are multiplied together rather than added.

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

Incentive-based price cap regulation: The current regulatory system operated by the Director. The overall limits to prices that companies are able to charge customers is set by the Director. These are set at such a level as to encourage or incentivise companies to make further savings which can be shared with customers and shareholders.

Indexation: The policy of connecting prices, costs, wages, taxes etc to rises in the general price level, retail prices or other measures of prices (inflation).

Infrastructure assets: Mainly underground assets, such as water mains and sewers and also dams and reservoirs that last for a long time. A distinction is drawn between infrastructure and non-infrastructure assets because of the way in which the assets are managed, operated and maintained by the companies.

Infrastructure charges: Paid by developers and customers in properties for a first time connection of premises for domestic purposes to a public water supply or a public sewer.

Infrastructure renewals charge: An annual accounting provision for expenditure on the renewal of infrastructure (ie mainly underground) assets charged to the profit and loss account.

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

Interim determination: Condition B of the licence allows the Director to make adjustments to the price limit in any year for certain relevant changes of circumstances (qv) or in respect of a Notified Item (qv), provided that these are material.

Investment grade rating: An assessment by credit rating agencies of the likelihood of the business being able to meet its financial obligations. There are two ranges of ratings, investment grade and non-investment grade.

Large users: In general terms, large users are industrial and commercial customers using significant annual amounts of water. Under the Competition and Service (Utilities) Act 1992, inset appointments can be granted to sites using 250 megalitres or more a year.

Levels of service: Specific measures of services to customers.

Licence: The water (and sewerage) companies operate under licences granted by the Secretaries of State for the Environment and for Wales, or by the Director, to provide water and sewerage services in England and Wales. The licences impose conditions on the companies which the Director is required to enforce.

Long run marginal cost (LRMC): Marginal costs can be thought of as the costs imposed on a water or sewerage company in supplying or treating each additional cubic metre of water. LRMC will comprise operating and capital costs.

Ml/day: One million litres a day, or 1,000 cubic metres of water a day.

Net MEA value: The aggregate net book value of the fixed assets valued on a Modern Equivalent Asset (MEA) basis. This will be the cost of an asset of equivalent productive capability to satisfy the remaining service potential of the asset, less accumulated current cost depreciation. The net MEA value is stated gross of third party contributions.

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

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

Notified item: Any item notified by the Director to the Appointee as not having been allowed for (either in full or not at all) in determining, at the most recent Periodic Review and for making any subsequent Interim Determination (qv), whether the price limits should be changed (and if so what change should be made to price limits). Notified items for this periodic review are: increased levels of bad debt arising from the loss of the power to disconnect, optional metering and the administrative costs of protecting vulnerable groups.

P_0 adjustment: A component of the price limit. For the 1999 review, the permanent percentage reduction in prices from 2000–01, the first year of the five for which price limits will be set. A P_0 adjustment reflects efficiency gains which have been achieved by the company. The term 'P_0' has been used publicly by Ofwat since late 1996 in relation to the 1999 Periodic Review.

Population equivalent (pe) of sewage treatment works: The capacity of sewage treatment works is measured in terms of the amount of organic material which can be treated. It is assumed that one person is equivalent to a load of 60g of biological oxygen demand. This also includes industrial wastewater treated at works. Hence, the capacity of a works can greatly exceed the population served in the catchment, especially if a large volume of industrial effluent is also treated by the works.

Price base: All monetary values included in this document are in May 1999 prices unless otherwise stated.

Quality enhancements: A generic term for work programmes implemented by the companies to improve the quality of drinking water or the environment such as treating wastewater discharges to a higher standard. These enhancements are required to fulfil new legislation or national initiatives approved by Ministers.

Quality regulators: These bodies enforce the relevant quality standards in England and Wales. The DWI, on behalf of the Secretaries of State, ensures that the water companies are fulfilling their obligations with regards to quality of drinking water supplies. The EA has a wide range of statutory duties and powers, its principal aim being to discharge its functions so as to protect and enhance the environment.

Quinquennium: A period of five years.

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

Regulatory accounts: Financial statements about the Appointed Business which are required by the Director to enable him to carry out his duties.

Regulatory capital value: The capital base used in setting price limits. The value of the appointed business which earns a return on investment. It represents the initial market value (200 day average), including debt, plus subsequent net new capital expenditure as assumed at the time of initial price setting and including new obligations imposed since 1989. The capital value is calculated using Ofwat's methodology (ie after current cost depreciation and infrastructure renewals accrual).

Relevant change of circumstances: Variations in circumstances, as laid down in Condition B of the licence, in respect of which the Director may make adjustments to price limits subject to materiality. Key variations are: for changes in legal obligations placed on companies; failure to achieve legal requirements allowed for when price limits were set; for differences between the actual proceeds of surplus land and the proceeds assumed when price limits were last set; and changes in business rates.

Reliable water yields: The supply that can be reliably maintained from the water resource system available to a company under drought conditions, as constrained by the company's given level of service and obligations to the EA.

Reporters: Independent engineering consultants who are under a duty to report to the Director on the accuracy of companies' annual returns to Ofwat and whether the returns show progress and performance, particularly in respect of capital investment programmes.

Requisition charges: The charge to a developer and property owner or local authority for requisitioning from the company a new water main or public sewer to be extended to the existing system and to connect into it.

Ring fencing: Licence conditions and accounting rules which allow the Appointed Business to be viewed and treated as an independent company.

Risk free rate: The risk free rate is normally measured on the real return on a government security.

Rolling incentive allowance: The mechanism which allows companies to retain for five years the benefit of any outperformance. This acts as an incentive to make efficiency savings throughout the period for which prices are set. It operates in a similar way for both operating and capital expenditure.

Secondary treatment: The treatment of urban waste water by a process generally involving biological treatment with a secondary settlement or other process in which the BOD5 (biological oxygen demand during 5 days) of the influent is reduced by either a concentration of 25mg/l or, alternatively, by a minimum of 70–90%.

Security margin: The difference between the water available to customers for use (including imported water) and demand at any time.

Serviceability: A long run approach which considers the ability of the water and sewerage networks to maintain a standard of service to customers.

Special dividends: Dividends paid by the company which are not part of the usual dividend stream arising in the usual course of business.

Statutory due dates: Dates set out in domestic or European legislation by which certain requirements of the legislation must be met.

Supplementary investment: Investment carried out by companies to provide enhanced levels of service but which has not already been allowed for in price limits.

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

Synergy savings: In the context of the regulation of the water industry, synergy savings are savings resulting from a merger of two companies which could not have arisen without the merger.

Tariff basket: The basket of charges to which the annual regulatory price limits apply comprising: charges for unmeasured water supply; charges for measured supply; charges for unmeasured sewerage services; charges for measured sewerage services and charges for reception, treatment and disposal of trade effluent.

Unit capital costs: The Director makes comparisons between companies so that the best performing companies may be identified and the poorer performers can be encouraged to do better. When comparing how much money companies have spent to replace old or to build new assets, it is important to take account of the fact that larger companies have more assets than smaller ones and so need to spend more money to build and replace them. This is achieved by dividing the amount companies have spent by a suitable measure of the size of the company, such as the number of customers' houses, resulting in a unit cost.

Weighted average cost of capital (WACC): For a company, the average of its cost of debt and cost of equity capital (see Cost of capital), weighted according to the balance of debt and equity which finances the company's assets.