

SYDNEY WATER CORPORATION

PRICES OF WATER SUPPLY, WASTEWATER AND STORMWATER SERVICES

From 1 July 2003 to 30 June 2005

**INDEPENDENT PRICING AND REGULATORY TRIBUNAL
OF NEW SOUTH WALES**

SYDNEY WATER CORPORATION

PRICES OF WATER SUPPLY, WASTEWATER AND STORMWATER SERVICES

From 1 July 2003 to 30 June 2005

Determination 4, 2003

May 2003

ISBN 1 877049 68 9

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INDEPENDENT PRICING AND REGULATORY TRIBUNAL
OF NEW SOUTH WALES

**REPORT TO THE PREMIER ON THE DETERMINATION OF MAXIMUM PRICES UNDER
SECTION 11 (1) OF THE INDEPENDENT PRICING AND REGULATORY TRIBUNAL ACT,
1992**

Reference No: 02/31

Report: No 4, 2003

Agency: Sydney Water Corporation

Declaration of government monopoly services under Section 4 of the Act.

The Government monopoly services were declared by the Independent Pricing and Regulatory Tribunal (Water, Sewerage and Drainage Services) Order 1997, made on 5 February 1997 and published in Gazette No. 18 dated 14 February 1997 at page 558.

SUMMARY

The Tribunal has conducted its 2003 review of prices for Sydney Water Corporation against a backdrop of one of the worst droughts in New South Wales history. The drought has further increased community awareness that water is a limited resource and that Sydney's supply, in particular, is constrained.

During this review, Sydney Water customers faced voluntary water restrictions and the possibility of mandatory water restrictions. These conditions have led to increased demands for higher water prices to encourage water conservation. The Tribunal is acutely aware of the constraints facing Sydney's water supply but, in making pricing decisions, is required to balance competing pressures and interests. Further, it is concerned to ensure that pricing responses are developed as part of a comprehensive policy response and are likely to be effective.

As part of the review process, the Tribunal undertook extensive public consultation. It also engaged consultants to provide expert analysis and advice on Sydney Water's proposed capital expenditure, asset management and operating expenditure programs across its water, wastewater and stormwater businesses, and on its trade waste proposals.

To fund these programs, Sydney Water sought price rises in line with movements in the consumer price index (CPI) across all of its services. The Tribunal has decided to allow an overall increase in the agency's revenue requirement in line with movements in the CPI, but also to restructure prices. The water usage price will increase by 1 per cent in real terms in both 2003/04 and 2004/05, while the water service charge will decrease by 1 per cent in both years.

The overall impact of the Tribunal's pricing decisions on customers will be minimal. An average water user's bill is not expected to increase in real terms. Higher water users may experience a small increase in their bills above the rate of inflation.

The financial impact of the pricing decisions on Sydney Water will be relatively minor. Sydney Water's revenue is expected to increase approximately in line with movements in the CPI, thus ensuring that the agency can maintain its strong financial position. Its rate of return is expected to fall through the period—mainly because of an expected increase in its capital program in 2004/05—but is still expected to be within the band required for efficient investment. Perhaps the most significant implication for Sydney Water is the Tribunal's decision to incorporate efficiency targets into the allowances for operating and capital expenditure. Within the overall revenue allowance, every dollar saved by the agency through efficiency gains is kept by the agency for the period of the determination. This creates an incentive for the agency to continually seek efficiency gains in all areas of spending.

In making its pricing decisions, the Tribunal was specifically concerned about the implications of the decisions on the affordability of water services and on the environment. It aimed to achieve a balance between these concerns and the need to promote efficiency in the delivery of services by Sydney Water. It expects that within this determination Sydney Water can deliver benefits to customers through environmental and service improvements.

By increasing the water usage charge, the Tribunal is contributing to the overall policy solution to Sydney's growing water demand and supply imbalance. This price change will help to increase the awareness by Sydney Water's customers of the scarcity and value of water, and the need to curb water demand.

However, the Tribunal recognises that price increases are unlikely to have a significant impact on demand unless they are substantial. It decided not to make a substantial increase in water usage charges at this price review because it did not have sufficient information to assess how such an increase would impact on customers' usage as a part of Sydney Water's demand management strategy. It intends to do further work in this area prior to the next price review. In addition, it believes that other policies are needed to create further incentives for customers to conserve water.

The Tribunal is very concerned about the risk that Sydney Water's customers' demand for water will outstrip the existing water supplies. It hopes that it will better understand the size of this risk by the 2005 review, when the likely outcomes of Sydney Water's demand management program and the water CEOs group (a NSW Government interagency working group) will be better known, and decisions on the quantum of environmental flows to the Hawkesbury Nepean river system will have been made. This will allow the Tribunal to set prices within an overall government policy framework for managing the demand and supply imbalance in the longer term.

The Tribunal is also concerned about two issues that its consultant, Halcrow Pacific Pty Ltd, has identified. The first issue is the low level of renewals and maintenance expenditure being undertaken by Sydney Water. While the Tribunal has made allowance for all of the requested expenditure in this area, it will need a better basis for determining an appropriate level of renewals expenditure for the next determination. It is possible that significant increases in renewals expenditure may be required in the future.

The second issue is the insufficient justification for discretionary capital expenditure proposed by Sydney Water. In many cases, this proposed expenditure was related to projects that aim to provide environmental benefits that are over and above Environmental Protection Authority requirements. While these projects may be justified on the basis of Sydney Water's requirements for ecologically sustainable development, the Tribunal found that the agency provided limited information on their benefits to the environment and to customers, and on customer preferences in relation to these benefits. It requires Sydney Water to improve the type of information it provides on discretionary capital expenditure to the 2005 price review.

The Tribunal also expects improvements in Sydney Water's asset planning and management processes, to allow it to better investigate expenditure proposals at the next price review. It expects Sydney Water to be able to link outputs and outcomes to expenditure levels and customer preferences. This will allow the Tribunal to consider setting prices for services that are part of a whole of water cycle process. The benefits from this approach for customers and the environment may be substantial.

1 INTRODUCTION

The Independent Pricing and Regulatory Tribunal of New South Wales (the Tribunal) has completed its 2003 review of metropolitan water businesses. Based on this review and its own detailed decision making process, it has determined the maximum prices Sydney Water can charge for water supply, wastewater and stormwater services for the period 1 July 2003 to 30 June 2005.

1.1 Overview of determination

The Tribunal has decided that Sydney Water's overall revenue should increase in line with movements in the consumer price index (CPI) in each year of the determination period. However, the prices it can charge for water services will be restructured so that usage charges constitute a greater proportion of customer water bills. The water usage price will increase by 1 per cent above the rate of inflation in both 2003/04 and 2004/05, while the water service charge will increase by 1 per cent less than the rate of inflation in each year.

These changes aim to help increase customers' awareness of the scarcity and value of water, and encourage them to use it carefully. However, they are expected to have a limited impact on an average water user's total bill in real terms. Higher consuming water users may experience a small increase above the rate of inflation, while lower consuming water users may also see a small increase but below the rate of inflation.

The Tribunal's pricing decisions are expected to result in Sydney Water earning a pre tax real rate of return of 5.9 per cent in 2003/04 and 5.6 per cent in 2004/05. This is not expected to impact adversely on Sydney Water's ability to pay dividends or on its financial viability over the period of the determination.

In reaching these decisions, the Tribunal was guided by the requirements set out in the *Independent Pricing and Regulatory Tribunal of New South Wales Act 1992*, and placed equal weight on each of the factors contained in section 15 of this Act. The Tribunal is satisfied that its determination achieves a reasonable balance between these factors.

1.2 Structure of report

This report explains the Tribunal's determination in detail, including why it reached its decisions and what those decisions mean for Sydney Water, its customers and the environment. It is structured as follows:

- Chapter 2 outlines the review and decision-making process the Tribunal used to reach its decisions
- Chapter 3 provides an overview of the regulatory approach it has adopted to regulate Sydney Water's revenue and prices
- Chapter 4 explains the financial analysis the Tribunal based its decisions on, and the implications of these decisions for Sydney Water, including the expected impacts on its revenue, operating and capital expenditure, return on assets and overall financial viability
- Chapter 5 focuses on the implications for Sydney Water's customers, including residential, industrial and commercial customers

- Chapter 6 discusses the implications for the environment, including the environment-related capital expenditure the Tribunal has allowed and the likely impact on water demand management
- Chapter 7 provides a summary of the pricing decisions for all Sydney Water's services
- Chapter 8 outlines the issues arising from the review that the Tribunal believes Sydney Water needs to better address in the lead up to the 2005 price review.

The Tribunal members who considered this determination were Dr Thomas Parry (Chairman), Mr James Cox (Full-time member), and Ms Cristina Cifuentes (Member).

2 TRIBUNAL'S REVIEW AND DECISION-MAKING PROCESS

The Tribunal has made its price determination for Sydney Water in accordance with section 11(1) of the *Independent Pricing and Regulatory Tribunal Act, 1992* (the IPART Act). It reached its decisions after a thorough review and decision-making process.

The Tribunal's review included an extensive investigation and public consultation. As part of this review, the Tribunal:

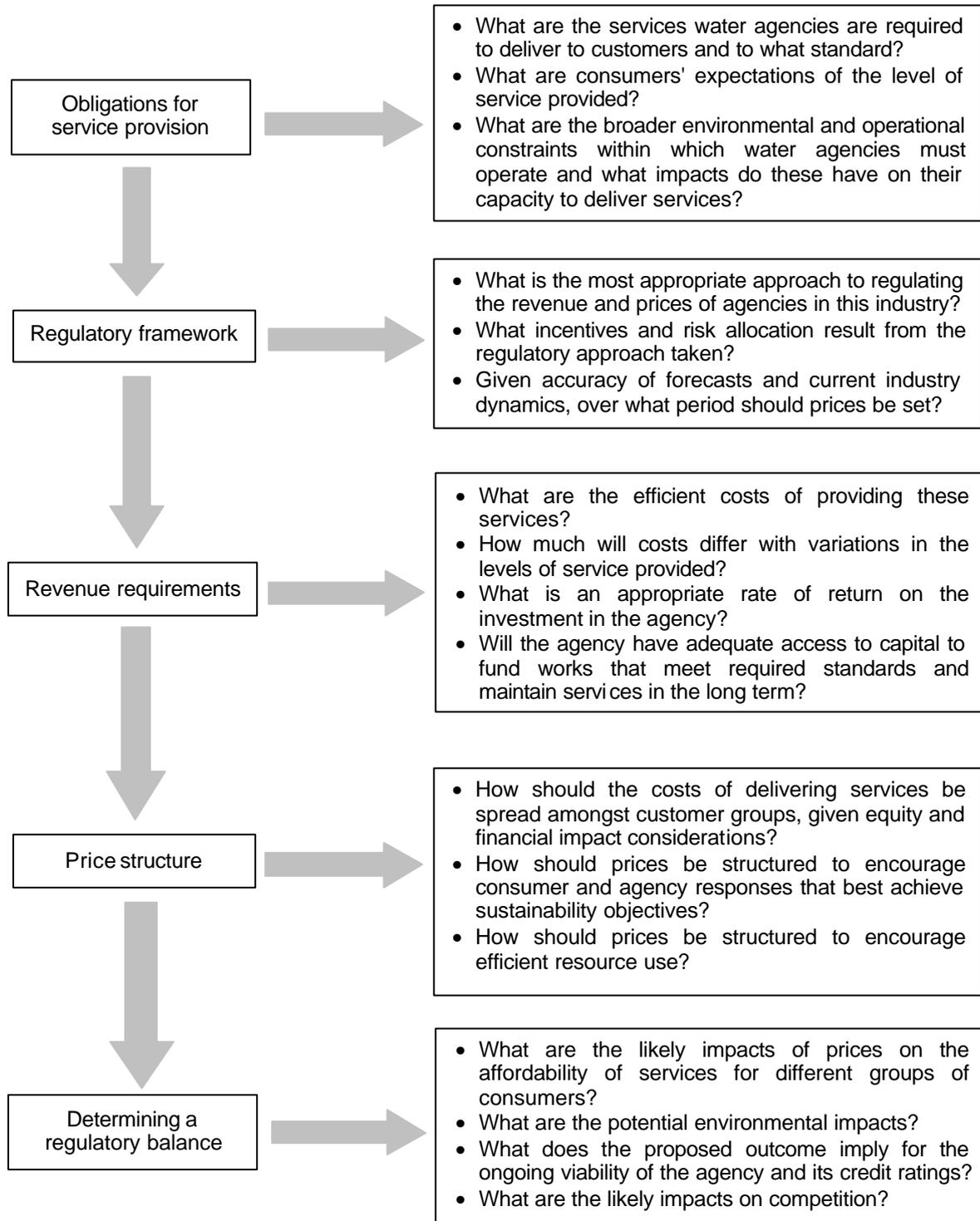
- released an issues paper in June 2002
- invited Sydney Water to provide a submission detailing its pricing proposals, and required it to provide extensive financial and performance data on the future capital and operating expenditure it believes will be necessary to maintain customer service levels and respond to regulatory and customer demands
- invited other interested parties to respond to Sydney Water's submission, and received 30 written responses (see Appendix 1 for a list of respondents)
- held a public hearing on 28 November 2002 and invited some of the parties who submitted written responses to present their submissions at this hearing (see Appendix 2 for a list of presenters)
- engaged Halcrow Pacific Pty Ltd (Halcrow) to conduct a review of Sydney Water's capital expenditure, asset management and operating expenditure submissions across its water, wastewater and stormwater businesses
- gave Sydney Water the opportunity to respond to the Halcrow review, both formally in writing and through direct meetings between representatives of Sydney Water and the Tribunal Secretariat
- engaged GHD Pty Ltd (GHD) to review Sydney Water's proposals in relation to trade waste prices
- gave Sydney Water the opportunity to respond in writing to the GHD review.

In addition, the Tribunal explicitly considered all the matters outlined in section 15 of the IPART Act (see Appendix 3). These matters can be grouped as follows:

- **consumer protection** – protecting consumers from abuses of monopoly power; standards of quality, reliability and safety of the services concerned; social impact of decisions; effect on inflation
- **economic efficiency** – greater efficiency in the supply of services; the need to promote competition; effect of functions being carried out by another body
- **financial viability** – rate of return on public sector assets including dividend requirements; impact on pricing of borrowing, capital and dividend requirements of agencies
- **environmental protection** – promotion of ecologically sustainable development via appropriate pricing policies; considerations of demand management and least-cost planning.

The Tribunal took all these matters, plus the information and analysis it obtained through its investigation and public consultation, into careful consideration as it worked through a decision-making process. Figure 2.1 provides a high-level summary of the key stages in this process.

Figure 2.1 The Tribunal’s decision-making process



In reaching its decisions on water, wastewater and stormwater issues, the Tribunal had to weigh the diverse needs and interests of Sydney Water's stakeholders against each other. For example, Sydney Water's customers need an affordable water supply and acceptable service standards. The general community needs water services to be supplied in a way that is sustainable in the long term, does not compromise Sydney's environment, and is economically efficient. Sydney Water needs prices that are high enough to ensure its financial viability and enable it to earn an appropriate rate of return on its assets, and signal the costs to customers to encourage efficient resource use.

In addition, the price review took place during one of the worst droughts in New South Wales' history,¹ and at a time of heightened concern about water supply and demand imbalances, and appropriate investment in renewals and maintenance of the water, wastewater and stormwater systems.

The diversity of these interests and concerns often required the Tribunal to trade off customer affordability issues with environmental impacts and the maintenance of the overall quality of Sydney Water's service delivery, in addition to considering the financial viability and dividend payments of the business. It took active steps to ensure that these trade-off decisions were well informed during the course of its review. It also intends to seek further information from Sydney Water at future price reviews, on environmental and customer preferences where this was highlighted as deficient in Halcrow's review.

The Tribunal's consideration of the matters listed in section 15 of the IPART Act in relation to specific pricing decisions is discussed throughout the report. Appendix 3 provides section references for where each matter is discussed. Further information relating to the Tribunal's review, including copies of all submissions, can be found at the Tribunal website: www.ipart.nsw.gov.au.

¹ Dr Coughlan, Head of the National Climate Centre, as reported in Weekend Australian, 29 March 2003, p 12.

3 REGULATORY APPROACH TAKEN

As in previous metropolitan water price determinations, the Tribunal has used a form of incentive regulation known as CPI±X to set maximum prices for services in 2003/04 and 2004/05.² With this approach, the Tribunal estimates the amount of revenue Sydney Water requires in each year of the determination period using the building block revenue methodology.³ Given forecast demand, prices are then set to generate this amount of revenue in the first year. At the same time, the Tribunal calculates the amount by which these prices can rise or fall in each subsequent year of the period, to account for movements in general inflation,⁴ efficiency improvements, and significant changes in the operating environment such as new environmental standards or customer service standards.

The building block methodology involves the addition of cost blocks that represent forecasts of the regulated agency's efficient operating expenditure, depreciation and a return on assets, to determine its overall efficient revenue requirements. This methodology is outlined briefly below, and is described in more detail in Appendix 4:

- **Operating expenditure.** The operating expenditure cost block was determined by reviewing Sydney Water's proposals to determine what an efficiently operating business could be expected to spend so that it could operate effectively without compromising the quality of its services.
- **Depreciation (or capital maintenance):** This cost block was determined by calculating a straight line depreciation allowance based on the regulatory asset base, using an assumed average asset life of 70 years for existing assets, and 100 years for new assets. This, combined with a return on assets, ensures that sufficient revenue is allowed for essential renewals and maintenance capital expenditure (see Appendix 5 for a detailed explanation).
- **Return on assets.** The return on assets is determined by multiplying the agency's regulatory asset base (RAB) by an appropriate rate of return. The RAB represents the value of the agency's financial investment in the business, and bears no direct relationship to the value attributed to the physical assets of the business. To calculate this cost block, the Tribunal used the RAB it established in its 2000 review of Sydney Water's prices, and rolled this forward into the 2003 to 2005 regulatory period by adding an allowance for prudent capital expenditure,⁵ and accounting for inflation, depreciation and asset disposals. It then determined an appropriate rate of return for Sydney Water within the weighted average cost of capital range, and multiplied the rolled forward RAB by this rate. The Tribunal proposes to maintain this approach for calculating the return on assets in subsequent price reviews.

² This is the most common form of incentive regulation. A detailed explanation of CPI±X is provided in Appendix 4.

³ The building block methodology is the main method used by economic regulators in Australia and abroad for determining prices for monopoly services. Alternative approaches include the use of index based approaches such as total factor productivity or data envelope analysis to determine X factors. These techniques are under ongoing consideration by the Tribunal but are not at this stage intended to replace the building block approach. The building block methodology was used at each of the previous metropolitan water reviews conducted by the Tribunal.

⁴ Measured as the consumer price index, average of all cities on an annual March on March basis.

⁵ Capital is determined to be prudent on the basis of both an engineering examination of individual capital projects, and a review of asset management planning processes within the agency.

The determination of future operating and capital expenditure required the Tribunal to form a view on the efficiency gains that could reasonably be achieved. The purpose of incorporating these efficiency gains in the price regulation approach is to provide a guide for the agency about the potential for it to improve the efficiency of its operating and capital expenditure without reducing the quality of the services it delivers to customers, and to provide a basis for the Tribunal's revenue allowance decision. The incentive to pursue efficiency gains arises from the fact that prices have been set for the period of the determination and are not linked to costs actually incurred. If the agency achieves better than expected cost savings then it can expect to earn a higher return than forecast by the Tribunal.

In deciding on an appropriate allowance for capital expenditure, all justified renewals and maintenance capital expenditure which has been based on sound asset management practices and where it has been appropriately justified by the agency, has been incorporated in full in revenue building blocks for price setting. Where the agency seeks easy cost savings by delaying essential renewals and maintenance expenditure, then this is at their own risk, and not a result of the regulatory pricing approach. A detailed explanation of this investigation is contained in Appendix 5.

In relation to efficiency targets for capital expenditure, the Tribunal is concerned that the incentives in the current regulatory approach do not encourage water agencies to minimise capital costs through innovation and efficiency. Further, it is not satisfied that the current approach has resulted in water businesses sufficiently linking capital expenditure programs to demonstrated regulatory and customer expectations. The Tribunal therefore proposes to review the approaches it has used to date to better assess and allow for capital expenditure programs in its pricing determinations. It will assess options for creating stronger incentives for businesses to pursue capital efficiencies (see section 4.5.2) and improve asset management practices (see section 4.3.2).

The period for which this determination applies has been limited to two years at the request of Sydney Water. The agency argued that the circumstances facing the water industry in general, and specific agencies in particular, over the short-to-medium term, indicated that a two year price period was appropriate. The Tribunal accepted this view.

In making this decision, the Tribunal agreed with Sydney Water's concerns regarding uncertainties surrounding environmental flow requirements on the water supply which could have implications for capital investment; review of stormwater institutional structures; and problems associated with Sydney Water meeting its operating licence demand management targets. In addition, it acknowledged the benefits of conducting a price review for the Sydney Catchment Authority and Sydney Water concurrently with the renewal of the operating licences in 2005.

Box 1 Overview of Sydney Water Corporation

Sydney Water is the largest water agency in NSW, and provides services to a population of around 4 million in Sydney, the Blue Mountains and Illawarra regions. Unlike the other water agencies, however, it does not manage its own bulk water supplies. Instead, Sydney's drinking water storages and catchments are managed by the Sydney Catchment Authority, and Sydney Water purchases bulk water from it.

Sydney Water was formed in 1995 as a state-owned corporation (SOC) under the State Owned Corporations Act 1989. Under Section 21 of the *Sydney Water Act 1994*, it is required to fulfil three principal objectives:

- to be a successful business
- to protect the environment
- to protect public health.

To promote these objectives and to prevent abuses of Sydney Water's monopoly position, the NSW Government granted Sydney Water an operating licence. This licence sets the minimum performance standards it must meet, and includes obligations in relation to customer service, system performance and environmental performance. It also requires Sydney Water to have a Customer Contract which sets out the rights and obligations of customers and of Sydney Water, including customer complaint handling procedures and rights of redress if there is a failure to provide the agreed level of service.

The Tribunal conducts an annual audit of Sydney Water's compliance with its operating licence, and can impose large financial and other penalties for breaches of this licence.

Appendix 10 provides detailed financial information on Sydney Water, and compares it with the other three metropolitan retail water agencies.

4 FINANCIAL ANALYSIS THAT UNDERPINS THE DETERMINATION, AND IMPLICATIONS FOR SYDNEY WATER

The Tribunal has determined that Sydney Water's overall revenue requirement is \$1,314 million in 2003/04 and \$1,305 million in 2004/05, in dollars of 2002/03, and has set maximum allowable prices for all of its services to generate this amount of revenue. The Tribunal reached this determination after considering Sydney Water's proposed annual revenue requirements and capital and operating expenditure programs, together with analysis of these programs provided by Halcrow and GHD and its own analysis of the impact of its determination on Sydney Water's financial viability, on its customers and on the environment.

The key implications of these prices for Sydney Water over the price path are as follows:

- in real terms, overall revenue is expected to remain steady
- the Tribunal expects Sydney Water to reduce forecast operating expenditure by \$13 million between 1 July 2003 and 30 June 2005 through efficiency gains, but has allowed an additional \$6.7 million to cover expected security-related costs
- it expects Sydney Water to reduce forecast capital expenditure by \$36 million between 1 July 2003 and 30 June 2005 through efficiency gains, but has allowed an additional \$10.2 million to cover expected security-related costs
- overall, the Tribunal's price decisions are expected to allow Sydney Water to maintain its currently sound financial position, and generate an expected real pre tax rate of return to the regulatory asset base of 5.9 per cent in 2003/04 and 5.6 per cent in 2004/05.

In addition, the Tribunal is concerned that Sydney Water did not link operating and capital expenditure efficiency targets in the last price determination with budgeting processes. It intends to consider how it can strengthen the incentives for Sydney Water to achieve operating and capital efficiencies at the next price review.

This chapter discusses each of these implications and issues going forward in more detail, and explains the financial analysis that underpins the Tribunal's decisions.

4.1 Overall revenues remain steady

Finding 1: The Tribunal found that a revenue requirement of \$1,314 million in 2003/04 and \$1,305 million in 2004/05, in dollars of 2002/03, is appropriate for the setting of maximum prices for water, wastewater, stormwater, and ancillary services provided by Sydney Water.

As discussed in chapter 3, the Tribunal determined the maximum prices Sydney Water can charge for its services by calculating its total revenue requirement for each year of the price path. To calculate this requirement it estimated how much operating and capital expenditure an efficiently run business could be expected to need, to operate effectively and earn an appropriate rate of return for efficient investment in capital infrastructure.

Although the Tribunal found that operating and capital expenditure savings were appropriate for Sydney Water, (see sections 4.2 and 4.3 below) its financial modelling also indicated that a revenue requirement in line with Sydney Water's proposal, with some

minor adjustments, is needed to allow Sydney Water to earn an appropriate rate of return to the regulatory asset base. It therefore found that a revenue requirement of \$1,314 million in 2003/04 and \$1,305 million in 2004/05⁶ is appropriate (Table 4.1).

Table 4.1 Tribunal's estimate of Sydney Water's total revenue (\$ millions, 2002/03)

	2002/03	2003/04	2004/05
Sydney Water's proposal*	1308	1312	1302
Tribunal finding		1314	1305
Difference		2	3

Source: IPART financial model for Sydney Water.

* These figures differ from those presented in Table 5.2 of Sydney Water's submission, as they are based on information provided in Sydney Water's 2002 annual information return and are calculated by IPART's financial model for Sydney Water.

Although the Tribunal has set prices that are expected to generate the revenue shown in Table 4.1, the actual revenue Sydney Water generates will depend on its water sales and customer numbers. If it sells more water than the Tribunal assumed in its financial modelling, then it will earn more revenue. Similarly, if customer numbers increase by more than expected, its revenue will also grow faster than expected.

In making this finding on Sydney Water's revenue requirement, the Tribunal considered Sydney Water's proposed revenue requirement and Halcrow's recommendations based on its review of the agency's proposed operating and capital expenditure programs, and accepted Sydney Water's proposal. Specific findings on operating expenditure, capital expenditure, return to assets and dividends are discussed in the following sections.

4.2 Sydney Water expected to make operating cost savings of \$13 million

Finding 2: The Tribunal found that efficient operating expenditure for Sydney Water is \$774 million in 2003/04 and \$763 million in 2004/05. This finding is in line with Halcrow's recommendations, with an additional allowance for security-related costs.

The Tribunal has decided to allow for operating expenditure of \$774 million in 2003/04 and \$763 million in 2004/05. These amounts are lower than Sydney Water proposed (Table 4.2). The Tribunal's decision reflects its expectation that Sydney Water can achieve \$13 million in cost savings against forecast operating expenditure between 1 July 2003 and 30 June 2005 by pursuing efficiency gains in its operations.

Table 4.2 Projected annual operating expenditure

\$ 2002/03 (millions)	2002/03	2003/04	2004/05
Sydney Water's proposal*	785	778	772
Tribunal finding		774	763
Difference		-4	-9

* This includes updated security related costs.

⁶ Estimated by the Tribunal's financial modelling with the operating and capital expenditure and water consumption assumptions detailed in the remainder of chapter 4.

The Tribunal based this expectation on Halcrow's review of Sydney Water's proposed operating expenditure, the agency's response to this review, and its own financial analysis. This analysis showed that Sydney Water's proposed operating expenditure for 2003/04 and 2004/05 assumed it would achieve operating cost savings of approximately 2 per cent per annum over the two-year period, compared with the 2001/02 base year. These savings were primarily in employee provisions, and were due to the fact that superannuation provisions had been unusually high in the base year 2001/02.

When these provisions are excluded, Sydney Water's proposed expenditure included no operating expenditure savings compared with the 2001/02 base year. Sydney Water argued that this is reasonable, given that it has achieved approximately 23 per cent savings in controllable operating costs (on a per property basis) during the previous three years, and that it needs to make additional cost savings to accommodate growth and greater service requirements being imposed on it by external regulators.⁷

However, Halcrow's review indicated that the agency can achieve further cost savings and identified a range of opportunities for Sydney Water to make savings. (The methodology Halcrow used to reach these recommendations is described in Box 2.) One of the most significant opportunities is reducing corporate overhead costs, which Halcrow found are excessively high compared with those of the other water agencies.⁸ The Tribunal requires Sydney Water to investigate why this is so, and to make the results available for the 2005 price review. It also believes this investigation could lead to significant cost savings during this price period.

Other opportunities Halcrow identified include:

- improving productivity in the asset management and water services division
- optimising the operating expenditure / capital expenditure balance in the maintenance area, for example from reduced choke interventions once the SewerFix program has reduced choke frequencies
- moving towards the economic level of leakage
- capturing operational efficiencies from the sewerage treatment plant automation projects
- moving to risk centred maintenance
- operating to the licence sewer choke standard rather than internal targets
- operating sewerage treatment plants to licence limits rather than plant capability
- exploiting opportunities for co-generating power from biosolid digestion.⁹

In its response to Halcrow's recommendations, Sydney Water argued that the proposed efficiency targets were unachievable given the significant reductions in controllable costs per property achieved during the previous three years. It also pointed out that, in the short run,

⁷ Sydney Water Submission to the Independent Pricing and Regulatory Tribunal of New South Wales - Prices for water, sewerage and stormwater services 1 July 2003 to 20 June 2005, 2002, p 26.

⁸ Halcrow, *NSW water agencies review - Overview report*, 2002, p 67.

⁹ Halcrow, *NSW water agencies review - Overview report*, 2002, pp 63, 66 and 68.

many of its operating costs were fixed.¹⁰ In particular, it claimed that of the \$472 million it spent on operations and services in 2001/02, less than 5 per cent was truly variable.¹¹

In addition, Sydney Water argued that costs associated with growth—such as priority sewerage programs, sewerage treatment in the Hawkesbury Nepean area, and increases to its demand management program—had been absorbed within its operating expenditure proposals. It claimed that these costs amounted to an additional 3.5 per cent operating expenditure efficiency savings over the price path period.

The Tribunal was not persuaded by these arguments. Rather, it considers that Halcrow's recommendations and suggestions will provide Sydney Water with an appropriate and necessary challenge to drive operating efficiencies. Its reasons for this view include that:

- Halcrow took the policy environment Sydney Water faces into consideration in making its recommendations, and made some allowance for the difficulties that this environment poses
- Sydney Water's proposal did not demonstrate how it was seeking continual operating efficiencies
- while Sydney Water identified impediments to achieving operational efficiency gains, it did not appear to be seeking approaches to overcome these impediments
- the Tribunal is obliged to continually provide incentives for Sydney Water to achieve efficiency improvements, even though doing so may be difficult for Sydney Water
- customers should only be expected to fund the efficient costs which are reasonable for Sydney Water to achieve and are consistent with the safe operation of the water, wastewater and stormwater systems within desired performance standards.

It is important to note that although Halcrow identified specific areas where Sydney Water may be able to make cost savings, it is up to Sydney Water to decide how best to achieve these savings. The Tribunal's intention is to create incentives for Sydney Water to achieve operating cost savings rather than tell it how to do so.

In making its decision on operating costs, the Tribunal took particular note of costs related to superannuation provisions, electricity, and real labour cost increases. It believes there is less flexibility for Sydney Water to achieve cost savings in these areas. Where it considered Sydney Water's proposed costs in these areas to be reasonable, it has allowed for them in full. Halcrow also made some specific recommendations in relation to security-related costs and superannuation provisions. These recommendations, and the Tribunal's findings, are discussed below.

¹⁰ These costs include additional costs associated with internal labour inflexibilities due to Government ownership, bulk water purchases, EPA licence fees and competitively tendered supply contracts.

¹¹ Letter from Sydney Water, 28 February 2003, D03/1074.

Box 2 Halcrow methodology for calculating proposed operating expenditure

Halcrow's review of operating expenditure involved analysing data provided by Sydney Water, and information obtained through interviews with its senior staff. By focussing on drivers for cost changes and program priorities, the cost basis for projections, and projected efficiencies, Halcrow estimated the operating expenditure an efficiently operating Sydney Water would need to deliver its services to customers.

The detailed estimates involved establishing a base line operating expenditure for 2001/02, by considering the details underlying the actual cost presented by Sydney Water. Where abnormal items were identified in 2001/02, these were excluded. Halcrow then assumed that the base year operating expenditure should (in real terms) be sufficient for the delivery of services in subsequent years, assuming that service levels remained constant.

This base amount was varied in subsequent years, after considering a range of factors including electricity price rises, real labour cost increases and bulk water charges. Where capital expenditure was expected to result in operating cost efficiencies, then these were also explicitly considered.

From this modified operating expenditure, Halcrow applied an expected efficiency factor, reflecting its view on the savings a competitive water business should be seeking to achieve every year. This factor is based on Halcrow's experience in similar water businesses, both within Australia and internationally.

The final result from this approach became the recommended operating expenditure proposals for Sydney Water in 2003/04 and 2004/05.

4.2.1 New security-related costs included in allowable operating costs

Finding 3: The Tribunal found that there is sufficient justification to allow an additional \$6.7 million in operating costs specifically for increased security-related costs.

Halcrow recommended an allowance for increased security-related costs which were not included in Sydney Water's proposals, but which were expected.¹² The Tribunal subsequently received additional information from Sydney Water on the potential for higher security-related costs. It has therefore allowed \$6.7 million in operating costs in line with Sydney Water's revised estimates, to cover these additional operational costs. Any further increases in security costs during the period of the determination will need to be borne by Sydney Water, and the Tribunal will review these costs at the next price review.

4.2.2 Superannuation expenses removed from base year operating expenditure

Finding 4: The Tribunal found that \$64.7 million of superannuation expenses should be removed from the base year for the calculation of efficient operating expenditure.

The Tribunal looked closely at the treatment of superannuation provisions within operating expenditure in this review, due to the large increase in provisions in the 2001/02 base year. This is significant, because the 2001/02 operating expenditure forms the basis for calculating the allowable operating expenditure to be included in the building block revenue requirement for subsequent years, and therefore should not include abnormal costs.

¹² Halcrow, *NSW water agencies review – Sydney Water*. These security-related costs are due to increased concerns about the potential for civil disturbances or attacks upon the water supply storages and delivery systems of Sydney Water at this particular time, 2002, p 6.

Sydney Water's superannuation provisions provide an allowance for the costs associated with superannuation to be expensed over a period of time. Where superannuation is provided through a contributory benefits scheme, then this relates to a cash cost associated with the employer contribution to an employee's superannuation. Under these schemes, the risks associated with good or poor performance of the superannuation fund investments are borne by the employee.

However, a considerable proportion of Sydney Water's employees have superannuation benefits in a defined benefit scheme. This means that their superannuation payment upon retirement is based upon a calculation including their final salary. Under these schemes the risks of under and over performance of the scheme investments are borne by the employer.

In the 1990s, equity markets performed strongly and the defined benefits schemes performed well, resulting in a surplus of funds compared with expected claims on the fund. In these circumstances, Sydney Water was given a 'payment holiday', which means it was not required to make any cash contributions to the scheme for a certain period. However, in 2001/02, the funds performed badly, resulting in a deficit in funds in the defined benefits scheme. Sydney Water is obliged to make up this deficit, which is expensed within Sydney Water's accounts by increasing the superannuation provisions.

Halcrow recommended that this \$64.7 million¹³ expense be removed from the base year operating expenditure and the Tribunal has accepted this approach. (An alternative approach is to amortise the superannuation expense over a given period.) Because the expense was not a cash payment, the Tribunal believes it should not form part of the operating expenditure base for setting prices. Water prices should not fluctuate on the basis of short term performance of defined superannuation scheme provisions.

4.3 Sydney Water expected to make capital expenditure savings of \$36 million

Finding 5: The Tribunal found that \$502 million in 2003/04 and \$492 million in 2004/05 is an appropriate allowance for the capital expenditure program of Sydney Water.

Sydney Water proposed a capital expenditure program of approximately \$515 million in each year of the determination period (Table 4.3). This represents a 1.5 per cent decrease compared with capital expenditure in 2002/03. A more detailed breakdown of this program is provided in Table 4.5 (see page 18).

Table 4.3 Sydney Water's projected capital expenditure by business activity

\$millions, 2002/03	2002/03	2003/04	2004/05
Water	90.0	90.0	87.5
Wastewater	385.9	391.0	391.5
Stormwater	6.0	8.0	15.0
Corporate	41.2	26.0	21.0
Total	523.1	515.0	515.0
Percentage change on previous year		-1.5%	0.0%

Source: Annual information return 2002 for Sydney Water.

¹³ Halcrow, *NSW water agencies review – Overview report*, 2002, p 10.

Sydney Water proposes to use a considerable proportion of this capital expenditure budget for asset maintenance, renewal and replacement (Table 4.4). It also proposes significant expenditure to meet mandatory standards.

Table 4.4 Sydney Water's projected capital expenditure by driver

\$ millions (2002/03)	2002/03	2003/04	2004/05
- asset maintenance	73	60	62
- asset renewal/replacement	100	110	104
- mandatory standards	255	238	276
- growth	57	76	55
- efficiency	38	31	18
Total	523	515	515

Source: Annual information return 2002 for Sydney Water.

The Tribunal has carefully considered Sydney Water's proposal, and Halcrow's review of this proposal. Halcrow identified the potential for Sydney Water to achieve capital efficiency savings of some 4 per cent across all parts of the capital expenditure program except those related to asset renewals. It therefore recommended that the agency's allowance for capital expenditure be reduced by some 2.5 per cent in 2003/04 and 4.5 per cent in 2004/05.

Halcrow also expressed concern about the proposed increases in capital expenditure for growth, which it believed could not be justified with reference to development servicing plans. In addition, it had concerns about the proposal for \$16 million to upgrade the North Head sewerage treatment plant (see section 6.1 for details), and Sydney Water's ability to spend \$4 million on above ground water renewals efficiently over the price path.

In response to Halcrow's recommended capital expenditure, Sydney Water claimed that because a considerable portion of the capital expenditure budget had already been committed at the time of the Halcrow review, it would be difficult to achieve the target. Further, it argued that 90 per cent of the program was outsourced through competitive tender processes, and that this resulted in the projects being conducted efficiently. It could not see where additional efficiencies could be achieved.

The Tribunal was not convinced that capital expenditure being already committed is sufficient justification for a lower efficiency target, given its view that customers should only be expected to bear the efficient costs of Sydney Water's operations. It also believes competitive tendering is only one part of the efficiency seeking process, and that Sydney Water should also seek design efficiencies, as well as contractual arrangements to share efficiency gains, where these are available and possible. The Tribunal acknowledges the difficulties of achieving capital efficiencies within a two year price path, particularly design efficiencies. Nevertheless, it believes Sydney Water should be continually seeking these efficiencies. It also believes it is important to ensure that incentives for capital efficiency improvements are incorporated into Sydney Water's future capital expenditure planning processes.

Table 4.5 Sydney Water proposed capital program

Goal	Contributing projects and programs	September 2000 estimates (2000/01 to 2002/03) \$ million of year	Actuals and current estimates (2000/01 to 2002/03) \$ million of year	2003/04 to 2004/05 forecast \$ million of 2002/03	To complete project of program
Clean, safe drinking water	Water system maintenance and renewal	203.6	221.8	158.5	ongoing
Sustainable drinking supplies	General reuse	4.0	2.9	1.0	ongoing
Clean beaches, rivers and harbours	SWOOS sewer risk reduction program	31.4	36.4	27.0	94.6
	Minimise sewer surcharges	106.5	88.5	54.0	ongoing
	SewerFix (overflow abatement program)	126.3	219.5	199.0	ongoing
	Northside Storage Tunnel	43.0	77.0	0.0	0.0
	Maintain reliability of STPs	70.7	78.9	20.0	ongoing
	Bondi STP renewals	0.0	17.1	40.0	37.9
	Cronulla STP upgrade	31.1	28.4	0.0	0.0
	Illawarra wastewater strategy and Shellharbour STP	148.7	100.2	116.0	21.2
	North Head STP upgrade	10.4	5.7	6.0	213.1
	Vaucluse/Diamond Bay transfer scheme	24.5	1.4	3.0	30.0
	Georges River wastewater/reuse strategy	10.7	10.7	71.0	136.3
	Berowra Creek STP upgrade	26.0	25.2	0.0	0.0
	South Creek STP upgrade (Bubble Licence)	8.0	7.4	1.0	10.0
	Backlog/Priority Sewerage Program	132.5	165.3	78.0	ongoing
	Misc. sewer maintenance and upgrades	21.2	25.1	11.0	ongoing
	Maintain stormwater capacity	9.4	5.7	7.0	ongoing
	Improve stormwater quality	5.0	5.6	16.0	ongoing
Wise resource use	Manage and market residuals (biosolids)	27.6	39.9	1.5	0.0
Smart growth	Expenditures to cater for new development	147.4	111.5	131.0	ongoing
Business management	IT projects	176.1	208.1	49.0	ongoing
	Risk and property management	17.9	29.0	16.0	ongoing
	Capitalised borrowing costs	18.6	12.0	24.0	ongoing
Total		1400.6	1523.3	1030	

The Tribunal has therefore accepted Halcrow's recommendation, and has reduced the total allowance for capital expenditure in the two year period by 3.5 per cent (Table 4.6). In making this decision, the Tribunal has ensured that there is sufficient capital for essential asset maintenance and renewals.¹⁴ Sydney Water could reduce its proposed capital expenditure consistent with the amount allowed by the Tribunal in the revenue build up by reducing discretionary standards expenditure. The Tribunal believes Sydney Water did not sufficiently justify the importance of this expenditure during the price review.

The Tribunal calculated Sydney Water's capital expenditure allowance on the following basis:

- all below ground asset renewal capital expenditure was allowed in full
- all above ground asset renewal capital expenditure was allowed except for:
 - \$16 million for an upgrade at the North Head sewerage treatment plant, as this was not in line with the priorities set by the Environmental Protection Authority of NSW (see section 6.1 for further discussion and details on this finding)
 - \$4 million in water renewals capital expenditure, as Halcrow had doubts about Sydney Water's ability to spend the proposed amount efficiently over the price path
- growth capital expenditure was adjusted to bring it in line with historical growth capital expenditure (approximately \$4.9 million), as Halcrow considered the amount claimed by Sydney Water was not justified on the basis of development servicing plan requirements
- a 4 per cent efficiency reduction was applied to all remaining capital expenditure.

Table 4.6 Projected capital expenditure used in the Tribunal's financial analysis

\$ millions	2002/03	2003/04	2004/05
Sydney Water's proposal	523	515	515
Tribunal finding		502	492
Difference		-13	-23

It is important to note that although the Tribunal has considered the capital expenditure requirements of Sydney Water on a project basis, it has generally not formed a view on the appropriateness of individual project expenditure. The Tribunal is more interested in the outcomes from capital expenditure, rather than the specific projects involved with delivering those outcomes. In addition, where the Tribunal has decided not to allow the expenditure related to a particular project, Sydney Water may decide to proceed with that project. However, the costs of the project would then be borne by the shareholder rather than customers.

¹⁴ This is in line with Halcrow's recommendations, acknowledging that renewals and maintenance expenditure may be insufficiently funded at present. Better information on renewals and maintenance planning and prioritising should be made available by Sydney Water to the Tribunal for the 2005 price review.

As part of its investigation, Halcrow looked closely at Sydney Water's historical capital expenditure program, and in particular the treatment of capital expenditure related to Sydney Water's new customer information billing system and its asset management practices. It noted that Sydney Water had not incorporated the capital efficiency targets set by the Tribunal at the last review into its asset management planning processes. It also expressed concern about the level of switching of projects between those planned at the last price review and other new projects.

Table 4.7 provides a comparison of the actual capital expenditure spent by Sydney Water during the past three years, against the Tribunal's expectations at the 2000 price review. It demonstrates the considerable changes that have occurred during the past three years.

Table 4.7 Comparison of actual and expected capital expenditure

\$ million of the day	2000/01	2001/02	2002/03
Actual capital expenditure	432	556	523
2000 Tribunal expected capital expenditure*	483	461	477
Difference	-51	95	46

Source: 2000 Sydney Water determination and 2002 Sydney Water AIR

* Modified on the basis of actual inflation.

Halcrow found that all past capital expenditure was prudent, except for that related to the customer information billing system. It also made some specific recommendations in relation to this expenditure, and also to asset management practices and security-related costs. These recommendations, and the Tribunal's decisions, are discussed below.

4.3.1 Customer information billing system expenditure to be excluded

Finding 6: The Tribunal found that all past capital expenditure, apart from that related to the customer information billing system, should be included in the regulatory asset base to form the basis of price setting between 2003/04 and 2004/05.

For the past three years, Sydney Water has been developing a new customer information billing system (CIBS) which was expected to improve customer information reporting and provide operating cost savings. In October 2002, it stopped work on this project because of extensive delays to the project, uncertainty about its capacity to fulfil requirements and expectations of considerable future capital expenditure requirements to complete the project.

Halcrow recommended¹⁵ that the Tribunal not roll the costs associated with the CIBS project into the regulatory asset base until it had an opportunity to consider the findings of the Auditor-General.

The Auditor-General of New South Wales reviewed the project, tabling its report in Parliament on 1 May 2003. The Auditor-General raised significant concerns about Sydney Water's project management, Board oversight of the project, and general planning and risk management issues associated with the project. The Tribunal is concerned about the implications of the comments within the report for Sydney Water's overall project management processes.

¹⁵ Halcrow, *NSW water agencies review – Overview report*, 2002, p 85.

In light of the Auditor General's report the Tribunal has decided not to include the expenditure associated with the CIBS project in the regulatory asset base. The Auditor General's report concluded that the bulk of the expenditure of \$61 million will effectively be written off. This means the funds expended by Sydney Water on CIBS have not produced a benefit to either the business or its customers. The expenditure has not resulted in either a tangible or notional addition to the asset stock or value of the business. For this reason the Tribunal considers it inappropriate to include the expenditure in the regulatory asset base which would allow Sydney Water to earn a rate of return and receive depreciation on the expenditure. The Tribunal considers this approach consistent with simulation of a workably competitive market, where written off costs such as these would generally not be able to be passed through to a business's customers.

The approach adopted by the Tribunal means that Sydney Water's customers will not pay for the costs associated with the project.

4.3.2 Asset management practices improving

As part of its review of Sydney Water's proposed capital expenditure, Halcrow reviewed the agency's asset management practices. It assessed these practices against a checklist of eight primary factors,¹⁶ with a series of secondary factors involved in asset management, and rated Sydney Water's performance against each factor on a scale of 1 to 5.

Halcrow rated Sydney Water's performance against the factors, and rated forecasting, asset knowledge, service standards, and planning asset maintenance as adequate or better. It rated its performance against the incorporation of efficiencies in asset planning, development of outputs, and tracking of costs as poor.

Halcrow concluded that, in general, Sydney Water's asset management planning processes are improving, and that this should result in soundly based expenditure projections at the 2005 review. However, it found that Sydney Water's current capital expenditure on renewals may be too low.

Halcrow's conclusions on asset management practices were discussed by the Tribunal Secretariat with Sydney Water. Sydney Water indicated that they accepted Halcrow's findings generally, but felt that areas of poor performance were being addressed as part of the asset management strategy currently being put in place.

The Tribunal considers sound asset management practice to be critical for maintaining long term system performance standards in the most efficient manner and, for this reason, will continue to take a close interest in the practices and performance of regulated businesses in this area.

The Tribunal will be looking for evidence that the agency's asset management practices are resulting in the allocation of sufficient funds to essential renewals work at the 2005 price review. This evidence should include a documented risk assessment based on the condition of assets, with a forward renewals program linked to this risk assessment. The Tribunal will

¹⁶ The primary factors are, forecasting, asset knowledge, service standards, cost base and efficiencies, planning for growth and higher standards, planning asset maintenance, procurement strategy, program management.

also consider engaging a consultant at the 2005 review to conduct a detailed assessment of Sydney Water's asset management planning processes.

4.3.3 New security-related costs included in allowable capital costs

Finding 7: The Tribunal found that there is sufficient justification for a specific inclusion of \$10.2 million for capital costs associated with increased security-related costs

Halcrow recommended the Tribunal make an allowance for increased security-related costs that were not included in Sydney Water's proposal, but that were expected. The Tribunal subsequently received additional information from Sydney Water about the potential for these higher costs. It has therefore allowed \$10.2 million in capital costs, in line with Sydney Water's revised estimates.

4.4 Implications for financial viability and return to assets

The Tribunal believes that its pricing decisions will not adversely affect Sydney Water's financial position. Its analysis and financial modelling indicates that the maximum prices set should enable Sydney Water to maintain its currently strong financial position, earn a reasonable rate of return and pay reasonable dividends.

4.4.1 Strong financial position to be maintain

The Tribunal's analysis indicates that Sydney Water should maintain its current investment category rating¹⁷ for all of the key financial indicators (Table 4.8). The indicator expected to be most adversely affected is the internal financing ratio. This would become a concern if the ratio remained low over a long period of time. However, the internal financing ratio is influenced by dividend payments to NSW Treasury, the capital structure of the business which is negotiated between Sydney Water and NSW Treasury, and changes in the capital expenditure program. Given the current review of the capital structure of Sydney Water, this indicator is of less concern, although is being closely monitored by the Tribunal.¹⁸

Further details of the financial viability indicators are attached in Appendix 9.

¹⁷ Investment category is defined as a rating of BBB or better, meaning that the business has adequate or better capacity to meet its financial commitments.

¹⁸ A deterioration in the internal financing ratio due to increased debt levels following a capital restructure, may be a factor to be considered, but would not necessarily be translated into higher prices.

Table 4.8 Financial indicators and credit ratings for Sydney Water

	2001/02	2002/03	2003/04	2004/05
Ability to service debt				
1. EBITDA interest cover	3.39	3.71	3.60	3.33
NSW Treasury ratings (2002)	A+	AA	AA	A+
2. Funds from operations interest coverage	4.61	4.30	4.07	3.30
Standard and Pools US ratings (1995)	AA	AA	AA	AA
3. Pre-tax interest coverage	2.11	2.33	2.33	2.13
Standard and Pools US ratings (1995)	BBB	A	A	BBB
Ability to repay debt				
4. Funds flow net debt payback	3.39	3.61	3.66	3.99
NSW Treasury ratings (2002)	AA	A+	A+	A+
5. Funds from operations/total debt (%)	0.16	0.16	0.15	0.10
Standard and Pools US ratings (1995)	A	A	BBB	BBB
6. Debt gearing (regulatory value)	0.30	0.31	0.31	0.32
NSW Treasury ratings (2002)	AA+	AA+	AA+	AA+
Standard and Pools US ratings (1995)	AA	AA	AA	AA
Ability to finance investment from internal sources				
7. Internal financing ratio	0.13	0.38	0.40	0.37
NSW Treasury ratings (2002)	B	B	B+	B
8. Net cash flow/capital expenditure (%)	0.58	0.57	0.59	0.36
Standard and Pools US ratings (1995)	BBB	BBB	BBB	BBB
NSW Treasury overall score and rating				
NSW Treasury total score (0 -10)	6.00	6.00	6.25	5.75
Overall rating	A	A	A	BBB+
9. Net debt (\$m of the day)	2025	2219	2405	2697

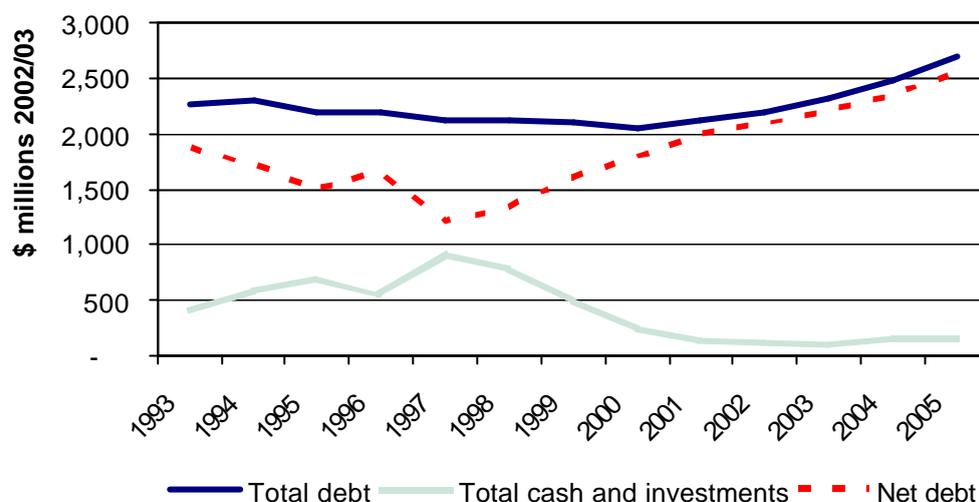
Notes:

- (i) The Tribunal particularly relies on indicators based on cash flows because these are not as subjective as indicators that use components derived from estimates (eg asset value and depreciation).
- (ii) The information in this table should be read and understood only after reviewing Appendix 9 and the explanations and qualifications mentioned there.

Sydney Water's net debt has been steadily increasing since 1997 (Figure 4.1). NSW Treasury's current review of Sydney Water's capital structure is also likely to influence Sydney Water's net debt position over the period of the price determination. While net debt has increased, it still represents a low proportion of the regulatory asset base¹⁹.

¹⁹ Approximately 32 per cent in 2002/03.

Figure 4.1 Net debt for Sydney Water



4.4.2 Rate of return expected to be reasonable

Finding 8: The Tribunal found that Sydney Water should earn a pre tax real rate of return of 5.9 per cent in 2003/04 and 5.6 per cent in 2004/05.

Provided that the assumptions used in the Tribunal's modelling of the determinations financial impacts are correct and that Sydney Water achieves the efficiency targets the Tribunal has set, the rate of return to the regulatory asset base is expected to be around 5.9 per cent in 2003/04 and 5.6 per cent in 2004/05.²⁰

Table 4.9 Expected and actual rates of return (% real pre-tax)

2000/01	2001/02	2002/03	2003/04	2004/05
6.6%	5.6%	6.0%	5.9%	5.6%

Source: IPART financial model for Sydney Water.

Although this rate of return is relatively low compared with some competitive industries and previous years for Sydney Water, the Tribunal believes it is reasonable given that Sydney Water operates in a low risk environment. (The main risk it faces is the impact of weather conditions on its revenue.) Historical rates of return show that water sales were higher than expected during the previous determination period.

²⁰ The weighted average cost of capital (WACC) range for the metropolitan water agencies was estimated to be between 5.2 per cent and 6.7 per cent. The detailed assumptions used to generate this range are given in Appendix 7.

4.4.3 Dividend and tax equivalent payments expected to be reasonable

Finding 9: The Tribunal found that sufficient revenue will be available to allow total dividends and net interest of \$588 million and total tax equivalents of \$230 million between 2003/04 and 2004/05 to be paid.

The Tribunal estimates that Sydney Water will be able to pay \$588 million in dividends and net interest, and \$230 million in tax equivalents during the two year price period. However, these estimates also depend on Sydney Water achieving the operating and capital expenditure efficiencies set by the Tribunal.

In making its findings on Sydney Water's revenue requirement, operating and capital expenditure findings, the Tribunal specifically considered the implications if these findings for the agency's rate of return to assets, its ability to pay dividends and meet its capital requirements. It also considered the social impact of these findings on customers, on Sydney Water's future standards of service quality, reliability and safety, and on ecologically sustainable development.

It placed equal weight on each of the factors contained in section 15 of the IPART Act. The Tribunal is satisfied that the social impacts on customers; implications for service quality and ecologically sustainable development are well balanced against a reasonable rate of return, given the Tribunal's view that Sydney Water has further potential to achieve efficiency gains.

4.5 Issues Tribunal will consider going forward

The Tribunal is concerned that Sydney Water did not establish operating and capital efficiency targets based on the last price determination. Its concerns and the steps it proposes to take to strengthen Sydney Water's incentives to seek operating and capital efficiencies are outlined below.

4.5.1 Incentives for operating efficiencies

By allowing Sydney Water to keep the benefits of every additional dollar saved during the period of this determination, the Tribunal provides an incentive for Sydney Water to achieve operating efficiencies. The Tribunal will expect the agency to demonstrate the gains it has made relative to the targets implied in this determination at the 2005 price review. The Tribunal will take any failure to achieve the expected efficiencies into consideration when formulating the base year operating expenditure to calculate efficient operating expenditure in the 2005 determination period.

4.5.2 Incentives for capital efficiencies

The Tribunal is concerned about the adequacy of incentives created by the current regulatory approach for improving capital efficiencies. These incentives appear to be small given that the water agencies have responded to the efficiency targets implied in the Tribunal's capital expenditure allocations principally by switching capital between projects,²¹ or delaying projects. It is not clear whether these actions result in genuine efficiency gains, or how they affect the agencies' overall service provision given the long lives of these assets.

To improve the incentives, Halcrow recommended establishing a series of output targets, such as length of water main renewed. The Tribunal is concerned that this approach may create perverse incentives, and has therefore decided to not adopt this recommendation.

However, it will seek further information on these indicators from the agencies as part of the 2005 price review.

In addition, the Tribunal will investigate other changes to its approach to regulating capital expenditure prior to the 2005 price review. Its objectives are to create an incentive for water agencies to pursue capital efficiencies, encourage better long-term asset management planning and enhance the connection between drivers of expenditure and the capital expenditure program. These drivers include changes to environmental standards or demonstrated customer preferences.

As part of this investigation, the Tribunal will consider the use of a four year efficiency carryover mechanism. Under this mechanism, the difference between the capital expenditure forecast and approved at the time of a determination and the actual capital expenditure will be borne by the business for four years rather than until the next determination is made. In practice, this would mean that expected capital expenditure would be initially rolled into the RAB and actual capital expenditure would replace the expected capital expenditure after four years have passed. Prior to the actual capital expenditure being rolled into the RAB, it would be subjected to a prudency review.

The effect of the four year efficiency carryover mechanism would be to allow Sydney Water to keep better than expected efficiency savings for the entire four year period. However, if it was unable to meet the efficiency savings targets, it would bear the cost for the entire four year period.

This kind of incentive mechanism could operate in several different ways including:

- It may be based on an agreed program basis, whereby gains in one program could not be offset against over expenditure in another. This would limit expenditure flexibility, but would also create a strong incentive for Sydney Water to more effectively plan and manage its capital expenditure programs as the businesses would bear the heightened risks for inaccurate forward capital expenditure planning.
- Alternatively, it may be applied to the capital expenditure of the business in aggregate, allowing reallocation of capital expenditure during the course of a determination

²¹ Switching capital expenditure away from proposed programs to new programs may reflect poor asset management planning, or changed priorities as new operating issues arise.

period without additional gain or penalty provided total expenditure matched forecasts.

The Tribunal will consult with Sydney Water and other key stakeholders about this approach in the lead up to the next determination. The Tribunal is likely to require the water agencies to provide a higher level of specification and justification for their forward capital expenditure programs to enable such a mechanism to be implemented. It will also require this information to improve the link with agreed expenditure drivers such as growth and the meeting of mandatory standards. Where water businesses want to propose capital expenditure to meet performance standards in excess of those required by regulators such as the EPA they will need to clearly demonstrate that their customers are willing to pay for the enhancement of standards.

Sydney Water therefore has less than two years to develop adequate asset management planning processes to provide this information to a reasonable level of confidence.

Box 3 Sydney Water's customer base

The number of properties Sydney Water services has grown at a rate of 1.8 per cent per annum over the last five years, and is now more than 1.5 million. On average, its residential, commercial and industrial customers use more than 610GL²² of water per annum. Residential customers represent 96 per cent of total customers (and use 70 per cent of metered water consumed), while commercial customers represent 2 per cent and industrial 1 per cent (Figures 5.1 and 5.2).

Figure 5.1 Sydney Water's customer base in 2002

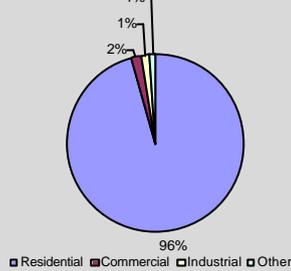
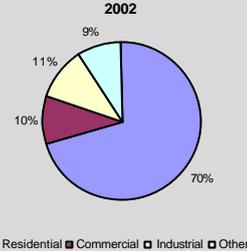
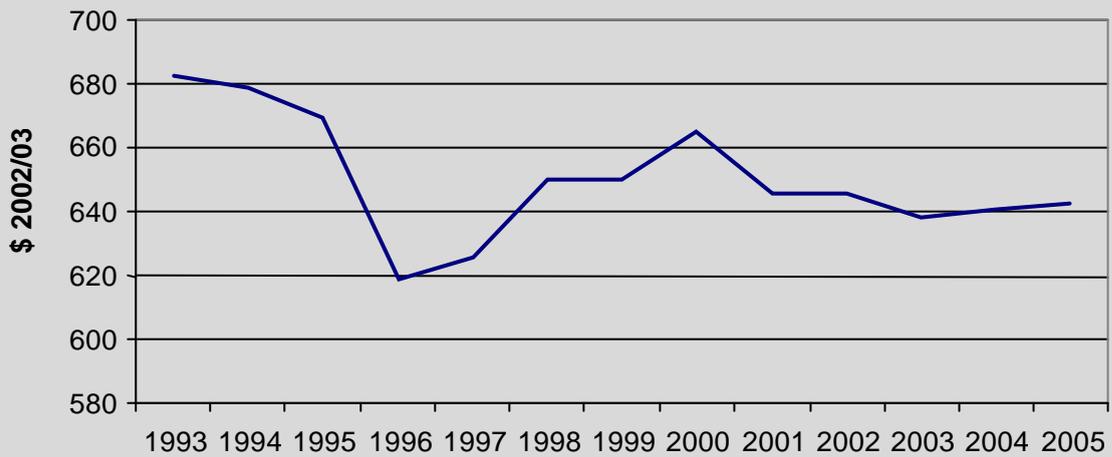


Figure 5.2 Metered water consumption by customer type 2002



Since 1993, Sydney Water customers' water bills have declined in real terms. During the same period, average household consumption rose from 238kL to 246kL. The water bill trend is projected to reverse slightly in 2003/04 and 2004/05.

Figure 5.3 Average residential water and wastewater household bill (assuming 250kL consumption)



²² This is based on the total volume of water supplied from the catchment including system losses. The average is based on the period 1981 to 2001.

5 IMPLICATIONS FOR CUSTOMERS

In reaching its pricing decisions, the Tribunal has carefully considered their likely impact on Sydney Water's residential, commercial and industrial customers. In particular, it considered their impact on the affordability of water services on high and low water users and pensioners, and on the quality of the services customers receive. The Tribunal's analysis indicates that these decisions will have a minimal effect on customer bills: average residential, commercial and industrial customers are likely to pay no more in real terms for water, wastewater and stormwater services compared with what they paid in 2002/03.

The key implications of this determination for customers are as follows:

- Prices for water services have been restructured so that usage charges make up a larger proportion of customer bills. These changes are intended to send a greater water conservation signal to customers, although the reduced water demand benefits may be limited.
- For residential customers, this price restructuring is likely to have little impact on an average water user's bill which will remain steady in both 2003/04 and 2004/05. High consuming water users will have slightly higher bills while low consuming water users can expect smaller bills.
- For commercial and industrial customers the price restructuring is also likely to have little impact on an average water user's bill over the price path. Prices for trade waste services will also remain steady in real terms, but the basis for charging will change. In addition, all property value based charges will be eliminated by 2005.
- Service standards are expected to be maintained over the price path, and the Tribunal will monitor Sydney Water's performance against these standards through the annual information return process and the 2003 audit of its operating licence.

In addition, the Tribunal is concerned that for this review, it did not have sufficient information to fully understand the impact of its decisions on customers, particularly in relation to household income. For the next review, it intends to undertake a household survey to allow it to undertake more comprehensive analysis of these issues, and consider more far-reaching price changes.

Each of these implications and issues going forward is discussed in more detail below.

5.1 Increased emphasis on water usage prices

The Tribunal has decided to increase the relative emphasis on water usage charges to provide a greater incentive to customers to reduce water use. This decision will improve the ability of all customers to manage their water bills. Most importantly, it may assist in encouraging more customers to control their overall water bills by adopting water saving technologies and controlling their water use.

Water usage charges will increase by 1 per cent above inflation in each year of the price path. This increase will be offset by a reduction in fixed charges for water of 1 per cent in 2003/04 and 2004/05 in real terms. Table 5.1 provides a summary of the key pricing decisions affecting customers.

Table 5.1 Overview of pricing decisions for Sydney Water

	2002/03	2003/04	2004/05*
Water			
- usage (\$/kL)	0.94	0.98	1.02
- service** (\$)	75.00	76.55	78.85
Wastewater			
- service** (\$)	328.36	338.54	348.70
- property based charge (\$ x (AAV-2500))***	0.0038	0.002	0
Stormwater			
- residential service (\$)	23.72	24.46	25.19
- non-residential service (\$)	66.92	68.99	71.06
- property based charge (\$ x (AAV-2500))***	0.0034	0.0018	0

* Assuming 3 per cent inflation in 2004/05.

** Assuming a 20mm water connection.

*** Applies to non-residential properties only.

Note: AAV is the annual assessed value of the property in dollars.

The Tribunal took a range of factors into consideration when making its decision to increase the emphasis on usage charges. These include, for example, the Government's decision not to build Welcome Reef dam, and reductions in water supply due to the provision of environmental flows. Both of these factors will increase the cost of the next incremental rise in water supply capacity. All other things being equal, this means water usage prices will probably need to rise again in the near future. However, the Tribunal will need to undertake further work to better understand the determinants of the usage price of water and the costs of alternative means of meeting the community's needs.

5.2 Impacts on residential customers are minimal

Overall, the Tribunal expects that on average Sydney Water's residential customers will be no worse off as a result of this determination. The water bills of residential customers with average water use are expected to rise in line with general price inflation.

The Tribunal's analysis of the impact of the determination on customers with different types of homes and different water use patterns indicates that the bills of customers who live in apartments or units and have average water use will increase by around 3.3 per cent (which is in line with the general rate of inflation). The bills of those that live in houses and have high water use will increase by around 3.4 per cent (which is slightly higher than the general rate of inflation) (Table 5.2). The Tribunal notes that these customers are likely to have more potential to use water saving techniques to offset this impact.

Table 5.2 Impact of prices on residential customers by type of home and water usage (\$ of the day, per year)

Customer type	2002/03	2003/04		2004/05	
	Current	Actual	Increase*	Actual	Increase
Apartment / Unit					
- Low (80kl)	462	477	15	492	15
- Average (180kl)	556	575	19	594	19
- High (200kl)	575	595	19	614	19
House					
- Low (150kl)	568	586	18	605	18
- Average (285kl)	695	719	24	742	24
- High (700kl)	1085	1125	40	1165	40

* Absolute increases or decreases relative to the previous year.
An inflation rate of 3 per cent per year was assumed in 2004/05.

The impact of the determination on annual residential bills will vary according to the customer's total water usage, and will range from \$15 per year (for customers who use less than 100kL per year) to \$71 or more (for those who use 1000kL or more per year). For more than 85 per cent of customers, the total increase in their annual water bill for 2003/04 will be \$26 or less (Table 5.3).

Table 5.3 Impact of prices on annual residential water, wastewater and stormwater bills by water usage level (\$ of day per year)

Water usage (kL per year)	% of res customers	2002/03	2003/04		2004/05	
			Actual	Increase*	Actual	Increase*
<100	11	498	513	15	528	15
100-150	17	545	562	17	579	17
150-200	18	592	611	19	630	19
200-250	15	639	660	21	681	21
250-300	11	686	709	23	732	23
300-400	14	756	782	26	808	26
400-500	7	850	880	30	910	30
500-1000	6	1132	1174	42	1216	42
1000<	0.5	1837	1908	71	1979	71

* Absolute increases or decreases relative to the previous year.
An inflation rate of 3 per cent per year was assumed in 2004/05.
The impact was calculated using the mid-point of water usage, 1500kL was used for >1000kL and 75kL was used for <100kL.

The impact of the determination on pensioners will be different to those in the tables above, as rebates available to these customers through the community service obligations paid by the Government to Sydney Water. An average pensioner's bill is expected to rise by \$12 in 2003/04 compared with 2002/03 and a further \$13 in 2004/05 (Table 5.4)²³. This is slightly lower than the expected rises in average non-pensioner bills of \$21 in 2003/04 and \$22 in 2004/05.

²³ The average impact on pensioners may be overstated due to the assumption that pensioners use 'on average' the same quantity of water as other water users.

**Table 5.4 Impact of prices on a pensioner with average water usage
(\$ of the day, per year)**

Service	Pensioner Rebate	2002/03		2003/04		2004/05	
		Before rebate	After rebate	Before rebate	After rebate	Before rebate	After rebate
Water							
- service charge (per annum)	100%	75	0	77	0	78	0
- usage charge (240KL per annum)		226	226	235	235	244	244
Wastewater	74%	328	85	339	88	349	91
Stormwater	50%	24	12	24	12	25	13
Total		653	323	674	335	696	348

The Tribunal has specifically considered the impacts of its pricing decisions on residential water customers in line with section 15 of the IPART Act. It believes that the differential impacts on customers are appropriate, given the other matters it is required to consider under section 15. In particular, it believes that these impacts are warranted given the need to encourage water conservation.

5.3 Impacts on commercial and industrial customers are minimal

As for residential customers, the impact of the Tribunal's decision to restructure prices on commercial and industrial customers will vary depending on their level of water usage. Higher water users are likely to experience higher increases in their annual water bills than lower water users. However, because commercial and industrial customers are much more diverse in terms of their water usage patterns than residential customers, it is difficult to draw general conclusions about the impact of this decision on these customers.

The Tribunal's decision to eliminate property based stormwater and waste water charges over the price path will partially offset the impact of the price restructuring. For some commercial and industrial customers, it may result in substantial savings. Its decision to change the basis for charging for trade waste services in line with Sydney Water's proposal is not expected to have an adverse impact on most customers. (A detailed explanation of these changes is contained in Chapter 7.)

The Tribunal has considered these different customer impacts in line with its requirements under section 15 of the IPART Act, and considers that they are warranted given the large supply augmentation and demand management costs which are likely to emerge as demand exceeds sustainable yield. The Tribunal will review the impact of these decisions (and other non-price measures) on water use demand by commercial and industrial customers, including the uptake of water recycling, at the 2005 determination.

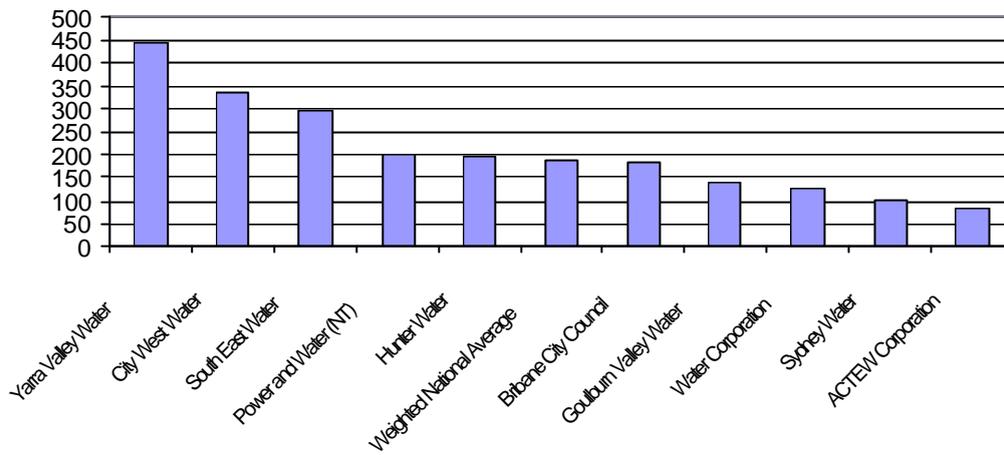
5.4 Service standards expected to be maintained

When considering the impact of its pricing decisions on service quality, the Tribunal seeks to ensure that they do not have an adverse impact on the standards of service Sydney Water delivers to its customers. It believes that this determination should not adversely affect Sydney Water's ability to meet these standards, and so expects that they will be maintained during the period of the price path. It will monitor the agency's performance against these

standards, through its annual information return process and its 2003 audit of the operating licence. Sydney Water’s operating licence will be reviewed in 2004.

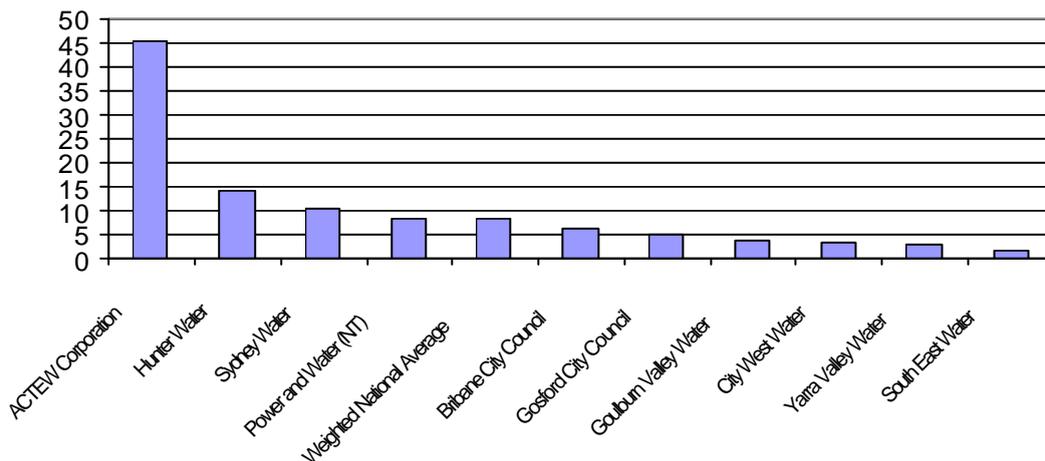
In assessing Sydney Water’s service standards for this review, the Tribunal considered Sydney Water’s own monitoring of its customer service performance, its compliance with the terms of its operating licence, and the number and nature of customer complaints made through the Energy and Water Ombudsman for New South Wales (EWON). It found that Sydney Water has performed well compared with other similar water businesses within Australia in recent years. For example, unplanned water interruptions have decreased from around 123 per 1000 properties in 1997/98 to 102 per 1000 properties in 2000/01.

Figure 5.4 Unplanned water interruptions (2000/01)



Source: WSAA facts 2001, p 48.

Figure 5.5 Unplanned wastewater main interruptions (2000/01)



Source: WSAA facts 2001, p 54.

In addition, EWON received a relatively low numbers of complaints relating to Sydney Water compared with those relating other utilities in recent years (Table 5.5).

Table 5.5 Complaints received by the Energy and Water Ombudsman of New South Wales

	2000	2001	2002
Sydney Water	482	359	525
Energy Australia	1860	2795	4017
Country Energy	-	3131	2148

The 2002 audit of Sydney Water's performance against the operating licence indicated that in general Sydney Water had improved its performance since the previous audit. Most audit items were fully complied with, with issues being raised about water demand and demand management and internal complaint handling procedures.

Sydney Water, in consultation with the Tribunal, has also developed a new Customer Contract which was finalised in 2002. This will ensure that customers and Sydney Water have clearer information as to the rights and responsibilities of each party.

5.5 Issues Tribunal will consider going forward

The Tribunal wishes to better identify the impacts of pricing decisions on customer groups, especially vulnerable groups. While the existing approach of analysing impacts by water usage groups provides a general indication of the likely impacts on a customer's bill, it gives a limited understanding of the impact within the overall household's income. The Tribunal has therefore decided to conduct a household survey to link water usage information to household income. It expects that this will enable a more comprehensive analysis of the customer impacts from pricing decisions to be undertaken in time for the 2005 price review.

6 IMPLICATIONS FOR THE ENVIRONMENT

Section 15 of the IPART Act requires the Tribunal to explicitly consider the impact of its pricing decisions on ecologically sustainable development.

For this price review, the key environmental issue related to water services facing the Sydney area is the need to improve demand management. This need is increasing, due to pressure on Sydney's water supplies from population growth and requirements for environmental flows. Other issues include the need to prevent polluted stormwater runoff into rivers, beaches and Sydney harbour, and to improve effluent disposal and reuse.

The Tribunal's determination is likely to have a positive impact on the ecologically sustainable development. Its key implications for the environment are as follows:

- The Tribunal has allowed most of the environment-related capital spending proposed by Sydney Water, where this is in line with priorities set by the Environmental Protection Agency of New South Wales (EPA).
- Prices have been restructured by increasing water use charges and decreasing fixed charges to better signal the need for demand management to water users.
- The Tribunal recognises and is concerned that Sydney Water is unlikely to meet the 2004/05 demand management target contained in its operating licence. As an interim measure, it has decided not to set prices based on this target, but to use Sydney Water's more realistic consumption estimates instead. This decision will ensure that the agency will not receive windfall profits as a result of its inability to meet the demand management targets.
- The Tribunal has adopted a light-handed approach to regulating recycled water prices, to encourage greater use of this resource.

In addition, the Tribunal believes further measures are needed to address the imbalance between Sydney's demand for water and its sustainable supply. It intends to give further consideration to the available options, particularly the proposal of a step in the price Sydney Water pays for bulk water, for possible implementation at the 2005 price review.

This chapter discusses each of these implications and issues going forward in more detail.

6.1 Most environment-related capital spending allowed

Finding 10: The Tribunal found that most of Sydney Water's proposed environment-related capital spending was sufficiently justified to be included in the regulatory asset base for calculating its revenue requirement. However, it found that the agency did not provide sufficient justification for including \$16 million for the North Head sewerage treatment plant upgrade.

Sydney Water's program of environment-related capital expenditure is driven by the mandatory requirements imposed on it by the EPA, and by requirements within the Sydney Water Act. This program is designed to meet some of the agency's key environmental objectives. Its development was guided by a series of environmental indicators Sydney Water developed in consultation with key stakeholders, and by WaterPlan 21—Sydney Water's vision for environmental performance by 2021.

In line with this program, Sydney Water's proposed revenue requirement included \$485 million to implement a range of environment-related capital expenditure projects over the two-year price path (Table 6.1). These projects aim to provide clean beaches, rivers and harbours in the Sydney region. The required expenditure represents 47 per cent of Sydney Water's overall capital expenditure budget for the two year period.

Table 6.1 Environmental-related capital expenditure projects proposed by Sydney Water

\$'000s	2003/04	2004/05
General Reuse	500	500
Manage and Market Residuals (Biosolids)	1,500	-
Vaucluse/Diamond Bay Sewage Transfer	1,000	2,000
Illawarra STPs	65,000	51,000
Warriewood STP upgrade	4,000	4,000
North Head STP Upgrade	3,000	3,000
Malabar STP Upgrade	-	500
Georges River Strategy (STPs & Pipeline)	22,000	49,000
South Creek Bubble Licence Upgrade	-	1,000
SewerFix Pipes	32,000	79,000
SewerFix SPSs	67,000	21,000
Blue Mountains Backlog Sewerage	3,000	5,000
The Oaks/Oakdale Sewerage Scheme	1,000	-
Northern Towns Illawarra Scheme	15,800	-
Priority Sewerage Program (other)	8,200	45,000
Total	224,000	261,000

The Tribunal has considered Sydney Water's proposal and Halcrow's recommendations in relation to this proposal. It has decided to allow for all but one of the proposed environment-related capital expenditure projects in calculating Sydney Water's revenue requirement.

The project it did not allow for was the \$16 million upgrade for North Head Sewerage Treatment Plant (\$6 million between 2003/04 and 2004/05, \$10 million in 2005/06). Halcrow expressed concerns that this project did not meet with the EPA's environmental priorities and recommended that funds not be allowed for this project. It also indicated that Sydney Water did not have any evidence that customers were willing to pay for the additional environmental improvements associated with this project.

Sydney Water argued that Halcrow had misinterpreted the prime drivers for the North Head sewerage treatment plant upgrade project. The entire project is expected to cost \$225 million, with the \$16 million relating to the definition and pre-design aspects of the project during the environmental impact assessment phase.

Sydney Water explained that the drivers for the project are partly to ensure the maintenance of effluent standards under the existing licence, and to improve the reliability of existing equipment and systems. The other significant driver is WaterPlan 21, which includes a plan to upgrade all three large coastal sewerage treatment plants to improve the capture of oil and grease, and suspended solids. Presumably, this will have environmental benefits.

The Tribunal has considered these arguments and believes that Sydney Water has not provided sufficient justification for the expenditure of the \$16 million as a precursor for a \$225 million upgrade of the North Head plant. The Tribunal acknowledges that some of the benefits of the upgrade appear to be renewals and maintenance of existing standards, but that these benefits have not been separately identified in the project to allow the Tribunal to decide what customers should be expected to pay. In addition, there appears to be no clear evidence that customers see these upgrades as a priority, compared with alternative environmental improvement projects under consideration by Sydney Water. The Tribunal is concerned to ensure that the more appropriate environmental projects are funded, and that the maximum environmental benefits are achieved from environmental capital expenditure.

This does not necessarily mean that the Tribunal believes the North Head project should not proceed. Sydney Water has the option to proceed with the project and justify the project for inclusion in the regulatory asset base at the next price review. Rather, the Tribunal is expressing its view that the agency did not sufficiently justify the project and that customers should not pay for it during this review. The Tribunal is required to weigh the environmental benefits against customer impacts and, in this instance, it believes Sydney Water has not yet demonstrated that customers are willing to pay for these additional non-mandatory environmental projects.

In evaluating the appropriateness of environment-related capital expenditure projects, the Tribunal relies heavily on advice from the EPA (representing the Government's environmental priorities), and other environmental stakeholders including the Total Environment Centre and the Nature Conservation Council of New South Wales. Although these stakeholders provided considerable advice on price structures for environmental purposes, the Tribunal received limited assistance on evaluating specific projects proposed within Sydney Water's program. The Tribunal hopes that greater assistance may be provided for future price reviews to help it address its ecological sustainable development considerations.

The Tribunal noted two issues of concern related to the relationship between the EPA's standard setting process and funding for these projects. The first is the lack of forward standard setting by the EPA, which creates uncertainty for Sydney Water in asset management planning and future capital expenditure forecasting. If the EPA makes a standard mandatory, the Tribunal will be more inclined to fund expenditure required to meet it (while still taking into consideration community considerations and transparency of the costs of meeting standards). An indication of the EPA's views on future standards would assist both Sydney Water and the Tribunal in deciding appropriate forward expenditure.

The second issue is the lack of priority setting for environmental projects. The Tribunal would find it helpful if the EPA could clearly articulate the environmental priorities it requires Sydney Water to focus on for a period of 5 years. This would enable the Tribunal to better evaluate expenditure on these projects during the price review process. Without such priorities, both the Tribunal and Sydney Water have limited ability to assess environmental projects and weigh their benefits against customer and social impacts.

By allowing for most of Sydney Water's proposed environment-related capital expenditure in the revenue requirement, the Tribunal has explicitly internalised in water prices the environmental costs that these capital projects represent, in line with the water pricing principles established by COAG. Some stakeholders argued that the broader environmental

costs associated with Sydney Water's services should also be internalised in water prices. However, the Tribunal does not believe a sufficient case for this has been made for incorporating these costs into prices. Arguably, they are more of an environmental taxation issue for Government, than a pricing issue.

In addition, given the challenges of quantifying these broader costs, the Tribunal believes that internalising them at this stage would be inappropriate and would result in high impacts on customers that cannot currently be justified. To the extent that these broader costs become better understood (and quantified), and responses to alleviate their impacts become available, the Tribunal will consider internalising them within water prices at future price reviews.

6.2 Prices have been restructured to better signal the need for demand management

The Tribunal's decision to restructure water prices, so that the variable usage charge comprises a larger proportion of most customers water bills compared the fixed charge will have a positive impact on ecologically sustainable development. This decision will mean that 37.4 per cent of an average customer's water and wastewater bill²⁴ will now be driven by water usage charges, compared with 36.8 per cent in the previous determination.

This decision is intended to strengthen the incentive for water users to adopt water saving appliances and practices, and give them greater control over their overall water bills. This is expected to have some impact on total water use, but this impact is likely to be relatively small. Empirical evidence throughout the world suggests customer water use patterns do not change significantly in response to changes in water prices²⁵ although it may be that pricing has more impact on discretionary water use (such as watering gardens). However, it is important to remember that price is not the only policy response to curb excessive water demand.

The Tribunal is aware of work being undertaken by other agencies within the Government on this issue. It hopes that a coordinated policy response will be available by the time of 2005 price review, to allow it to examine the impact of prices on water demand in more detail. In the interim, it proposes that further work be undertaken to consider the impact of price on water use.

6.3 Demand management targets not used for price setting

The Tribunal has considered Sydney Water's expected performance against the demand management targets included in its operating licence as part of the price review. This expected performance is relevant because an imbalance between water demand and sustainable water supply would increase the pressure on Sydney Water and its customers to reduce demand, which the Tribunal may need to address through its price regulation. In addition, forecast demand for water over the determination period is one of the key inputs to the Tribunal's price setting approach.

²⁴ For customers who receive stormwater services from Sydney Water, 36.0 per cent of their bill will now be from water usage charges, compared with 35.5 per cent in previous determinations.

²⁵ See for example summary in OECD, *The price of water trends in OECD Countries*, OECD, Paris, 1999.

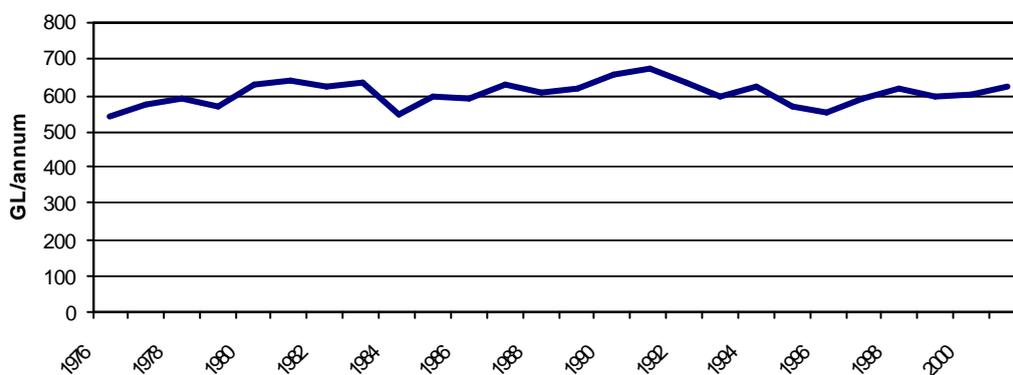
The Tribunal found that the need to effectively manage water demand is very likely to become increasingly important in the coming years. However, there is considerable uncertainty about the level of sustainable supply, so it is difficult to accurately assess the balance between supply and demand at this stage. It also found that Sydney Water is unlikely to meet the 2004/05 demand management target in its operating licence. Given both these findings, it has decided, for the purposes of price setting, not to base forecast demand on the demand management targets for this review, but to use Sydney Water's consumption estimates instead. These findings and decisions are discussed in more detail below.

6.3.1 Balance between supply and demand uncertain

The key factors that influence water demand in the Sydney area include population growth, the weather (both rainfall and temperature), and the adoption of water saving technologies and practices by customers. The factors driving water supply include rainfall, rules about how much water must be allowed to flow through rivers (known as environmental flows) and how much water can be transferred from one water basin to another (inter basin transfers), security of supply conditions and reliability criteria.

Historically, the level of water demand has remained fairly constant at around 600 gigalitres (GL) per annum since 1976 (Figure 6.1), even though Sydney's population grew significantly over this period. This reflects in part Sydney Water's efforts to reduce water demand.

Figure 6.1 Historical water demand - Sydney Water



However, the level of sustainable water supply in the Sydney area is not known with certainty. This uncertainty is partly due to improvements in catchment modelling and the unusually dry weather conditions in recent years. In addition, the Hawkesbury Nepean Forum is currently considering options to increase environmental flows in the Hawkesbury Nepean river.²⁶ The Tribunal understands that, if implemented, the recommended options could result in the sustainable yield from existing water sources being reduced by as much

²⁶ The Hawkesbury Nepean Forum is considering a variety of environmental flow scenarios which would reduce the sustainable yield to Sydney Water from around 590GL/annum to as much as 450GL/annum. This will have a tremendous impact on Sydney Water being able to supply water to customers in a sustainable way.

as 100 to 150 GL per annum. Given the current levels of water demand by Sydney Water's customers, this will have a large impact on the availability of water for Sydney's residents.

The Tribunal expects that the sustainable yield in the catchment will be known with more certainty by the time of the 2005 price review, as decisions on environmental flow rules and security of supply conditions will have been made. It will assess whether new incentives for Sydney Water to reduce customer demand need to be created at that time.

6.3.2 Sydney Water unlikely to meet demand management targets

Sydney Water has an extensive demand management program, which is partly driven by water demand targets established as part of its operating licence. It is expected to spend \$36.5 million on this program over the coming two years, and the Tribunal's pricing decisions ensure it will have sufficient revenue available to meet these commitments.

However, despite this spending, Sydney Water appears unlikely to achieve its demand targets. In its submission, the agency indicated that it expects demand to equal 602GL in 2003/04, and 584GL in 2004/05.²⁷ This is 1.9 per cent higher than the target included in the operating licence for 2004/05 (once converted from a litres per capita per day measure).

The Tribunal wants to restate its concern about this, and the need for Sydney Water to better manage its demand management program. As part of its review of Sydney Water's operating licence, the Tribunal engaged a consultant (Montgomery Watson Harza) to assess this program. The consultant found that:

- Sydney Water did not implement a formal demand management program until 1999/2000, prior to which it relied on structural changes like quarterly billing, two-part tariffs and water restrictions to manage demand.
- Sydney Water saved approximately 22GL per annum between June 1999 and June 2002, primarily through residential retrofit, leakage reduction program and water recycling at sewerage treatment plants.
- Sydney Water could improve the program by fast-tracking the Department of Housing's home retrofit program, better managing leakage by improving dividing valve maintenance, providing additional flow metering and reducing zone sizes, and removing barriers to the adoption of water efficiency measures by the business sector by providing free water audits and other incentives.

The Tribunal proposed that Sydney Water improve its reporting and auditing requirements by water use category. In addition, it proposed that the end-of-term targets may need to be replaced with a target that better reflects the availability of water and the limits of the system. It suggested that any future targets should include an aggregate target, as well as a per capita based target.

In addition, at this and previous reviews, stakeholders have suggested that Sydney Water could improve demand management by billing tenants rather than property owners.²⁸ This would ensure that all water users receive appropriate signals about the need to conserve water. The Tribunal understands that under the *Residential Tenancies Act 1987*, an owner is

²⁷ Sydney Water Submission, p 17.

²⁸ Department of Housing submission, 15 November 2002, pp 2-3.

entitled to bill a tenant directly for metered water use within the terms of the lease agreement. Sydney Water has argued that the costs associated with it billing tenants directly would be substantial. These costs would include those associated with additional bad debts and modifying its customer billing systems. Whether these costs outweigh the conservation signal benefits requires further consideration.

The Tribunal believes that more work needs to be undertaken to determine whether these costs outweigh the benefits of better conservation signals. It understands that similar systems are in place in Victoria and Western Australia, and should be readily transferable to NSW.²⁹ It therefore recommends that Sydney Water explore the direct billing of tenants as part of its demand management strategies.

6.3.3 Tribunal will use Sydney Water's consumption estimates for price setting

Finding 11: The Tribunal found that it was appropriate to accept Sydney Water's estimates of consumption for price setting purposes.

In light of the uncertainty about environmental flows (and thus the level of supply) and the low likelihood that Sydney Water will meet its demand management targets, the Tribunal decided to use Sydney Water's consumption estimates for the purposes of price setting, instead of its demand management targets. If these targets had been used, it would have created a perverse incentive for Sydney Water, as the agency would have received a windfall profit as a result of not meeting the targets.

In making this decision, the Tribunal accepts that actual consumption could differ from these estimates by up to 5 per cent, due to the impact of weather conditions and the possibility that water restrictions may be introduced. These risks are commercial risks which are borne by Sydney Water and are compensated for through a higher than risk free rate of return on the regulatory asset base.

Table 6.2 Water consumption assumptions used by Tribunal

	2000/01 Actual	2001/02 Actual	2002/03 Projection	2003/04 Projection	2004/05 Projection
litres per capita per day	425	411	398	387	371

The Tribunal considers this decision to be an interim measure, and will further consider other measures to improve the incentives for Sydney Water to meet its demand management targets at its next price review (see section 6.5).

6.4 Recycled water

Finding 12: The Tribunal found that it will not set a recycled water price for customers outside the Rouse Hill Development Area, but will require Sydney Water to develop recycled water pricing principles for the 2005 price review.

²⁹ Problems with the direct billing of tenants in unmetered apartments and units may arise. In these instances alternative approaches may need to be considered, or exceptions made.

The use of recycled water (ie, treated sewerage effluent) for lower grade purposes is an important part of Sydney Water's demand management strategy. In regulating recycled water, the Tribunal wants to ensure it does not hinder Sydney Water in promoting and expanding the use of this resource. At the same time, it is required to protect recycled water customers from the risk that Sydney Water may abuse its power as the sole provider of recycled water services.

In previous determinations, the Tribunal has set a zero sewer mining fee, and required Sydney Water to provide access to the sewer for extractive purposes at a full cost recovery basis. Otherwise, the previous determinations have been silent on the pricing of recycled water, allowing Sydney Water to develop its own approach. This approach has led to the use of recycled water by some commercial customers (mainly golf courses) and the signing of a large contract with BHP to deliver up to 20ML per day of recycled water to its Wollongong steelworks.

It is likely that Sydney Water will want to increasingly offset the costs of delivering recycled water from its demand management program funds given the additional benefits to Sydney Water's customers. Such assistance might be appropriate if recycled water replaces ordinary water supplies (and thus provides a clear benefit to Sydney Water's other customers by reducing demand for potable water), and is part of the agency's least-cost demand management planning processes.

For this determination period, the Tribunal has decided to adopt a light handed approach to regulating recycled water services, to facilitate its increased use by Sydney Water customers. It will require Sydney Water to develop pricing principles for recycled water and submit these to the Tribunal for approval at the 2005 determination. It will also monitor the price of recycled water, by requiring Sydney Water to report individual contractual recycled water prices to the Tribunal, and disclose the cost basis used to generate each price. In addition, it will require Sydney Water to specifically identify when it has transferred funds from its demand management program to subsidise this price, on the basis that the recycled water project will result in external benefits.

In adopting this light-handed approach to regulating recycled water services, the Tribunal has explicitly decided not to set a recycled water price. However, it could set a recycled water price in the future, if it believed that Sydney Water has made unfair advantage of its position as a monopoly provider of recycled water.

The Tribunal requires Sydney Water to develop recycled water pricing principles prior to the 2005 price review, for inclusion in the 2005 determination.

6.5 Issues Tribunal will consider going forward

Finding 13: The Tribunal found that it would be inappropriate to establish a step price at this price review, but it will reconsider this issue at the 2005 price review.

One of the issues the Tribunal raised in its issues paper for this review was the possibility of introducing a step price for the bulk water Sydney Water purchases from the Sydney Catchment Authority, to create a stronger commercial incentive for the agency to pursue demand management. The Tribunal received submissions from stakeholders supporting this approach as well as submissions urging it not to pursue it in isolation of other pricing reforms. After carefully considering all these submissions the Tribunal was not persuaded that it would be appropriate to implement a step price at this price review. The main reasons for this decision include:

- The need to further develop a comprehensive demand management strategy prior to the introduction of a step price. The development of such a strategy needs to consider a range of incentive mechanisms and policy instruments including more comprehensive consideration of both wholesale and retail pricing structures
- Uncertainty about the sustainable yield from the catchment that will exist until a decision is made on environmental flows in the Hawkesbury Nepean system
- Uncertainty about the impact of a step price on the financial viability of Sydney Water and the Sydney Catchment Authority.
- The need to consider what happens to the funds the Sydney Catchment Authority would generate from a step price.

The Tribunal believes there may still be merit in introducing a step price structure. It intends to explore how such a structure would operate as part of a comprehensive policy to deal with Sydney's demand and supply imbalance.

6.5.1 What is a step price?

Some stakeholders have criticised Sydney Water for its inability to further curb water demand. Some have linked this inability to the pricing structures under which the agency operates. Under these structures, the more water Sydney Water sells, the higher its profits. This creates a financial incentive for it to sell more water rather than less (as is required to meet its demand management targets). This incentive is partly offset by other incentives created in its operating licence (such as those to reduce water demand) and by requirements in the Sydney Water Act for it to consider ecological sustainable development.

Under the existing arrangements, Sydney Water's demand management program costs are allowed for within its revenue requirement for price setting purposes. However, the opportunity cost of the program—that is, the cost of lost water sales revenue due to success in reducing water demand—is not. Thus, there is a financial incentive for Sydney Water to maximise water use, in contradiction to its demand management program objectives.

One way to create a financial incentive would be to introduce a step price for the bulk water the agency purchases from the Sydney Catchment Authority. With a step price, Sydney Water would pay one price for a predetermined volume of water, and a higher price (or step price) for each additional kilolitre of water it purchases over that volume (or step quantity).

A step pricing structure would allow the Tribunal to determine the opportunity cost of demand management, based on the step price that is set. It would also make Sydney Water's demand management program more cost effective, as the agency would not be allowed to pass on to customers the additional cost for bulk water it purchases over the step quantity.

In addition, the extra funds that the Sydney Catchment Authority would generate through the step price would provide it with a signal to investigate alternative approaches to increasing the supply capacity. These might include, for example, specific supply augmentation projects acknowledging the Government's policy of no new dams, or contractual arrangements with Sydney Water to fund additional demand management programs where these are cost effective. The likely additional revenue and how it should be utilised is an issue which the Tribunal believes requires further consideration.

The Tribunal notes that a step price would provide a financial incentive for Sydney Water to invest in further demand management programs. How strong that incentive is would depend on what step price the Tribunal sets. Increasing the step price would make it appropriate for Sydney Water to increase the amount it invests in demand management – but it would not provide an incentive to implement demand management projects that cost more than the step in pricing.

Although, the step pricing structure merits detailed consideration, the Tribunal notes that there are a number of outstanding issues requiring further consideration. Potentially, a step price structure would substantially shift revenue from Sydney Water to the Catchment Authority. This could have serious implication for the financial viability of Sydney Water given its need to both service debt and fund a large capital improvement program. In addition, there is limited value in creating a strong financial incentive to pursue demand management at a higher rate than is effectively achievable.

The Tribunal is also concerned that a step pricing mechanism which effectively ensures Sydney Water's fixed costs are fully funded by water sales up to the step point (with only marginal costs met beyond that point) will undermine the approach to incentive regulation the Tribunal is currently pursuing. This form of regulation has been critical to securing significant efficiency gains by regulated businesses over the past decade.

In their submissions to the Tribunal's price review, Sydney Water and the Sydney Catchment Authority both argued that there was insufficient information on which to base the introduction of a step price available for this price review. The Total Environment Centre and Nature Conservation Council argued differently, claiming that a step price mechanism was urgently needed to remove the perverse financial incentives for Sydney Water to sell more water.

The Tribunal while supportive of the step pricing concept, also recognises the limitations inherent in such a framework as the current financial incentive is probably not the only impediment to Sydney Water reducing demand. Many of the factors which generate demand for water are outside the control of Sydney Water such that removing the financial incentive for Sydney Water to increase water sales may only have a limited effect. These factors include population growth, climatic conditions, urban design, planning and technological development. These different drivers for demand are likely to require integrated activity from a whole of Government perspective, as currently mooted by the Water CEO's Taskforce. Step pricing is unlikely to be a panacea to the problem of the demand supply balance, however it may well be a useful tool within an overall suite of options.

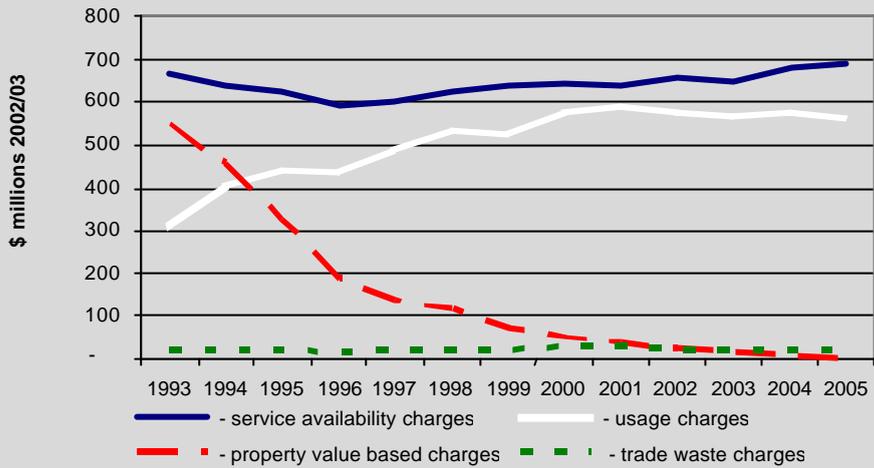
Given these difficulties, the Tribunal has decided that it needs to undertake further work to better understand the incentives that would be created for Sydney Water by implementing a step price for bulk water, and will reconsider this issue at the 2005 review.

Box 4 Historical water, wastewater and stormwater charges

Since its establishment in 1991, the Tribunal has been actively working to achieve efficient prices for Sydney Water, that reflect its costs and provide appropriate incentives. This has led to more revenue being generated by water usage charges and less revenue being generated by property value based charges (Figure 7.1).

In 2002, 36.8 per cent of total regulated revenue was based on water usage charges, and the remainder was based on fixed charges. As a result of the Tribunal's pricing decisions, the proportion of revenue earned from usage charges is expected to increase to 37.4 per cent.

Figure 7.1: Revenue from tariffs and charges



7 SUMMARY OF PRICING DECISIONS

The Tribunal has considered in depth the proposals made by Sydney Water regarding prices for water, wastewater and stormwater services for the period 1 July 2003 to 30 June 2005. The Tribunal has decided to, on average, maintain prices in real terms in both 2003/04 and 2004/05. This is inline with Sydney Water's proposal of CPI increases in each of 2003/04 and 2004/05.

In making its pricing decisions, the Tribunal has:

- Increased the water usage charge but decreased water fixed charges
- Maintained wastewater fixed charges, and removed all property based charges.
- Maintained stormwater fixed charges and removed all property based charges for stormwater.
- Set charges for recycled water and river management services within the Rouse Hill development area, that will increase by the CPI over the two years
- Accepted Sydney Water's proposals for trade waste charging reforms, including a CPI increase over the two year period and restructuring pricing arrangements.
- Maintained miscellaneous charges in line with the consumer price index
- Decided to set a methodology for the charging for minor service extensions, once a property has been assessed by the EPA as part of the backlog sewerage determination
- Rejected Sydney Water's proposals to alter the applicability of the Blue Mountains septic pump out charges.

This chapter provides an overview of the Tribunal's pricing decisions.

7.1 Water charges

Decision 1: The Tribunal decided to set maximum water charges in 2003/04 and 2004/05 as set out in Table 7.1.

Table 7.1 Sydney Water's current and Tribunal determined water charges

	2002/03	2003/04	2004/05
Usage charge (\$ per kL)	0.94	0.98	0.98 x (1.01+ΔCPI)
Service charge (\$ per annum)*	75.00	76.55	76.55 x (0.99+ΔCPI)

* The water service charge is based on the size of the meter connection to the property. This charge is calculated for a 20mm connection.

The Tribunal's decision is in contrast to Sydney Water's proposal which was to increase prices for both water usage and service charges in 2003/04 and 2004/05 at the rate of increase in inflation. This would have led to water usage prices increasing to \$0.97 per kilolitre, and service charges to \$77.33 per annum. The reasons for this decision are outlined in sections 5.1 and 6.2.

7.2 Wastewater charges

Decision 2: The Tribunal decided to set wastewater service charges as set out in Table 7.2.

Table 7.2 Sydney Water's current and Tribunal determined wastewater charges

	2002/03	2003/04	2004/05
Wastewater service charge (\$ per annum)*	328.36	338.54	338.54 x (1+ΔCPI)
Wastewater usage charge (\$ per kL)**	1.09	1.12	1.12 x (1+ΔCPI)
Wastewater property based charge (\$)**	0.0038 x (AAV - 2500)	0.002 x (AAV - 2500)	0

* Based on 20mm wastewater service connection.

** Applicable to non-residential properties only.

Note: AAV is the assessed annual value of the property in dollars.

These charges are in line with the charges proposed by Sydney Water in its submission except for the property based charge which the Tribunal decided to eliminate in 2004/05. For a detailed discussion of the reasons for the removal of property based charges, see section 7.4 below.

7.3 Stormwater charges

Decision 3: The Tribunal decided to set maximum stormwater charges as set out in Table 7.3.

The Tribunal has been concerned for some time about the allocation of responsibilities for stormwater within the Sydney region, which it believes has led to less than ideal stormwater management. At the last price determination for Sydney Water, it provided more revenue than was requested by Sydney Water for the provision of stormwater services. The Tribunal is concerned that looking back at stormwater expenditure over the past three years, Sydney Water has spent significantly less than the amount allocated. It allowed approximately \$15 million per annum capital expenditure on average for each year of the price period, while Sydney Water spent approximately \$10 million each year. This reflects in part the uncertainty around the institutional arrangements for stormwater in Sydney.

Given that these arrangements are currently under review, the Tribunal does not see any benefit in further significantly increasing stormwater prices and revenue at this stage. However, it believes that these arrangements and the responsibilities for stormwater responsibilities management need to be clarified as a matter of urgency.

Table 7.3 Sydney Water's current and Tribunal determined stormwater charges

	2002/03	2003/04	2004/05
Residential service charge (\$ per annum)	23.72	24.46	24.46 x (1+ΔCPI)
Non-residential service charge (\$ per annum)	66.92	68.99	68.99 x (1+ΔCPI)
Property based charge (\$ per annum)*	0.0034 x (AAV - 2500)	0.0018 x (AAV - 2500)	0

* Applicable to non-residential properties only.

Note: AAV is the assessed annual value of the property in dollars.

7.4 Removal of property based charges

Decision 4: The Tribunal decided to reduce stormwater and wastewater property based charges by 50 per cent in 2003/04 and eliminate these charges in 2004/05.

In line with the COAG water pricing principles, the Tribunal has decided to phase out all Sydney Water's property value based charges. Currently, property value based charges are levied on non-residential wastewater and stormwater customers, and are calculated based on the assessed annual value (AAV). The charges will be halved in the first year of the price path, and eliminated entirely in the second. The impact of this decision on Sydney Water will be offset by expected efficiency gains within the provision of stormwater and wastewater services over the period of the determination.

7.5 Charges for additional services in Rouse Hill

Decision 5: The Tribunal has decided to set recycled water and river management charges as set out in Tables 7.4, 7.5 and 7.6.

Sydney Water customers in the Rouse Hill development area receive two additional services to other Sydney Water customers – access to recycled water and river management services. The benefits of access to recycled water have been highlighted in recent months, when voluntary restrictions on using potable water were in place, these residents could use recycled water use without restrictions.

Table 7.4 Recycled water usage charge

	2002/03 \$/kL	2003/04 \$/kL	2004/05 \$/kL
Recycled water usage charge	0.275	0.28	\$0.28 x (1+ΔCPI)

Table 7.5 Recycled Water Service Access Charge

Access to Recycled Water (\$) (nominal diameter of pipe)	2002/03	2003/04	2004/05
20mm	23.40	24.13	24.13 x (1+ΔCPI)
25mm	36.56	37.70	37.70 x (1+ΔCPI)
30mm	52.65	54.28	54.28 x (1+ΔCPI)
32mm	59.90	61.76	61.76 x (1+ΔCPI)
40mm	93.60	96.50	96.50 x (1+ΔCPI)
50mm	146.25	150.78	150.78 x (1+ΔCPI)
80mm	374.40	386.01	386.01 x (1+ΔCPI)
100mm	585.00	603.14	603.14 x (1+ΔCPI)
150mm	1316.25	1357.05	1357.05 x (1+ΔCPI)
200mm	2340.00	2412.54	2412.54 x (1+ΔCPI)
> 200mm	(nominal diameter) ² x 23.40/400	((nominal diameter) ² x 24.13/400)	((nominal diameter) ² x 24.13/400) x (1+ΔCPI)

Table 7.6 Residential River Management Charges

	2002/03 \$	2003/04 \$	2004/05 \$
Drainage base charge for land \leq 1000m ²	99.80	102.89	102.89 x (1+ Δ CPI)
Drainage base charge for land > 1000m ²	99.80*((land area m ²)/1000)	102.89*((land area m ²)/1000)	102.89*((land area m ²)/1000)*(1+ Δ CPI)

7.6 Trade waste charges

Decision 6: The Tribunal decided to accept Sydney Water's proposal for trade waste charging, with an added provision that requires Sydney Water to inform the Tribunal when a substances' threat level is changed, and provide justification for that change.

Sydney Water proposed substantial changes to the existing approach for charging for trade waste services. The changes were designed to simplify the basis for charging for these services, and provide Sydney Water with greater flexibility in charging to allow it to respond to changes within the trade waste system.

The key elements of this proposal were as follows:

- introducing online monitoring for industrial trade waste customers and direct electronic reporting with associated cost savings being passed through to customers through reduced charges
- adding sulphate as a domestic substance, with an acceptance standard of 50mg/litre
- introducing charges for non-domestic substances on the basis of assigned threat levels, with prices being set for each threat level
- including petroleum hydrocarbons (flammable) and total dissolved solids (for systems where effluent reuse is being considered) as non-domestic substances
- simplifying quality charges for commercial processes on the basis of charging codes, so that each process is assigned a charging code, and the Tribunal sets prices for each charging code.

The Tribunal engaged GHD Ltd to review Sydney Water's trade waste submission and provide expert advice on the reasonableness of the proposals it included. It examined the proposed changes in trade waste charging policies against a set of criteria³⁰ for the efficient setting of trade waste prices to determine whether they were reasonable. It found that, overall, the proposed changes were reasonable and of the right order of magnitude, given Sydney Water's need to balance a considerable variety of substances in the trade waste system against ensuring the policy is simple and equitable for all customers.

Specifically, GHD found that annual administration and inspection fees were comparable to other agencies; biological oxygen demand and suspended solids charges are at the low end of an estimated fair cost³¹; and oil and grease charges are around mid range of the estimated fair cost.

³⁰ See Appendix 11 for a list of the criteria for assessment.

³¹ GHD estimated the fair cost on the basis of industry rules of thumb on the capital, operating and other costs associated with the management of trade waste.

In deciding to accept Sydney Water's proposed changes, the Tribunal has relied on the GHD's advice and balanced the needs of ensuring an appropriate and efficient trade waste pricing system with the likely impacts on customers.

7.7 Miscellaneous charges

Decision 7: The Tribunal found that there was no justification for including an allowance for a profit margin in Sydney Water's miscellaneous service charges, and that the appropriate base should recover the cost involved in delivering the service. It decided to set miscellaneous service charges as detailed in Table 27 of the Determination, to apply for the period 1 July 2003 to 30 June 2005.

The Tribunal sets miscellaneous charges for the range of ancillary services that Sydney Water provides, including special meter readings, statements of available pressure and flows and an application for water service connection. Although these services do not contribute a large proportion³² of Sydney Water's total revenue, they can be a significant cost for the customers who pay for them.

Since the last determination, the Tribunal established a working group of representatives from each of the water agencies and the Tribunal Secretariat to draw up and agree on a list of the 20 main miscellaneous services. This list formed the basis for the miscellaneous charges proposals for each of the agencies.

The Tribunal has not attempted to align the prices of each of these services across the four water agencies. This is because there may be significant cost justifications for the services being priced differently. Where prices varied substantially between the agencies, the agency was asked to provide a justification for the variation.

Sydney Water proposed that its miscellaneous charges be set on a cost recovery basis using the same formula the Tribunal used for its last determination:

$$\text{Miscellaneous charge} = \text{base cost} + \text{direct material cost} + \text{profit margin}$$

Sydney Water justified including an allowance for a profit margin in this formula on the basis that it approximated the commercial return Sydney Water would earn for delivering these services if it operated in a competitive market.

The Tribunal rejects this argument. It considers miscellaneous services to be ancillary to the core business of Sydney Water—that is, the delivery of water, wastewater and stormwater services. As a commercial rate of return is incorporated into the setting of prices for these core services, there is no need to allow a profit margin on the miscellaneous charges. This is because the profit margin associated with a return to assets is already allowed for when setting prices for core services. The inclusion of a profit margin into miscellaneous charges would increase the return to assets above that already allowed for specifically when setting core service prices. The Tribunal has therefore adjusted the miscellaneous charges proposed by Sydney Water to remove the profit margin.

³² In 2001/02, miscellaneous charges accounted for 1.8 per cent of total revenue, or approximately \$24 million.

Since the last determination, the provision of sewer service protection has become contestable. A number of other services³³ have become partially contestable. Sydney Water proposed that the Tribunal not set a fee for the fully contestable service, and the fees charged for the partially contestable services be based on inspections and auditing, rather than on the cost of Sydney Water directly delivering these services. The Tribunal has accepted both these proposals.

7.8 Minor service extension charges

Decision 8: The Tribunal decided to accept Sydney Water's proposal for a charging methodology for minor water and sewerage service extensions as outlined in Schedule 7 of the Determination, but determined that it should only apply to extensions where neither the Tribunal's Backlog Sewerage Determination (No. 4 1997) nor its Developer Charges Determination (No. 9 2000) is applicable.

Minor water and sewerage extensions are required where there are areas of Sydney's area of operations which do not currently have access to reticulated sewerage, or in some instances water services. These areas normally relate to a small number of properties, up to approximately 25 to 30. Most of these areas have not been previously assessed by the Environmental Protection Agency (EPA) or the Department of Health (Health), to allow the extension to be treated in accordance with the methodology outlined in the Tribunal's backlog sewerage determination, No. 4 of 1997.

The backlog sewerage determination outlined a methodology to apply to the provision of "backlog" sewerage services. These are extensions of sewerage services to areas within Sydney Water's area of operations that did not have access to reticulated sewerage services and for which an extension of these services would not be funded through developer charges (covered by Determination No. 9 2000).

The backlog sewerage determination provides a mechanism for limiting the costs of connection to the sewerage system to 25 per cent of the total cost (up to a maximum of \$3,000), where there are recognised significant health and environmental benefits to the broader community to be gained from the extension of sewerage services to an area. The balance of the costs of sewerage provision in these "priority sewerage" areas is to be spread across the balance of Sydney Water's customer base and collected through ordinary sewerage services.

Following the making of the backlog sewerage determination the Government decided to fund the direct customer contribution of up to \$3,000 in priority areas through a community service payment to Sydney Water.

Difficulties have arisen as some areas were not assessed as part of the backlog sewerage methodology by the EPA or Health, but customers in those locations are now seeking the construction and connection to a reticulated sewerage system.

Sydney Water propose that the Tribunal determine a pricing methodology to apply where minor extensions to water and wastewater networks are made at customers' request and the costs are to be borne by these customers. The approach proposed by Sydney Water essentially involves dividing the cost of the network extension by the number of equivalent

³³ Application for water service connection, sewer junction connection, sewer sideline connection, sewer vent shaft adjustment, and water main fitting adjustment.

domestic properties, deducting the current value of the future regular sewerage charges that will be paid by the connected customers and requiring payment of this charge on connection, whenever it occurs. The original connection costs calculated are adjusted by the consumer price index each year until the time of connection, so each property connecting to a particular service extension will pay the same price in real terms regardless of when connection occurs.

The Tribunal believes that the approach outlined in Sydney Water's proposal allows for the fair payment of connection fees for those properties that are assessed as non-priority within the backlog sewerage determination framework. The Tribunal is concerned at the application of this methodology where customers have not been given the opportunity to have their properties assessed by the EPA and Health, to determine whether they qualify as a priority area, thereby accessing Government payments for connection to the service. The application of the methodology to unassessed properties will place these customers at a significant disadvantage relative to customers whose properties were originally assessed under the backlog sewerage methodology.

The Tribunal's concerns have been discussed with Sydney Water who have undertaken to compile a list of the relevant properties and seek EPA and Health Department assessment of their priority. It is the Tribunal's view that the methodology in the attached determination should only be applied to customers once such a priority assessment has been made and the relevant areas ranked as non-priority³⁴. The only exception to this might be where the number of properties concerned is so small that assessment is impracticable.

This methodology, (Table 21 in the attached determination) may be used to calculate the contribution required to be paid for connection to a minor extension of a water or wastewater network where no other Determination of the Tribunal is applicable. The charge should be calculated at the time of infrastructure provision but is only payable at the time of connection. The calculated charge may be increased each year in line with changes in the consumer price index.

Given the Tribunal's concerns, it will review the application of this methodology by Sydney Water prior to the making of the next determination. To facilitate this, the Tribunal requires Sydney Water to provide details on an ongoing basis of each occasion when this methodology is used to calculate and/or apply a minor service extension charge. These details should include the EPA and Health's assessment of priority for the extension area, as well as a breakdown of the total costs involved.

7.9 Blue Mountain Septic pump out charges

Approximately 90 properties in the Blue Mountains area have a reticulated sewerage service available but have not connected to the system. The cost of providing the sewerage service under the Priority Sewerage Program is approximately \$20,000 per property. The Government provides \$3,000 per property from its social program funding towards this cost. This means that the only additional costs to the customer are those related to private plumbing on the property to connect to the sewerage service. In some instances in the Blue Mountains, these can be substantial.

³⁴ During the initial assessment of backlog sewerage areas, the EPA and Health assessed properties as category A, B and C. The Tribunal subsequently decided that category A and B should be considered a priority within the terms of the backlog sewerage determination, and category C as non-priority.

Given the costs associated with connection to the sewerage system, many customers have chosen not to connect and continue to utilise the septic services. The Tribunal sets a specific charge for these services in the Blue Mountains. It is currently broken into two components:

- a septic service charge per quarter
- a two-tiered usage (or pump out) charge per kilolitre (with the tier commencing at 81kL and stepping up at 100kL).

In its submission, Sydney Water claimed that the current charge was not originally based on full cost recovery and was an interim measure until sewerage services were made available under the Priority Sewerage Program (PSP). It has proposed that once these services are available to customers, then they be charged:

- the annual sewerage service charge (even if they have not been connected) and
- the actual cost of providing septic pump out services, rather than the maximum charge set by the Tribunal which is set at lower than cost.³⁵

Sydney Water argued that these proposed charges would create an incentive for customers to connect to the sewerage system under the PSP program, which has benefits for the environment compared with maintaining the existing septic system. It believes these benefits justify the Tribunal making an exception to its current approach of charging zero sewerage service charges for unconnected properties. The Tribunal's findings in relation to each of these proposals are discussed below.

7.9.1 Levying an annual sewerage charge to all properties with access to sewerage services

Finding 14: The Tribunal has decided to reject Sydney Water's proposal to levy sewerage service charges to all properties within the Blue Mountains area that have access to a reticulated sewerage system. It has decided to retain the current charges applicable to septic pump out customers.

The Tribunal's 2000 determination set a maximum charge for sewerage services to unconnected properties of zero for the length of the determination, and it has decided not to allow an exception to this general approach.

In making this decision, the Tribunal believes Sydney Water did not sufficiently justify the benefits of making an exception to the current approach for the Blue Mountains. Although it agrees that Sydney Water's proposal was likely to increase the incentive for customers to connect to the sewerage system, it felt that the benefits of this increased incentive were not sufficient for it to ignore the principle that vacant or unconnected properties should not be charged for sewerage services unless they make use of the services. It believes that other, non-pricing signals need to be found to increase this incentive.

³⁵ Sydney Water submission to 2003 review of Metropolitan water, wastewater and stormwater services, p 37.

7.9.2 Charging the actual cost of providing septic pump out services

Decision 9: The Tribunal has decided to increase the septic pump out charge to all customers in the Blue Mountains area by the change in the consumer price index in both 2003/04 and 2004/05.

Sydney Water indicated that it receives approximately \$400,000 per year in revenue from the 700 properties who utilise the pump-out service under existing prices (approximately \$570 per property). It estimates the cost of providing this service is approximately \$1 million per year (approximately \$1,500 per property). Presumably Sydney Water intends to charge the owners of the 90 properties that have access to the sewerage services but still use septic pump out services a price for these services that would enable it to recover this cost in full. This would mean charging an average of \$1,500 per property per year, which would represent a 163 per cent increase in the septic pump out charge for those 90 properties.

The Tribunal is concerned about setting a subsidised septic pump-out charge for some customers, and a full cost recovery price for customers who have access to the sewerage system, but who remain unconnected. It has therefore decided to increase the septic pump out charge for all customers in the Blue Mountains area in line with inflation in each year of the price period.

The Tribunal would have preferred to set septic pump-out rates at full cost recovery for this determination, but insufficient information was available for it to ensure that the social impacts on customers would not be significant. The Tribunal intends to consider increasing the septic pump out charge to enable full cost recovery at the 2005 review. It believes that if the Government considers there are grounds for this service to be subsidised, then the subsidy should take the form of a rebate to customers, paid for through a transparent community service obligation payment. The Tribunal requires Sydney Water to investigate the development of such a scheme, and to provide detailed information on the full costs of providing Blue Mountains septic pump out services at the 2005 review.

8 ISSUES ARISING FROM THIS DETERMINATION FOR SYDNEY WATER TO CONSIDER PRIOR TO THE 2005 REVIEW

The 2003 review of prices for Sydney Water's, water, wastewater and stormwater services has raised a number of broader regulatory policy issues that the Tribunal wishes to consider in more detail during the next two years, prior to the 2005 price review. The most significant of issues include:

- the approach taken to regulating capital expenditure
- developing a robust and auditable suite of service level and environmental indicators
- developing an appropriate customer preference approach to justify discretionary capital expenditure projects
- the effect of alternative pricing structures on demand
- reviewing developer charging methodology, including auditing development servicing plans and their relationship to annual charging
- providing separate usage and access billing for tenanted properties
- examining long run asset management and renewals funding.

The Tribunal hopes, that through a consultative process, it can settle its approach in each of these areas before it reviews proposals for the 2005 price review. It intends to establish a reference group that comprises representatives of each agency and other interested stakeholders, to allow the formal discussion of proposals as they are developed. Where needed, it will also release issues papers or undertake further consultation.

The Tribunal recognises that it may not be able to resolve all of these issues by the next price review, and will try to prioritise the list and tackle the most important issues first. Many of the recommendations that result from this process may, if implemented, require the water agencies to develop their information reporting capabilities. Where this is the case, the Tribunal will specifically discuss the requirements with each agency to identify how feasible meeting the information reporting needs will be.

In addition, this report has raised a number of items that the Tribunal requires Sydney Water to consider and report back on prior to the 2005 price review. These include:

- the reasons or justifications for its large corporate overhead costs compared to those of similar water agencies
- the costs of and other impediments to implementing direct billing for tenants
- the development of consistent recycled water pricing principles
- the development of an environment-related capital expenditure reporting approach, to ensure that the Tribunal's information needs are met for these projects at the next price review, including customer preference testing
- the development of an approach to ensure that proposed growth capital expenditure is consistent with capital projects contained within the development service area plans
- the development of robust asset management planning processes to justify capital expenditure projects and demonstrate that sufficient expenditure is being made on essential infrastructure renewals and maintenance

- the development of a consistent definition of what constitutes a customer for the purposes of charging where there are multiple dwellings within a single space
- the development of a rebate scheme for customers of the Blue Mountains septic pump out service, and the identification of the full costs associated with delivering the service.

GLOSSARY

AAV	Assessed annual value
CPI	Consumer price index
EPA	Environment Protection Authority of NSW
Halcrow	Halcrow Pacific Pty Ltd
IPART	Independent Pricing and Regulatory Tribunal of New South Wales
IPART Act	<i>Independent Pricing and Regulatory Tribunal Act, 1992</i>
kL	Kilolitre (1000 litres)
STP	Sewerage treatment plant
Sydney Water	Sydney Water Corporation
Tribunal	Independent Pricing and Regulatory Tribunal
WACC	Weighted average cost of capital

APPENDIX 1 LIST OF SUBMISSIONS

Submissions in relation to the Issues Paper of June 2002

Australian Water Association
Central Coast Community Environment Network
Colong Foundation for Wilderness
Economic Planning Advocacy
Environment Protection Agency of New South Wales
Energy and Water Ombudsman
Gosford City Council
Gosford Wyong Joint Water Authority
Hornsby Shire Council
Department of Housing
Hunter Water Corporation
Incitec Pty Ltd
National Standards Commission
Nature Conservation Council of New South Wales
National Parks and Wildlife Service of New South Wales
Public Interest Advocacy Centre
Stormwater Industry Association
Sydney Catchment Authority
Sydney Water Corporation
Total Environment Centre
Urban Development Institute of Australia
Warringah Council
Wingecarribee Shire Council
Wyong Shire Council

Mr R Banyard
Mr F Keep
Mr Walter Wood

APPENDIX 2 PRESENTERS AT THE PUBLIC HEARING

The list of presenters at the public hearing on 28 November 2002 were:

Mr Richard Warner, Sydney Catchment Authority

Mr John Kitney, Sydney Water Corporation

Mr Ron Quill, Sydney Water Corporation

Mr Paul Freeman, Sydney Water Corporation

Mr Simon Smith, Environment Protection Authority

Mr Leigh Martin, Total Environment Centre

Mr Peter Prineas, Nature Conservation Council of NSW

Mr Jim Wellsmore, Public Interest Advocacy Centre

Mr John Wood, Stormwater Industry Association of NSW

Mr Peter Price, Urban Development Institute of Australia

Mr Laurie Rose, Urban Development Institute of Australia

Ms Beryl Jamieson, Department of Housing

Mr Tony Deane, Department of Housing

APPENDIX 3 IPART ACT REQUIREMENTS

Section 15 of the IPART Act 1992 details the matters to be considered by the Tribunal when making a determination. The section is reproduced in full below.

15 Matters to be considered by Tribunal under this Act

(1) In making determinations and recommendations under this Act, the Tribunal is to have regard to the following matters (in addition to any other matters the Tribunal considers relevant):

- (a) the cost of providing the services concerned,
- (b) the protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standard of services,
- (c) the appropriate rate of return on public sector assets, including appropriate payment of dividends to the Government for the benefit of the people of New South Wales,
- (d) the effect on general price inflation over the medium term,
- (e) the need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers,
- (f) the need to maintain ecologically sustainable development (within the meaning of section 6 of the [Protection of the Environment Administration Act 1991](#)) by appropriate pricing policies that take account of all the feasible options available to protect the environment,
- (g) the impact on pricing policies of borrowing, capital and dividend requirements of the government agency concerned and, in particular, the impact of any need to renew or increase relevant assets,
- (h) the impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body,
- (i) the need to promote competition in the supply of the services concerned,
- (j) considerations of demand management (including levels of demand) and least cost planning,
- (k) the social impact of the determinations and recommendations,
- (l) standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise).

(2) In any report of a determination or recommendation made by the Tribunal under this Act, the Tribunal must indicate what regard it has had to the matters set out in subsection (1) in reaching that determination or recommendation.

(3) To remove any doubt, it is declared that this section does not apply to the Tribunal in the exercise of any of its functions under section 12A.

(4) This section does not apply to the Tribunal in the exercise of any of its functions under section 11 (3).

Table A3.1 indicates where the matters have been considered throughout the report by the Tribunal in making this determination.

Table A3.1 Consideration of section 15 matters by Tribunal for Sydney Water determination

Section 15(1)	Report reference
(a) cost of providing the service	Sections 4.2 and 4.3
(b) protection of consumers from abuse of monopoly power	Sections 5.2, 5.3, 5.4, 6.4 and 7.6
(c) appropriate rate of return and dividends	Sections 4.4.1, 4.4.2 and 4.4.3
(d) affect on general price inflation	Section 5.1
(e) improved efficiency in supply of services	Sections 4.2, 4.3 and 4.5
(f) ecologically sustainable development	Section 6
(g) impact on borrowing, capital and dividend requirements	Section 4.4
(h) additional pricing policies	Section 6.4
(i) need to promote competition	Sections 7.6, 7.7, 7.8 and 7.9
(j) considerations of demand management	Section 6.3
(k) the social impact on customers	Section 5
(l) standards of quality, reliability and safety of the services	Section 5.4

Section 16 requirements

Section 16 of the IPART Act requires the Tribunal to report on the likely impact to the Consolidated Fund if the price was not increased to the maximum permitted.

As a result of this determination, revenue in 2003/04 is expected to increase for Sydney Water by \$46 million and a further \$32 million in 2004/05 compared with 2002/03 levels in nominal terms (assuming 3.1 per cent and 3 per cent inflation in each of 2003/04 respectively). If the price was set below the maximum allowable under this determination, then the level of dividends paid to the Consolidated Fund would fall. The extent of this fall would depend on Treasury's application of its financial distribution policy and how the change affects pre-tax profit.

The Tribunal's financial modelling projects tax equivalent and dividend payments at 70 per cent of pre tax profit. Every one dollar decline in pre-tax profit would result in a loss of revenue to the consolidated fund of 70 cents.

APPENDIX 4 BUILDING BLOCK METHODOLOGY AND INCENTIVE REGULATION USING $CPI \pm X$

Building Block Methodology

The Tribunal has adopted a building block approach to calculate the revenue requirement of the metropolitan water agencies. The revenue requirement for a particular year in the price path can then be expressed as:

$$\text{Revenue Requirement} = \text{Operating Expenditure} + \text{Depreciation} + \text{Return on Assets}$$

The return on assets can be further broken down into:

$$\text{Return on Assets} = \text{Rate of Return} \times \text{Regulatory Asset Base}$$

Each element of the building block revenue requirement is considered in detail below.

Operating expenditure

Operating expenditure is determined by reviewing the proposals of the water agency to determine what an efficiently operating business could be expected to need to operate the business effectively, without compromising service quality.

For this review, Halcrow was engaged to review operating expenditure for efficiency, which was a key input to the Tribunal's operating expenditure allowance decision. Halcrow's approach to reviewing operating expenditure involved starting with a base year (2001/02) actual operating expenditure. Efficient operating expenditure in subsequent years was calculated by increasing base year operating expenditure for reasonable uncontrollable cost rises, such as real wage increases, electricity cost rise, growth allowances, while assuming a degree of efficiency attainment by the business during the same period. The subsequent operating expenditure was Halcrow's view as to what an efficiently run water business in Sydney Water's position could be expected to operate the business for.

On the basis of Halcrow's review and comments by the agency, the Tribunal decided upon an allowance for operating expenditure for the periods of the price review.

Capital Maintenance

An allowance is made for capital maintenance, also referred to as depreciation, recognising that during the provision of services to customers, the water agencies capital infrastructure will wear out. An efficiently operating water business will therefore allow for the cost of maintaining the financial capital base within current revenue requirements.

Capital maintenance is calculated on a straight line basis, over the average life of the assets. This means that the total value of the regulatory asset base is recovered within that period, which is assumed to be 70 years for water assets.

It is the combination of an allowance for capital maintenance, and a return of assets which ensures that the existing investment in the water business is maintained in perpetuity.

Return on assets

The return on assets is an allowance for a return to the capital investor in the water business. It ensures that efficient investment in capital continues into the future for the maintenance and growth of the infrastructure system.

It is calculated as a percentage of the regulated asset base, reflecting a commercial return to the financial assets of the business. All new investment is rolled into the regulatory asset base resulting in it earning a commercial rate of return, set by the Tribunal. The rate of return is determined with reference to the weighted average cost of capital – a measure of the cost to the business for investing in capital.

The building block methodology is an important part of the Tribunal's considerations when determining prices for the regulated agencies. However, it is not used in isolation from the exercise of the Tribunal's regulatory judgement, and may be modified reflecting the Tribunal's considerations of the social or environmental impacts of its pricing decisions.

Incentive regulation using CPI±X

The determination of the revenue requirement using the building block methodology gives the Tribunal an indication of the amount of revenue which an efficiently operated water business requires. An important part of regulation however, is to encourage the regulated water businesses to achieve the efficiency targets implied in the building block approach. This is what is known as incentive regulation, and the Tribunal's preferred approach is the use of CPI±X.

CPI±X means that once the revenue requirement is determined within a year, subsequent years prices are increased by general price inflation measured by the CPI index, modified by an X factor. The X factor represents positive or negative adjustments to prices, above or below general price rises.

The CPI±X approach provides an incentive to the business to pursue efficiencies because for the regulatory period they retain the benefits in full of any efficiency gains through higher profits (compared to their profits if they had not achieved these efficiencies). If the agency betters the efficiency target allowed in the revenue build-up, actual profits will be higher than the rate of return allowed in the revenue build-up. If the agency does not achieve the expected efficiency improvements the reverse applies.

It is through the separation of actual revenues from actual costs and profits once the CPI±X price path has been set that provides the incentives for the achievement of efficiency improvements in the delivery of the business' services to customers.

APPENDIX 5 PROVISION OF SUFFICIENT REVENUE FOR ESSENTIAL RENEWALS AND MAINTENANCE EXPENDITURE

The provision of infrastructure by regulated utilities, especially for water, electricity, gas and rail transport, is an integral part of the delivery of these services to customers. Infrastructure related costs account for a large proportion of the total annual costs for delivery of these services.

IPART, like many price regulators, allows funding of infrastructure related costs through its use of the building block revenue approach to calculating the revenue requirements of regulated utilities. Any annual operating costs relating to infrastructure, for example repairs and maintenance, is allowed for directly in the building block revenue. Capital expenditure to replace worn out infrastructure and due to an increase in customers is funded through an allowance for capital maintenance (depreciation) and a return on capital. This is calculated indirectly as capital expenditure is included in the regulatory asset base (RAB) which subsequently earns a rate of return and is depreciated.³⁶

While this existing approach ensures that sufficient revenue is provided to fund capital expenditure and ongoing infrastructure operating expenditure, it relies on a number of key assumptions which have implications for the operation of the regulated utility.

First, it assumes that the utility can fund capital expenditure through debt or equity financing. Once the capital expenditure has been incurred, by inclusion in the regulatory asset base, it attracts a rate of return and is depreciated which should provide sufficient revenue to pay any debt or equity financing costs.

The ability of the utility to fund capital expenditure, through debt financing especially, depends on its overall financial viability and cash flow. If debt levels are already high, then the utility's inability to debt finance may become a limiting factor to the provision of infrastructure especially when unexpected capital expenditure is required to maintain the system. In a workably competitive market, it would be expected that in these circumstances the injection of additional equity from the owners may be required. For a regulated business, the regulator may also need to consider whether a temporary increase in prices to increase cash flows is appropriate.

Second, the building block approach to funding capital expenditure relies on an estimate of the average asset life of the assets. To the extent that this estimate is incorrect, then revenue shortfalls could occur unless significant price increases are allowed. For this reason the Tribunal uses conservative average asset lives of 70 years for water infrastructure. As the actual average asset life of these assets are likely to be well in excess of 70 years, the existing approach should amply provide for asset replacement.

Third, the utility may reduce investment in renewing infrastructure or reduce expenditure in essential repairs and maintenance, as an easy short term way of achieving cost efficiencies. The regulatory approach assumes that the utilities' capital expenditure priority setting process and operating budget allocation process assesses the risk to the business of reducing renewals related expenditure to achieve cost savings. To the extent that these risks

³⁶ See Appendix 4 for further details on the building block approach and incentive regulation.

are not considered by the business when reducing renewals expenditure, this may lead to problems in the medium to long term.

Finally, there appears to be general concern amongst regulated utilities about the need to fund renewals capital expenditure through existing depreciation allowances, reflecting an adversity to debt or equity finance renewals capital expenditure. As depreciation reflects past capital expenditure - many of which have been considered sunk costs by regulators - it need not equal current renewals capital expenditure requirements. Looking forward however, future renewals capital expenditure will be funded through depreciation allowances for the life of these new replacement assets rendering any comparisons with current depreciation allowances of limited value.

The validity of each of these assumptions can affect the regulated utilities ability to in practice ensure the continued maintenance of the infrastructure of their businesses. Where the availability of capital is limited, there is considerable uncertainty surrounding asset lives and where the business culture results in efficiency gains resulting in a reduction in expenditure on key repairs and maintenance then infrastructure may not be properly maintained.

The impact of regulation on the provision of sufficient revenue is of critical concern to the Tribunal. Assessing the use of asset management plans will increasingly become an approach adopted by the Tribunal to address this concern at future price reviews.

APPENDIX 6 REGULATORY ASSET BASE AND RATE OF RETURN

FORECAST REVENUE REQUIREMENTS (pre-tax and excluding capital contributions and unregulated income)

COMBINED BUSINESS (\$ millions, nominal)

Financial year ending 30 June	2000	2001	2002	2003	2004	2005
Opening fixed asset value	-	5,315	5,911	6,465	7,005	7,558
plus net capital expenditure(1)	-	371	493	462	458	454
less disposals	-	(21)	(28)	(24)	(24)	-
less depreciation	-	(82)	(89)	(98)	(105)	(113)
plus indexation	-	328	176	200	224	234
Closing fixed asset value	5,315	5,911	6,463	7,005	7,558	8,133
Working capital (closing balance)	191	194	209	211	215	222
Total regulatory asset base	5,506	6,105	6,672	7,216	7,773	8,354
Operating expenditure	773	763	821	785	798	810
Depreciation	75	84	91	98	105	113
Expected return on assets	332	392	364	425	451	462
Expected revenue	1,180	1,239	1,276	1,308	1,354	1,386
<i>Indexation of working capital</i> ²	4.4	11.5	5.8	6.3	6.6	6.557
Return on assets (% , real pre-tax) ^{2,3}	nc	6.6%	5.6%	6.0%	5.9%	5.6%

Notes:

1. Net capital expenditure is capital expenditure net of all capital contributions.
2. The indexation of working capital (\$ value) is subtracted from the total expected return on assets to calculate the real return.
The opening balance plus half of the change during the year is indexed, if working capital is included in the RAB.
3. The real return on assets is calculated on the average asset base for the year.

What is the regulatory asset base, and how is it rolled forward?

The regulatory asset base (RAB) is a measure of the financial value invested in the water business and bears no relationship to the value of the physical assets. It represents the value a market would place on the business if it was to be sold, given its potential to earn revenue and profits under existing prices.

The RAB exists as the basis for determining the return of and on capital in the revenue requirement calculation based on the building block approach. The reason for adopting a financial capital base for regulatory purposes is to ensure that an appropriate rate of return is given to the shareholder's investment in the business. It also ensures that efficient investment is made in the refurbishment and enhancement of existing assets, by allowing new financial investment to attract a commercial rate of return, reflecting risks associated with the business.

The regulatory asset base is rolled forward by adding new, prudent capital expenditure from the closing value of the previous year. The RAB is modified to account for inflation, disposal of assets and depreciation.

APPENDIX 7 WEIGHTED AVERAGE COST OF CAPITAL PARAMETERS

The parameters used to generate the weighted average cost of capital for all metropolitan water agencies, are presented in table A7.1 below.

Table A7.1 Parameters used to generate the weighted average cost of capital

Parameter	Value
Nominal risk free rate	5.1% ¹
Real risk-free rate	2.9%
Inflation	2.2% ²
Market risk premium	5 - 6%
Debt margin	0.7 - 1%
Debt to total assets	60%
Dividend imputation factor (Gamma)	0.5 - 0.3
Tax rate	30%
Asset Beta	0.3 - 0.45
Debt Beta	0.06 - 0.14
Equity Beta	0.65 - 0.90
Cost of equity (nominal post tax)	8.4 - 10.5%
Cost of debt (nominal pre tax)	5.8 - 6.1%
WACC (nominal post tax)	5.2 - 6.3%
WACC (real post tax)	3.0 - 4.1%
WACC (real pre tax)	5.2 - 6.7%

1. The nominal risk free rate is based on 20 days average of the 10 year Commonwealth bond rate up to 15 April 2003.

2. The inflation rate used in the WACC calculation is based on observed differences in nominal and real 10 year bond rate indexes. These differences reflect market expectations of the long term inflation rate.

The Tribunal reviewed its methodology for calculating the WACC range in 2002, and sought stakeholder comments on whether the WACC range should be presented in real or nominal terms - pre or post-tax. Additionally, it considered the advantages and disadvantages of using a statutory or effective tax rate.³⁷

As the regulatory asset base is rolled forward in real terms, it is appropriate to report the WACC in real terms. Additionally, for consistency with previous water price determinations, the Tribunal has maintained the pre-tax WACC range, using a statutory tax rate for this price review.

The Tribunal has reviewed the WACC parameters used at the 2000 determination. This has resulted in a reduction in the upper bound of the equity beta to 0.9, reflecting a view that water utilities in general are likely to have lower than market risk characteristics. Additionally, the lower bound of the debt margin was reduced to 0.7, reflecting information on the debt margins charged by Treasury Corporation to the Government owned water businesses.

³⁷ For details of the alternative approaches see the Tribunal's discussion paper, *Weighted Average Cost of Capital*, DP56, August 2002.

The Tribunal is undertaking a comprehensive review of all of the parameters used to calculate the WACC range prior to the forthcoming distribution network service price review. This is expected to lead to additional revisions to the WACC parameters, and these will form the basis of a metropolitan water WACC range for the next price determination.

The combined impact of these parameter changes, including an update of the long term market inflation rate and 20 day average 10 year bond rate, resulted in the WACC range being 5.2 to 6.7 per cent.

APPENDIX 8 FINANCIAL VIABILITY AND CREDIT RATINGS

	2001/02	2002/03	2003/04	2004/05
Ability to service debt				
1. EBITDA interest cover	3.39	3.71	3.60	3.33
NSW Treasury ratings (2002)	A+	AA	AA	A+
2. Funds from operations interest coverage	4.61	4.30	4.07	3.30
Standard and Poors US ratings (1995)	AA	AA	AA	AA
3. Pre-tax interest coverage	2.11	2.33	2.33	2.13
Standard and Poors US ratings (1995)	BBB	A	A	BBB
Ability to repay debt				
4. Funds flow net debt payback	3.39	3.61	3.66	3.99
NSW Treasury ratings (2002)	AA	A+	A+	A+
5. Funds from operations/total debt (%)	0.16	0.16	0.15	0.10
Standard and Poors US ratings (1995)	A	A	BBB	BBB
6. Debt gearing (regulatory value)	0.30	0.31	0.31	0.32
NSW Treasury ratings (2002)	AA+	AA+	AA+	AA+
Standard and Poors US ratings (1995)	AA	AA	AA	AA
Ability to finance investment from internal sources				
7. Internal financing ratio	0.13	0.38	0.40	0.37
NSW Treasury ratings (2002)	B	B	B+	B
8. Net cash flow/capital expenditure (%)	0.58	0.57	0.59	0.36
Standard and Poors US ratings (1995)	BBB	BBB	BBB	BBB
NSW Treasury overall score and rating				
NSW Treasury total score (0-10)	6.00	6.00	6.25	5.75
Overall rating	A	A	A	BBB+
9. Net debt (\$m)	2025	2219	2405	2697

Notes:

- (i) The Tribunal particularly relies on indicators based on cash flows because these are not as subjective as indicators that use components derived from estimates (eg asset value and depreciation).
- (ii) The information in this table should be read and understood only after reviewing Appendix 9 and the explanations and qualifications mentioned there.

1. EBITDA interest cover	(EBITDA excl capital contributions)/ net interest
2. Funds from operations interest coverage	(Pre-tax funds flow + net interest) / (net interest)
3. Pre-tax interest coverage	(EBIT - capital contributions) / net interest
4. Funds flow net debt payback	(Debt - cash assets) / (NPAT + depreciation + tax expense - tax paid)
5. Funds from operations/total debt (%)	see note below for definition of funds from operations
6. Debt gearing (regulatory value)	(Debt - cash assets) / (regulatory value of fixed assets + working capital)
7. Internal financing ratio	(NPAT - cap cons + depreciation - dividends payable) / net capex
8. Net cash flow/capital expenditure (%)	(Funds from operations - dividends) / (capex net of capital contributions)
9. Net debt	Total debt less cash, short-term and long-term investments

APPENDIX 9 FINANCIAL INDICATORS

The indicators of financial performance include notional credit ratings of regulated businesses. Indicative benchmarks supplied by Standard and Poor's (S&P) ratings group that are published from time to time³⁸ are used to estimate these ratings. The indicative ratios are used by S&P as one of its analytical tools in setting overall ratings, and the Tribunal uses the indicators in a similar manner, ie as part of the overall financial analysis of the regulated business. The overall ratings that have been or may be derived by S&P for a business cannot be derived from simple inspection of these ratios.

Indicative ratios for each ratio for each year during the medium term price paths set in 2000 were published in the Tribunal's Determinations for each of the regulated water businesses. In Tables 3.2 and 5.3, the Tribunal has

- calculated various financial ratios for the one year of results considered in this report in accordance with the methodologies used by S&P and
- indicated the rating applicable for each ratio based on the bands published by S&P.

The calculation and assessments are those of the Tribunal and not S&P.

The actual rating process used by S&P is very broad, involving subjective judgements of industry risk and cost structures, not just financial ratios. S&P use both qualitative and quantitative analyses in determining an entity's rating. The ratios used by the Tribunal in its financial analysis are part of the latter - they should be used as a guide rather than as blanket reasons for giving a certain rating. The overall ratings that have been or may be derived by S&P for a business cannot be derived from simple inspection of these ratios.

S&P divide its analysis into:

- business risk - including market position, technology, efficiency and management capabilities, the prospects for growth in the industry, and vulnerability to technological changes or labour unrest or regulatory changes and
- financial risk - looking at financial management policies, cash flow protection, capital structure and profitability.

S&P's analysis incorporates an evaluation of a company's business and financial risks. In its guideline ratios, S&P provided financial indicator ranges for each of 'above average' business position, 'average' business position and 'below average' business position. During the analysis undertaken in 2000 as part of the determination process, the Tribunal decided that each of the regulated water businesses had an 'excellent' risk profile.

³⁸ Two sets of ratios have been used, for consistency with the financial analysis undertaken by the Tribunal during the 2000 determination process. The 'NSW Treasury Rating' indicators are from *The Capital Structure for NSW Government Trading Enterprises* report produced in August 1994 by NSW Treasury as part of its financial policy framework for GTEs, and are based on ratios provided to Treasury by S&P. The "S&P" criteria are from S&P's Corporate Finance Criteria for 1995.

An acceptable range of financial ratios for each rating category will differ from time to time according to the unique characteristics of the business. There may not be a perfect match between the ratios and the indicator rating; the ratios represent midpoints of ranges, and vary during an investment cycle, particularly the internal financing ratio. In addition, S&P's credit ratings are prospective, with ratings reflective of a company's expected financial profile. For this reason, the ratings indicated by the ratios for each of the regulated businesses based on one year's financial results may not be the same as the actual rating given by S&P.

APPENDIX 10 COMPARISON STATISTICS FOR KEY FINANCIAL AND PERFORMANCE DATA FOR METROPOLITAN WATER AGENCIES

The information following is for the period up to 30 June 2002 and is mainly taken from Annual Information Returns provided by the water agencies (Gosford City Council, Hunter Water Corporation, Sydney Water Corporation, Wyong Shire Council) to the Tribunal. Wherever possible, the information relates to the monopoly elements of each water business. Although the Tribunal regulates the Sydney Catchment Authority, this attachment does not analyse the Authority's performance. The Authority is a bulk supplier of water to Sydney Water without the large retail customer base of the four water retailers. These differences make performance comparisons inappropriate.

The four retail water agencies are similar in that they provide water, wastewater and stormwater services to large numbers of retail customers. However they vary in their size and in their operating environments and this can often explain differences in individual performance. Table A10.1 below provides an insight into those variations. When setting prices, of particular interest is the two corporations' obligation to pay tax equivalents and dividends and to have Operating Licences with the State Government. The licences are regulated by the Tribunal. While the councils currently do not pay tax equivalents or dividends, legislation has been proposed which, if passed, will allow the water business area of local councils to pay dividends to the general council area. This may affect prices in future determinations.

Sydney Water differs in one important respect to the other three water retailers. While Hunter Water, Gosford Council and Wyong Council are responsible for their own bulk water supplies, Sydney Water purchases water in bulk from the Sydney Catchment Authority. The creation of the Catchment Authority has influenced the trend in Sydney Water's costs since 2000. The cost of supplying bulk water has increased because the Authority is required to perform a greater range of activities in the catchment area than Sydney Water did when it had that responsibility.

Table A10.1 Agency characteristics (for 2001/02)

	Gosford	Hunter	Sydney	Wyong
Operating area (kms ²)	1,028	5,400	13,000	827
Number of residential customers/properties	60,000	195,000	1,526,000	53,000
Number of employees	161	526	3,556	157
Metered consumption (GLs)	16	62	535	15
Gross tariff revenue (\$million)	39	115	1,247	35
Dividend/tax payments?	No	Yes	Yes	No
Operating licence?	No	Yes	Yes	No

PRICING

Figure A10.1 shows the change in the combined water and wastewater bill for a residential customer consuming 250kL per annum. The elimination of property based charges has heavily influenced the reductions in bills, while the wastewater portion of bills has reduced more than the water portion.

Figure A10.1 Residential water and wastewater bills (250kL consumption)

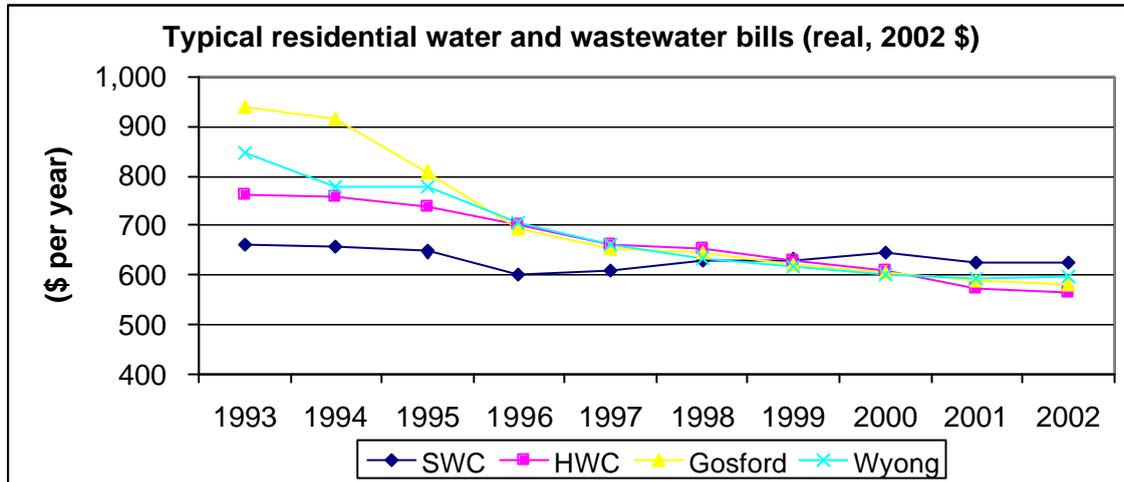
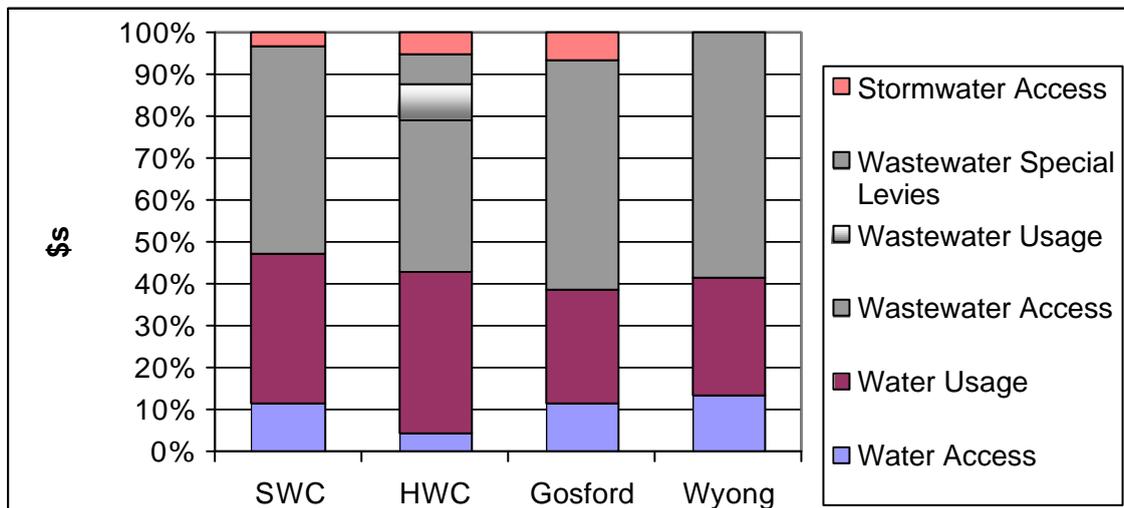


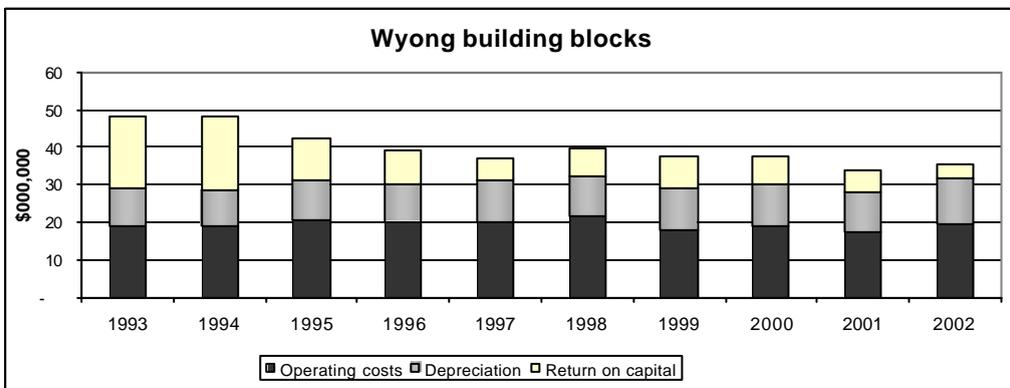
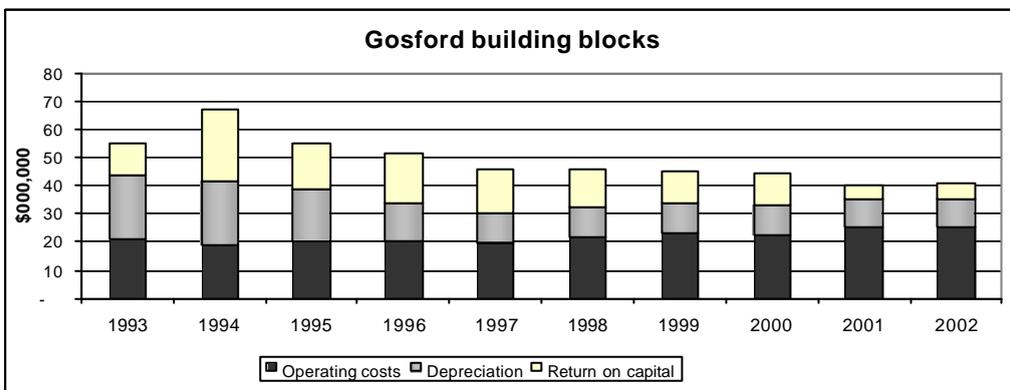
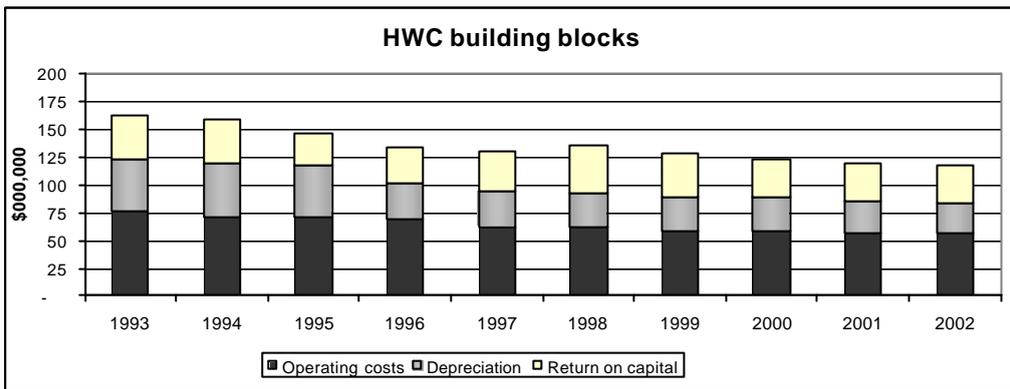
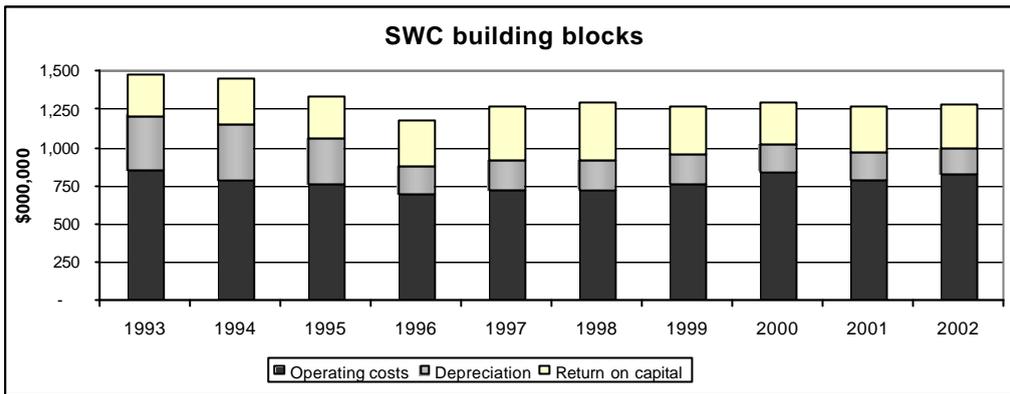
Figure A10.2 breaks the bill of a residential customer consuming 250kLs per annum into the various types of charges levied by the water agencies. The corporations' customers pay a significantly higher percentage of the water portion of their bills through usage charges than the councils' customers.

Figure A10.2 Residential bill components (2002)



The Tribunal uses a methodology to determine prices known as the building block method. Prices are formulated to provide levels of revenue calculated by adding forecast operating expenditure, forecast return of capital (sometimes measured by depreciation), and a return on capital. Figure A10.3 shows the movement in those building blocks since 1993.

Figure A10.3 Building block components (real, 2002 \$s)



CONSUMPTION

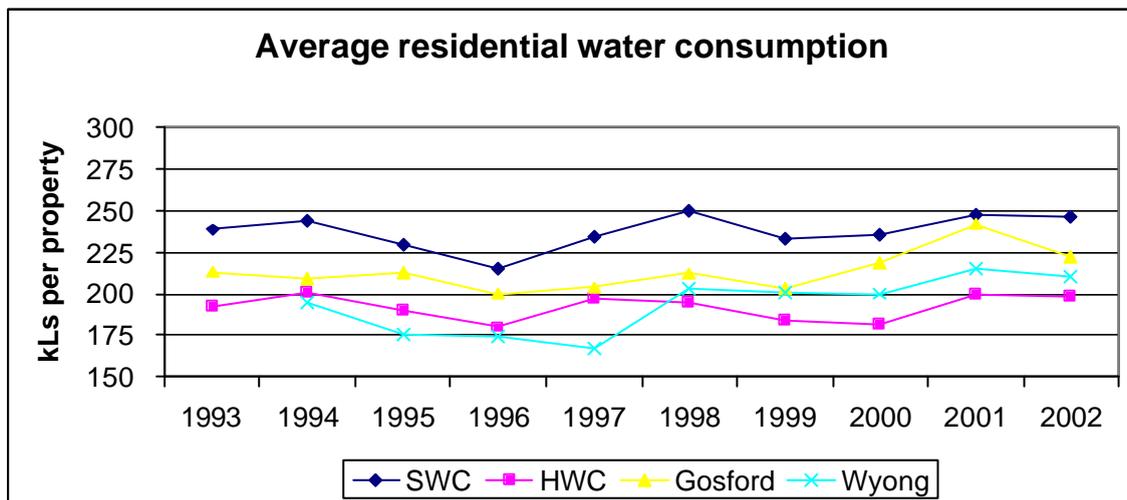
Table A10.2 shows the volume of water delivered to residential and non-residential properties.

Table A10.2 Total metered water consumption (GLs)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Sydney Water	477	495	472	447	480	516	495	508	537	535
Hunter Water	60	63	62	61	64	66	62	61	64	62
Gosford Council	14	14	15	14	15	16	15	16	17	16
Wyong Council	-	12	12	12	11	13	14	14	15	15

Figure A10.4 shows the change in water consumption on a per property basis for residential customers. Seasonal weather conditions and the introduction of usage pricing in the early part of the review period influenced interim reductions, but current average consumption levels are still at 1993 levels.

Figure A10.4 Average metered residential water consumption (kLs/property)



REVENUE

Figure A10.5 shows that total tariff revenue in real terms has declined since 1993. This has occurred while customer numbers have increased.

Figure A10.5 Change in total tariff revenue (1993 as the base year)

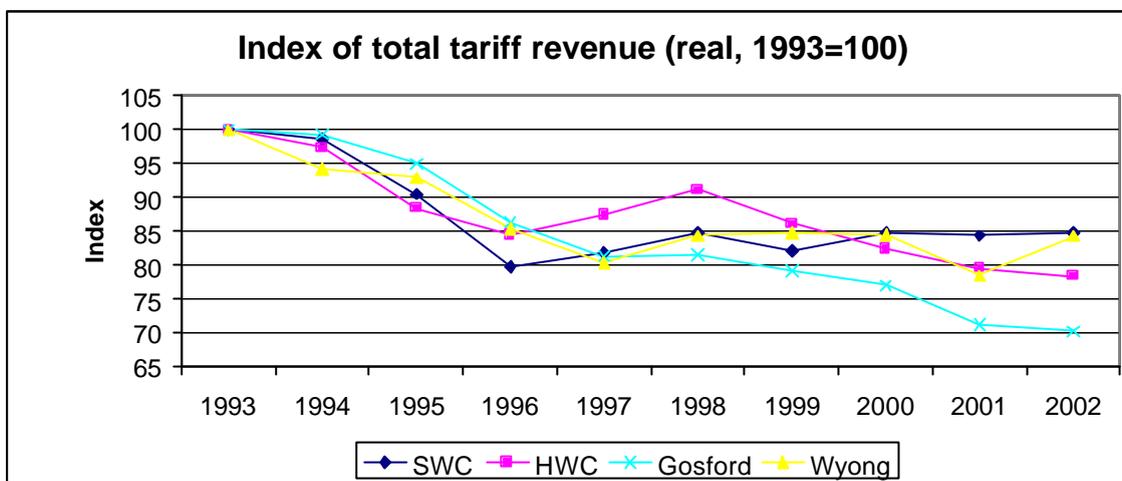


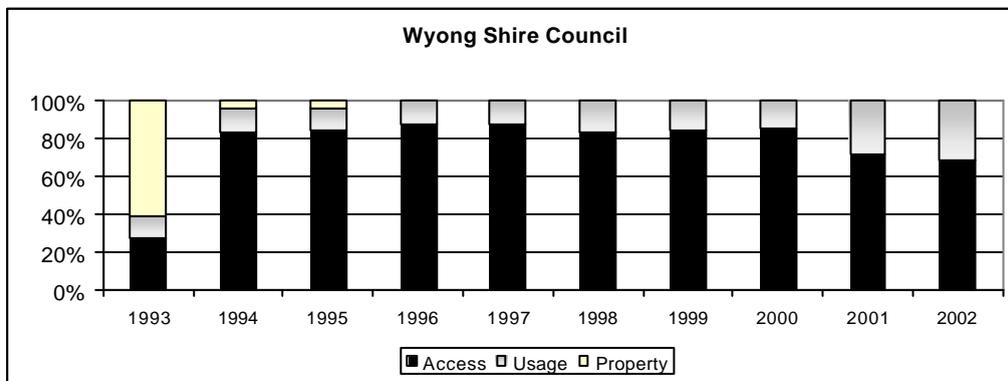
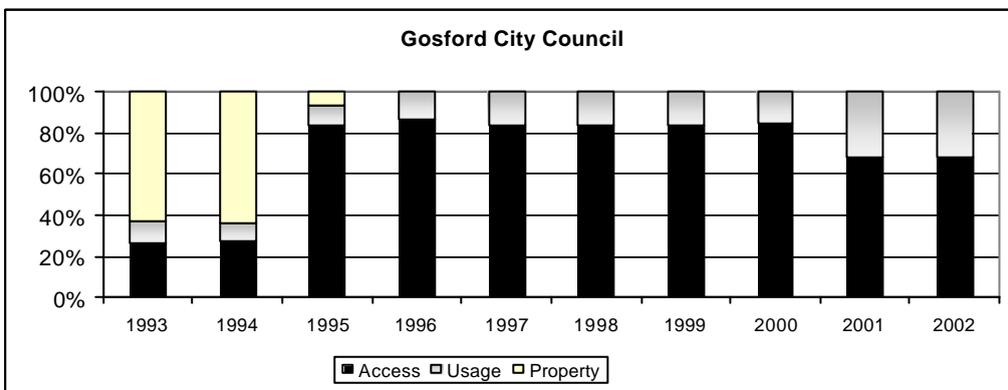
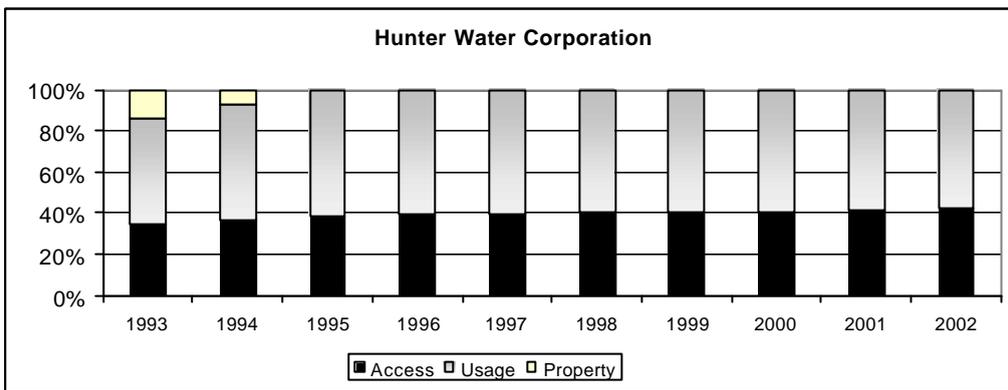
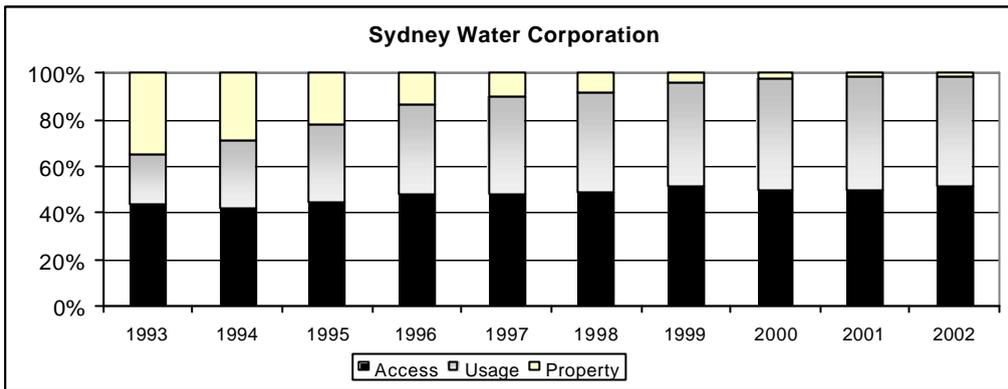
Table A10.3 shows the trend in residential and non-residential tariff revenue per property. Of note is that cross-subsidisation to residential in the early part of the review period has been progressively reduced.

Table A10.3 Average water and wastewater sales revenue per property (real, 2002 \$s)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Sydney Water										
Residential	565	601	610	553	570	599	587	605	591	597
Non-residential	7,434	6,475	4,880	3,859	3,748	3,575	3,148	3,084	2,999	2,809
Hunter Water										
Residential	542	548	515	460	489	478	461	439	430	424
Non-residential	4,938	4,299	3,358	3,520	3,637	3,031	2,892	2,831	2,514	2,383
Gosford Council										
Residential	938	907	822	719	648	625	620	597	571	546
Non-residential	2,551	2,530	2,885	3,006	2,937	3,199	2,537	2,390	1,905	2,081
Wyong Council										
Residential	836	739	711	647	595	625	621	601	539	565
Non-residential	3,414	4,097	3,773	3,046	2,750	2,350	2,193	1,554	1,431	1,659

Figure A10.6 shows how changes in agency pricing structures have changed revenue patterns over time. Property value based charges have been progressively replaced by service and usage charges. Removal of the councils' pre paid water allowances in 2001 has led to an increase in usage charges revenue.

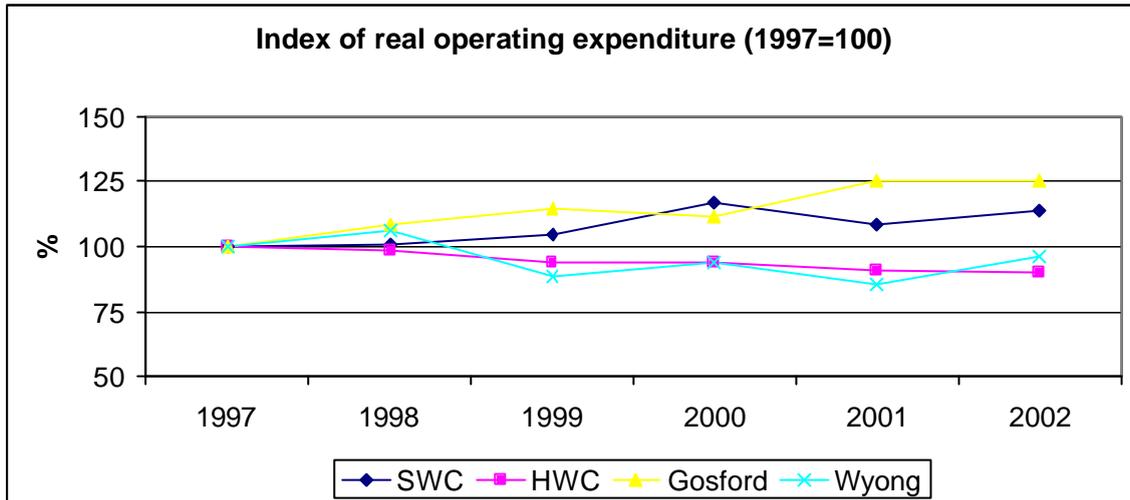
Figure A10.6 Sources of revenue (water and wastewater)



OPERATING EXPENDITURE

Operating costs are one of the most controllable areas of an agency’s operations. The Tribunal uses an incentive based process for price setting based on forecast levels of operating costs, return of capital and return on capital (ie building blocks). If agencies can control their operating costs, they can achieve a higher return on capital during the price path. Figure A10.7 shows the trends in operating expenditure.

Figure A10.7 Index of operating costs



Because each agency operates in its own unique environment, measuring performance is best achieved by analysing the trend in each agency’s performance over time rather than comparing one agency to another. Figure A10.8 shows those trends on a per kilolitre basis.

Figure A10.8 Operating costs per volume sold (c/kL)

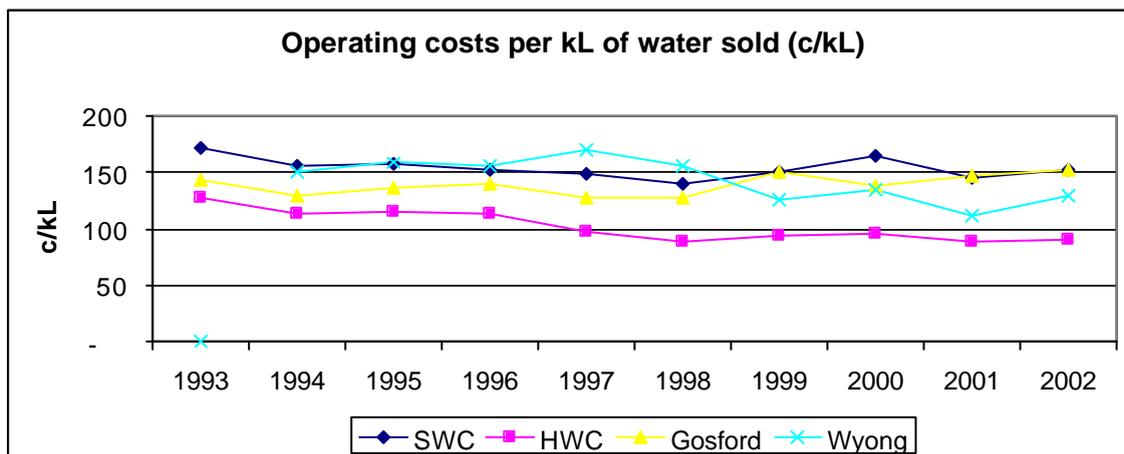
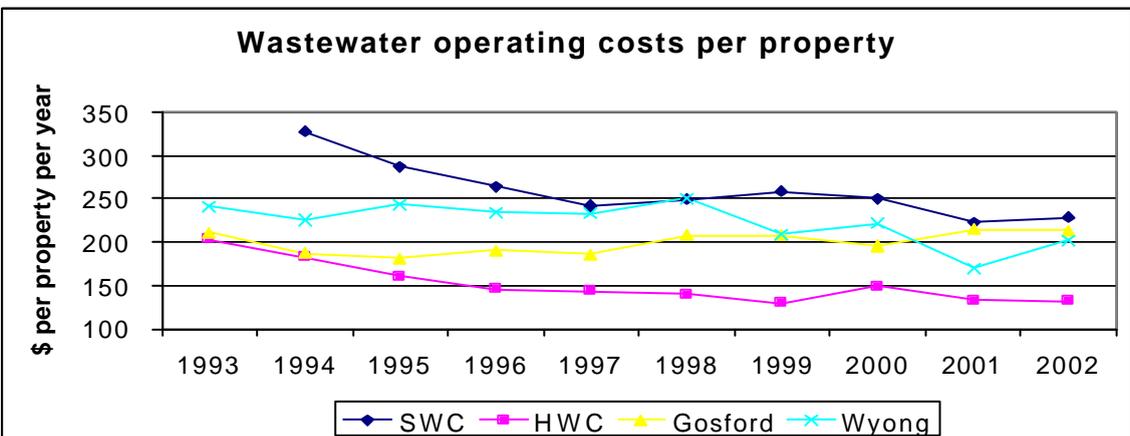
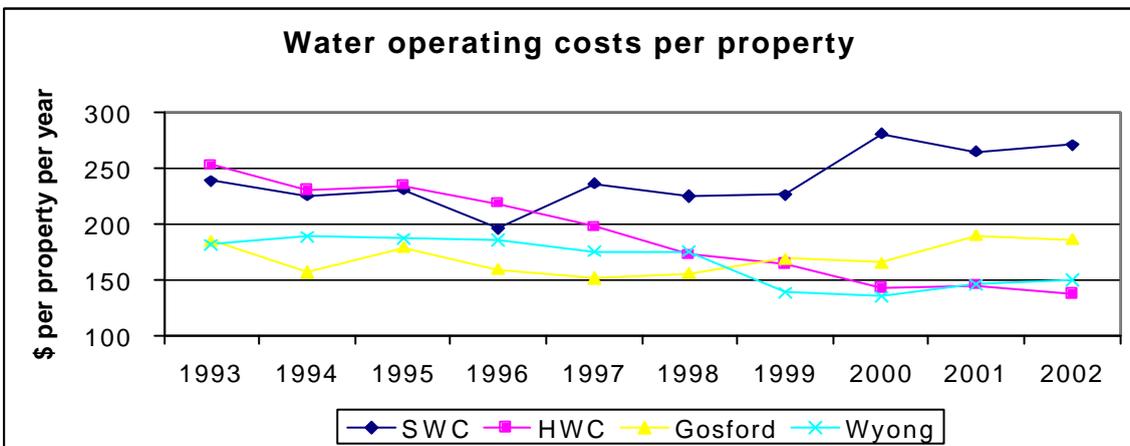
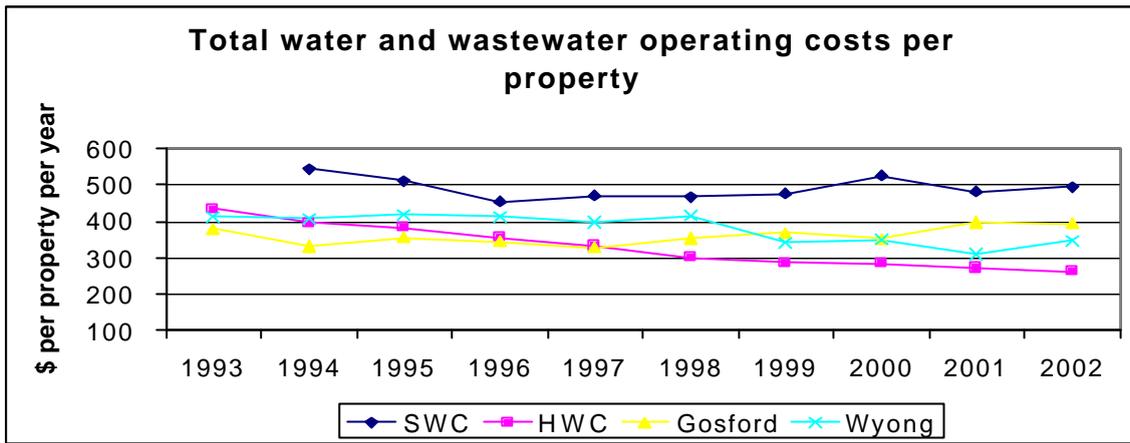


Figure A10.9 shows costs on a per property basis. This shows how costs have moved without the impact caused by increasing customer numbers. Note the increase in Sydney Water’s costs in 2000 after the creation of the Sydney Catchment Authority.

Figure A10.9 Water and wastewater operating costs per property (real, 2002 \$s)



CAPITAL EXPENDITURE

Capital expenditure measures the expenditure needed to replace existing assets and purchase new assets. Figure A10.10 shows the trend in capital expenditure of the water agencies compared to 1993 levels.

Figure A10.10 Index of capital expenditure

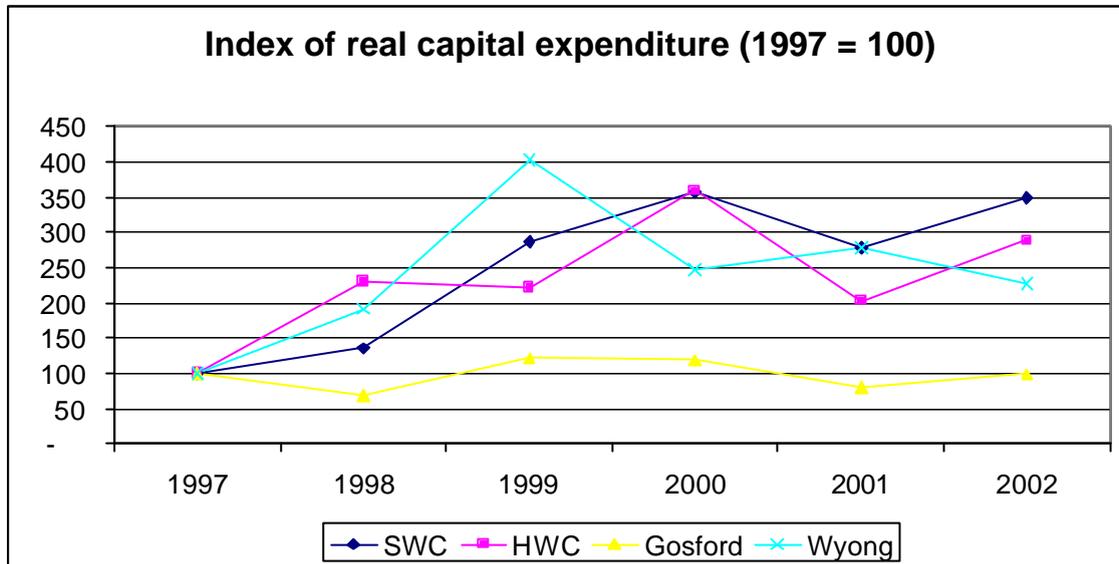
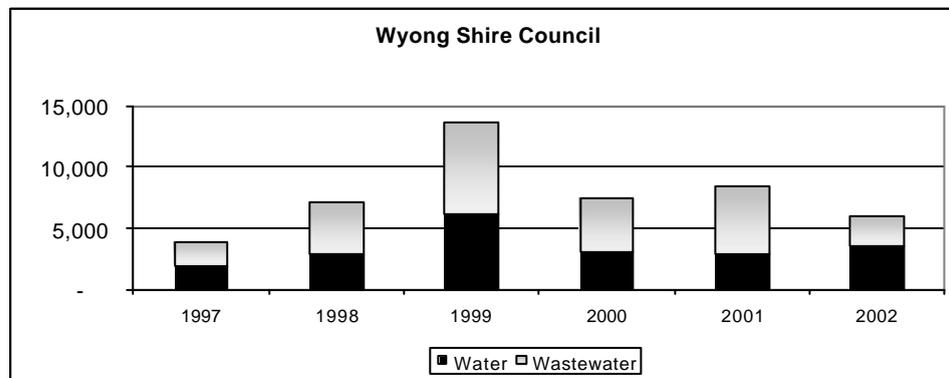
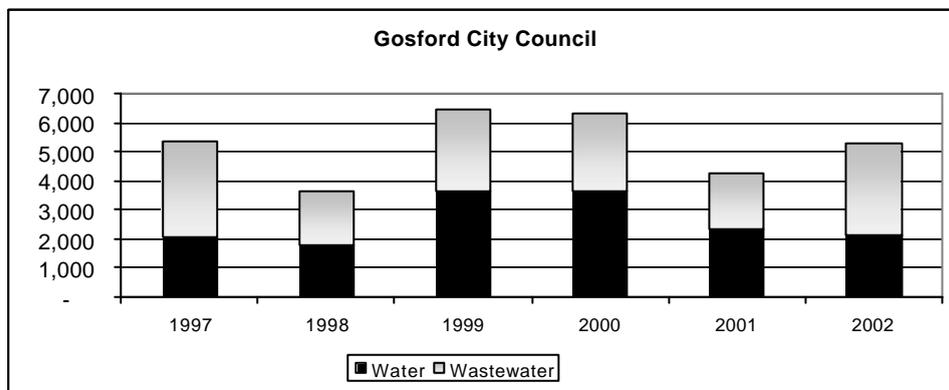
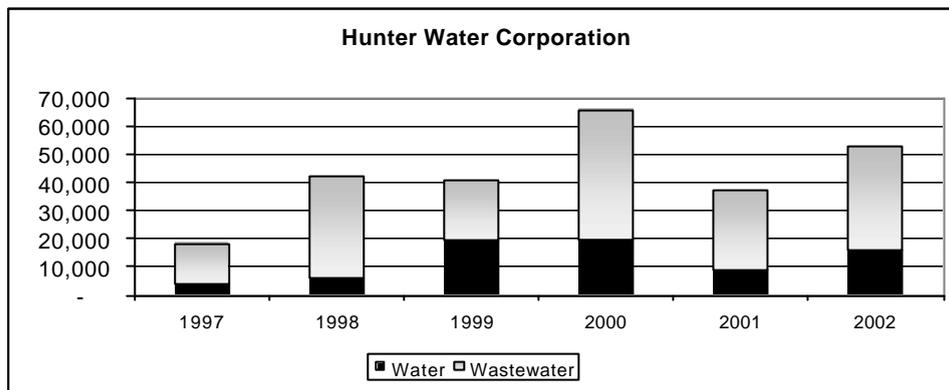
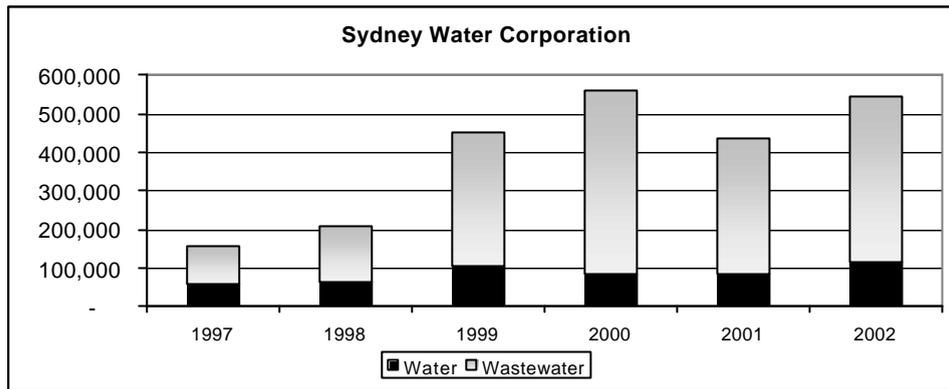


Figure A10.11 shows that SWC and HWC have directed the majority of their expenditure towards wastewater assets. The two councils are currently undertaking a study to determine the needs of their water supply system, the study initiated because of continuing low dam levels and influenced by the current drought conditions. With the potential introduction of environmental flow regimes, greater expenditure may soon be needed in the water areas of all agencies. In the Sydney area, capital expenditure on water supply assets will be incurred mainly by the Sydney Catchment Authority. The impact on Sydney Water will be as a result of increases in the cost of bulk water and will actually be recorded as increases in operating expenditure.

Figure A10.11 Water and wastewater capital expenditure (000, 2002 \$s)



APPENDIX 11 PRINCIPLES FOR TRADE WASTE CHARGES

The application of appropriate pricing principles to trade waste requires that:

- Standards for acceptance should be set on the basis of the capacity of current systems to transport, treat and dispose of the wastes, having regard to the health and safety of wastewater workers.
- Trade waste charges should at least cover the costs to the water supplier of handling these wastes.
- Charges should vary to reflect differences in the cost of treating waste to the required standards at particular locations (for example, the inland treatment of works of Sydney Water Corporation).
- Water suppliers should set charges and standards in a manner that is transparent and accurate. The method of measurement should be reliable and the basis for setting charges should reflect costs incurred as far as possible.

Where environmental reasons are made for variations from the pricing principles detailed above then sufficient evidence needs to be available to justify these variations. The basis for calculating greater than cost charges where environmental justifications exist should also be justified.



**INDEPENDENT PRICING AND REGULATORY TRIBUNAL
OF NEW SOUTH WALES**

**DETERMINATION UNDER SECTION 11 (1) OF THE INDEPENDENT PRICING AND
REGULATORY TRIBUNAL ACT, 1992**

Reference No: 02/31

Determination: No 4, 2003

Agency: Sydney Water Corporation

Preamble

Section 11 of the *Independent Pricing and Regulatory Tribunal Act 1992* (the IPART Act) provides the Tribunal with a standing reference to conduct investigations and make reports to the Minister on the determination of the pricing for a government monopoly service supplied by a government agency specified in Schedule 1 of the IPART Act.

Sydney Water Corporation (the Corporation) is listed as a government agency for the purposes of Schedule 1 of the IPART Act. Accordingly, the Tribunal may determine the prices for the Corporation's monopoly services.

The services of the Corporation that have been declared as monopoly services under the *Independent Pricing and Regulatory Tribunal (Water, Sewerage and Drainage Services) Order 1997* are:

- (a) water supply services,
- (b) sewerage services,
- (c) stormwater drainage services,
- (d) trade waste services,
- (e) services supplied in connection with the provision or upgrading of water supply and sewerage facilities for new developments and, if required, drainage facilities for such developments,
- (f) ancillary and miscellaneous customer services for which no alternative supply exists and which relate to the supply of services of a kind referred to in paragraphs (a) to (e),
- (g) other water supply, sewerage and drainage services for which no alternative supply exists.

In investigating and reporting on the pricing of the Corporation's monopoly services, the Tribunal has had regard to a broad range of matters, including the criteria set out in s.15(1) of the Act. The s.15 criteria and other matters the Tribunal have considered are addressed in the Report to this Determination.

In accordance with s.13A of the Act, the Tribunal has fixed a maximum price for the Corporation's monopoly services or established a methodology for fixing the maximum price.

By s.18(2) of the Act, the Corporation may not fix a price below that determined by the Tribunal without the approval of the Treasurer.

Operative Provisions

1. Application

This Determination is made under section 11 of the Act.

This Determination sets the maximum prices that the Corporation may charge for the declared monopoly services listed in the Order and specified in this Determination.

2. Term of Determination

This Determination commences on the later of 1 July 2003 and the date that it is published in the NSW Government Gazette.

This Determination will apply until it is replaced or revoked. If this Determination continues after 30 June 2005, the prices in this Determination for the period 1 July 2004 to 30 June 2005 will continue to apply.

3. Continuation of determination No. 9 of 2000 and No. 4 of 1997

Nothing in this Determination affects determination No. 9 of 2000 and determination No. 4 of 1997, which continue to apply within their terms to the services listed in paragraph (e) and paragraph (b) of the Order respectively.

4. Repeal of determination No. 8 of 2000

Tribunal determination No. 8 of 2000 is repealed from the commencement of this Determination. The repeal does not affect anything done or omitted to be done, or rights or obligations accrued, under that determination prior to its repeal.

5. Schedules

Schedules 1 - 8 apply.

Schedule 1

Water Supply Services

1. Application

This schedule sets the maximum prices that the Corporation may charge for services under paragraph (a) of the Order (water supply services) (other than those set out in Schedule 7).

2. Categories for pricing purposes

Prices for water supply services have been determined for 4 categories:

- metered properties
- metered standpipes
- unmetered properties
- unconnected properties.

3. Charges for water supply services to metered properties

3.1 The maximum price that may be levied by the Corporation for the provision of water supply services to a residential property with its own meter, is the sum of the following:

- a) the water service charge set out in Table 1 based on the 20mm meter size (regardless of actual meter size), corresponding to the applicable period, and
- b) the water usage charge for filtered water set out in Table 2, corresponding to the applicable period, and
- c) the water usage charge for unfiltered water set out in Table 3, corresponding to the applicable period.

3.2 The maximum price that may be levied by the Corporation for the provision of water supply services to a non residential property with its own meter, is the sum of the following:

- (a) the water service charge set out in Table 1, corresponding to the applicable meter size and period, and
- (b) the water usage charge for filtered water set out in Table 2, corresponding to the applicable period, and
- (c) the water usage charge for unfiltered water set out in Table 3, corresponding to the applicable period.

Table 1 Water service charge for metered properties

Basis of charge	Maximum charge for the period 1 July 2003 to 30 June 2004	Maximum charge for the period 1 July 2004 to 30 June 2005
Meter size	\$	\$
20mm	76.55	76.55 x (0.99+ΔCPI)
25mm	119.61	119.61 x (0.99+ΔCPI)
30mm	172.24	172.24 x (0.99+ΔCPI)
32mm	195.97	195.97 x (0.99+ΔCPI)
40mm	306.21	306.21 x (0.99+ΔCPI)
50mm	478.45	478.45 x (0.99+ΔCPI)
80mm	1,224.83	1225.83 x (0.99+ΔCPI)
100mm	1,913.79	1913.79 x (0.99+ΔCPI)
150mm	4,306.04	4306.04 x (0.99+ΔCPI)
200mm	7,655.18	7655.18 x (0.99+ΔCPI)
For meter diameter sizes not specified above, the following formula shall apply	$= (\text{meter size (mm)})^2 \times 76.55 / 400$	$(\text{meter size (mm)})^2 \times 76.55 / 400 \times (0.99 + \Delta\text{CPI})$

Table 2 Water usage charge for filtered water to metered properties

Basis of Charge	Maximum charge for the period 1 July 2003 to 30 June 2004	Maximum charge for the period 1 July 2004 to 30 June 2005
	\$/kL	\$/kL
Filtered water (per kilolitre of filtered water used)	0.98	0.98 x (1.01+ΔCPI)

Table 3 Water usage charges for unfiltered water to metered properties

Basis of Charge	Maximum charge for the period 1 July 2003 to 30 June 2004	Maximum charge for the period 1 July 2004 to 30 June 2005
	\$/kL	\$/kL
Unfiltered water (per kilolitre of unfiltered water usage)	0.74	0.74 x (1.01+ΔCPI)

4. Charges for water supply services to metered standpipes

The maximum price that may be levied by the Corporation for the provision of water supply services to a metered standpipe is the sum of the following:

- the water usage charge for filtered water set out in Table 2, corresponding to the applicable period, and
- the water usage charge for unfiltered water set out in Table 3, corresponding to the applicable period.

[Note: Ancillary charges for metered standpipes, including hire and usage fees, may apply under Schedule 6.]

5. Charges for water supply services to unmetered properties

- 5.1 The maximum price that may be levied by the Corporation for water supply services to an unmetered residential property is the sum of the following:
- the water service charge set out in Table 4, corresponding to the applicable period, and
 - the water usage charge set out in Table 5, corresponding to the applicable period.
- 5.2 The maximum price that may be levied by the Corporation for water supply services to an unmetered non-residential property is the following:
- the water service charge set out in Table 4, corresponding to the applicable period.

Table 4 Water service charge for unmetered residential and non-residential properties

Charge	Maximum charge for the period 1 July 2003 to 30 June 2004 \$	Maximum charge for the period 1 July 2004 to 30 June 2005 \$
Water service	76.55	$76.55 \times (0.99 + \Delta\text{CPI})$

Table 5 Water usage charge for unmetered residential properties

Charge	Maximum charge for the period 1 July 2003 to 30 June 2004 \$	Maximum charge for the period 1 July 2004 to 30 June 2005 \$
Water usage	244.84	$244.84 \times (1.01 + \Delta\text{CPI})$

6. Charges for water supply services to unconnected properties

The maximum water service charge and water usage charge that may be levied by the Corporation for an unconnected property is zero for the period 1 July 2003 to 30 June 2005.

7. Levying water supply charges on multi premises properties

- 7.1 The water supply charges in this Schedule levied by the Corporation in relation to a multi premises property which has a shared common water meter or meters must be on the following basis:
- For strata title or community title premises, the water service charge in Table 1 may only be levied on the relevant strata title or community title premises (each of which will for this purpose be deemed to be a separate property). The charges in Table 1 will be adjusted by dividing the charge applicable to the meter or meters for the multi premises property under Table 1 by the number of premises on that property.

- For a company title property the water service charge in Table 1 may only be levied on the relevant multi premises body.
- The water usage charges in Table 2 and/or Table 3 may only be levied on the relevant multi premises body, and not on each premises.

7.2 For the avoidance of doubt, each premises that has its own meter on a multi premises property is deemed to be a single property for the purposes of levying the water supply charges in this Schedule.

Schedule 2

Sewerage services

1. Application

This Schedule sets the maximum prices that the Corporation may charge for services under paragraph (b) of the Order (sewerage services).

2. Categories for pricing purposes

Prices for sewerage services have been determined for 6 categories:

- residential properties that are connected to the Corporation's sewerage system
- non-residential properties that are connected to the Corporation's sewerage system
- unconnected properties
- Blue Mountains septic pump out services
- exempt properties that are connected to the Corporation's sewerage system
- sewage extraction.

3. Charges for sewerage services to residential properties

The maximum price that may be levied by the Corporation for sewerage services to a residential property that is connected to the Corporation's sewerage system is the sewerage service charge set out in Table 6 corresponding to the applicable period.

Table 6 Sewerage service charge for residential properties

Charge	Maximum charge for the period 1 July 2003 to 30 June 2004 \$	Maximum charge for the period 1 July 2004 to 30 June 2005 \$
Sewerage service	338.54	$338.54 \times (1 + \Delta\text{CPI})$

4. Charges for sewerage services to non-residential properties

4.1 The maximum price that may be levied by the Corporation for sewerage services to a non-residential property that is connected to the Corporation's sewerage system is the sum of the following:

- (a) the sewerage service charge set out in Table 7, corresponding to the applicable period and meter size, if any (subject to clause 4.2), and
- (b) the sewerage usage charge set out in Table 8, corresponding to the applicable period, multiplied by the relevant discharge factor and
- (c) the property value charge set out in Table 9, corresponding to the applicable period.

4.2 For the purposes of clause 4.1(a):

- (a) if the application of Table 7 to a metered property would result in a charge that is less than that for a meter size of 20mm and a 100% discharge factor, or
- (b) in the case of an unmetered property,
- the charge under clause 4.1(a) will be that for a meter size of 20mm and a 100% discharge factor.

Table 7 Sewerage service charge for non residential properties

Basis of charge	Maximum charge for the period 1 July 2003 to 30 June 2004	Maximum charge for the period 1 July 2004 to 30 June 2005
Meter Size	\$ x df%	\$ x df%
20mm	338.54	338.54 x (1+ΔCPI)
25mm	528.97	528.97 x (1+ΔCPI)
30mm	761.71	761.71 x (1+ΔCPI)
32mm	866.66	866.66 x (1+ΔCPI)
40mm	1354.16	1354.16 x (1+ΔCPI)
50mm	2115.87	2115.87 x (1+ΔCPI)
80mm	5416.63	5416.63 x (1+ΔCPI)
100mm	8463.48	8463.48 x (1+ΔCPI)
150mm	19042.83	19042.83 x (1+ΔCPI)
200mm	33853.92	33853.92 x (1+ΔCPI)
For meter sizes not specified above, the following formula shall apply	$(\text{meter size (mm)})^2 \times 338.54/400$	$(\text{meter size (mm)})^2 \times 338.54/400 \times (1+\Delta\text{CPI})$

[Note: A discharge factor is applied to the charge based on the volume of water discharged into Corporation's sewerage system.]

Table 8 Sewerage usage charge for non residential properties

Basis of Charge (per kilolitres of water used x discharge factor per year)	Maximum charge for the period 1 July 2003 to 30 June 2004 \$/kL	Maximum charge for the period 1 July 2004 to 30 June 2005 \$/kL
Sewerage usage(per kilolitre) 0-500kL	0	0
Sewerage usage (per kilolitre) above 500kL	1.12 x df%	1.12 x (1+ΔCPI) x df%

[Note: A discharge factor is applied to the charge based on the volume of water discharged into Corporation's sewerage system.]

Table 9 Sewerage property valuation-based charges

Basis of Charge	Maximum charge for the period 1 July 2003 to 30 June 2004	Maximum charge for the period 1 July 2004 to 30 June 2005
Assessed annual land value	\$	\$
Property value charge 0 - \$2500 AAV	0	0
Property value charge > \$2500 AAV	0.002 x (\$AAV – 2500)	0

5. Charges for sewerage services to unconnected properties

The maximum price that may be levied by the Corporation for sewerage services (other than Blue Mountains septic services) to an unconnected property is zero for the period 1 July 2003 to 30 June 2004 and 1 July 2004 to 30 June 2005.

6. Charges for Blue Mountains septic services

The maximum price that may be levied by the Corporation for Blue Mountains septic services is the sum of the following:

- a) the septic service charge set out in Table 10 corresponding to the applicable period, and
- b) the septic usage charge set out in Table 11 corresponding to the applicable period.

Table 10 Blue Mountains septic service charge

	Maximum charge for the period 1 July 2003 to 30 June 2004	Maximum charge for the period 1 July 2004 to 30 June 2005
	\$	\$
Septic pump out service	391.44	391.44 x (1+ΔCPI)

Table 11 Blue Mountains septic usage charge

	Maximum charge for the period 1 July 2003 to 30 June 2004	Maximum charge for the period 1 July 2004 to 30 June 2005
	\$/kL	\$/kL
Septic pumpout usage (0-80kL per year)	0	0
Septic pumpout usage (81-100kL per year)	8.90	8.90 x (1+ΔCPI)
Septic pumpout usage (greater than 100kL per year)	17.80	17.80 x (1+ΔCPI)

7. Charges for sewerage services to exempt properties

The maximum price that may be levied by the Corporation for sewerage services to an exempt property that is connected to the Corporation's sewerage system is the charge per water or urinal closet set out in Table 12, corresponding to the applicable period.

Table 12 Sewerage charge for exempt properties

Charge	Maximum charge for the period 1 July 2003 to 30 June 2004 \$	Maximum charge for the period 1 July 2004 to 30 June 2005 \$
Per water closet or urinal closet	78.50	$78.50 \times (1+\Delta\text{CPI})$

8. Charges for sewage extraction

- 8.1 The maximum price that may be levied by the Corporation for providing access to the sewer for extractive purposes is the capital costs of providing the access, for the period 1 July 2003 to 30 June 2004 and 1 July 2004 to 30 June 2005.
- 8.2 The maximum price that may be levied by the Corporation for extracting effluent from the sewer is zero for the period 1 July 2003 to 30 June 2004 and 1 July 2004 to 30 June 2005.

9. Levying sewerage service charges on multi premises properties

- 9.1 The sewerage service charges in this Schedule levied by the Corporation in relation to a non residential strata title building with a shared common meter or which is unmetered must be on the following basis:
- the sewerage service charge set out in Table 13 may only be levied on each strata title unit,
 - the sewerage property valuation based charge set out in Table 9 may only be levied on each strata title unit, and not on the owners corporation,
 - the usage charge set out in Table 8 may only be levied on the owners corporation for a metered property, and not on each strata title unit. In applying Table 8, the reference to 500kL is increased for this purpose by multiplying it by the number of premises in the multi premises property.

Table 13 Sewerage service charge for a non-residential strata property with a shared common water meter

Charge	Maximum charge for the period 1 July 2003 to 30 June 2004 \$ x df%	Maximum charge for the period 1 July 2004 to 30 June 2005 \$ x df%
Sewerage service	338.54	$338.54 \times (1+\Delta\text{CPI})$

- 9.2 The sewerage service charges in this Schedule levied by the Corporation in relation to a non residential multi premises property, where each premises has its own water meter, may only be levied on each premises in the multi premises property (each of which will for this purpose be deemed to be a separate property), and not on the relevant multi premises body. For that purpose, the charges are the sum of the following:
- a) the sewerage service charge set out in Table 7, corresponding to the applicable period and meter size, if any (subject to clause 4.2), and
 - b) the sewerage usage charge set out in Table 8, corresponding to the applicable period, multiplied by the relevant discharge factor, and
 - c) the property value charge set out in Table 9 corresponding to the applicable period.
- 9.3 The sewerage service charges to be levied by the Corporation in relation to a non residential multi premises property (other than a strata title building) with a shared or common water meter are the charges set out in clause 4 of this Schedule for non residential properties and levied on the relevant multi premises property.

Schedule 3

Stormwater drainage services

1. Application

This Schedule sets the maximum prices that the Corporation may charge for services under paragraph (c) of the Order (stormwater drainage services).

2. Categories for pricing purposes

Prices for stormwater drainage services have been determined for 2 categories:

- residential properties and vacant properties
- non-residential properties (other than vacant properties)

that are within a declared stormwater drainage area.

3. Charges for stormwater drainage to residential properties and vacant land

The maximum price that may be levied by the Corporation for stormwater drainage services to a residential property, or a vacant property, that is within a declared stormwater drainage area is the stormwater drainage service charge set out in Table 14, corresponding to the applicable period.

Table 14 Stormwater drainage service charge for residential properties and vacant properties

Basis of charge	Maximum charge for the period	Maximum charge for the period
	1 July 2003 to 30 June 2004	1 July 2004 to 30 June 2005
	\$	\$
Provision of stormwater drainage service per residential property or vacant property	24.46	24.46 x (1+ΔCPI)

4. Charges for stormwater drainage to non-residential properties

The maximum price that may be levied by the Corporation for stormwater drainage services to a non-residential property (other than a vacant property) that is within a declared stormwater drainage area is the sum of the following:

- (a) the stormwater service charge set out in Table 15 corresponding to the applicable period, and
- (b) the property value charge set out in Table 16, corresponding to the applicable period.

Table 15 Stormwater service charge for non-residential properties

Basis of charge	Maximum charge for the period 1 July 2003 to 30 June 2004 \$	Maximum charge for the period 1 July 2004 to 30 June 2005 \$
Provision of stormwater service per non residential property	68.99	68.99 x (1+ΔCPI)

Table 16 Stormwater property valuation based charges

Basis of Charge	Maximum charge for the period 1 July 2003 to 30 June 2004 \$	Maximum charge for the period 1 July 2004 to 30 June 2005 \$
Assessed property value		
Property value charge 0 - \$2500 AAV	0	0
Property value charge > \$2500 AAV	0.0018 x (\$AAV-2500)	0

Schedule 4

Rouse Hill development area

1. Application

- 1.1 This Schedule sets the maximum prices that the Corporation may charge the Rouse Hill Development Area for services under paragraph (g) (other water supply, sewerage and drainage services for which no alternative supply exists).
- 1.2 Schedule 1, 2 and 3 also apply to the Rouse Hill Development Area.

2. Categories for pricing purposes

Prices in this Schedule have been determined for one category -

- properties in the Rouse Hill Development Area.

3. Charges to properties in the Rouse Hill Development Area.

The maximum price that may be levied by the Corporation for the provision of recycled water and other drainage services to the Rouse Hill Development Area is the sum of the following:

- the recycled water usage charge set out in Table 17, corresponding to the applicable period, and
- the recycled water access charge set out in Table 18, corresponding to the applicable meter size and period, and
- the river management (drainage) charge set out in Table 19, corresponding to the applicable period and land size as relevant.

Table 17 Recycled water usage charge

Basis of Charge Per Kilolitre of recycled water used	Maximum charge for the period	Maximum charge for the period
	1 July 2003 to 30 June 2004	1 July 2004 to 30 June 2005
	\$/kL	\$/kL
Recycled water usage charge	0.28	0.28 x (1+ΔCPI)

Table 18 Recycled Water Service Access Charge

Access to Recycled Water	Maximum charge for the period 1 July 2003 to 30 June 2004 \$	Maximum charge for the period 1 July 2004 to 30 June 2005 \$
Meter size		
20mm	24.13	24.13 x (1+ΔCPI)
25mm	37.70	37.70 x (1+ΔCPI)
30mm	54.28	54.28 x (1+ΔCPI)
32mm	61.76	61.76 x (1+ΔCPI)
40mm	96.50	96.50 x (1+ΔCPI)
50mm	150.78	150.78 x (1+ΔCPI)
80mm	386.01	386.01 x (1+ΔCPI)
100mm	603.14	603.14 x (1+ΔCPI)
150mm	1357.05	1357.05 x (1+ΔCPI)
200mm	2412.54	2412.54 x (1+ΔCPI)
For meter diameter sizes not specified above, the following formula shall apply	$(\text{meter size (mm)})^2 \times 24.13/400$	$(\text{meter size (mm)})^2 \times 24.13/400 \times (1+\Delta\text{CPI})$

Table 19 River Management Charges

Basis of charge Residential or non residential property	Maximum charge for the period 1 July 2003 to 30 June 2004 \$	Maximum charge for the period 1 July 2004 to 30 June 2005 \$
Residential property	102.89	102.89 x (1+ΔCPI)
non residential property with land area ≤ 1000m ²	102.89	102.89 x (1+ΔCPI)
non residential property with land area > 1000m ²	$102.89 \times ((\text{land area m}^2)/1000)$	$102.89 \times ((\text{land area m}^2)/1000) \times (1+\Delta\text{CPI})$

Schedule 5

Trade waste services

1. Application

This Schedule sets the maximum prices that the Corporation may charge for services under paragraph (d) of the Order (trade waste services).

2. Categories for pricing purposes

Prices for trade waste services have been determined for two categories:

- industrial customers that discharge trade waste
- commercial customers that discharge trade waste.

3. Charges for trade waste services to industrial customers

- 3.1 The maximum price that may be levied by the Corporation for trade waste services to industrial customers is the sum of the following:
- (a) the industrial agreement charge set out in Table 20, corresponding to the applicable period and risk index determined by the Corporation, and
 - (b) the quality charge set out in Tables 21 and 22, calculated for total waste substance concentrations in excess of the domestic equivalent, for the corresponding applicable period, and further applied or adjusted in accordance with clauses 3.2 to 3.5.
- 3.2 A reference to total waste substance concentrations in excess of the domestic equivalent, for the purpose of clause 3.1(b), is a reference to average concentrations of that substance over a period of time and/or volume of discharge, determined in accordance with the Corporation's Trade Waste Policy. The relevant charge then applies to the total mass of the waste substance discharged, in excess of domestic equivalent.
- 3.3 For total waste substance concentrations in excess of the acceptance standard in Tables 21 and 22, the quality charge set out in those tables is to be doubled and applied to the entire mass of the substance discharged that is in excess of the domestic equivalent (rather than only to the amount that is excess of the acceptance standard), excluding sulphate.
- 3.4 If the Corporation determines a substance to be either critical substance or an over capacity substance, in accordance with the Corporation's Trade Waste Policy, then the quality charge set out in Tables 21 and 22 is to be multiplied by the factor set out in Table 23, and applied to the mass of the substance that 1.5 times in excess of the industrial customer's long term average daily mass (LTADM), as defined in the Corporation's Trade Waste Policy. (This is in addition to the charges that apply to the mass of the substance that is equal to or less than the customer's LTADM).
- 3.5 For the avoidance of doubt, a charge may be adjusted in accordance with both clauses 3.3 and 3.4.

Table 20 Industrial Agreement Fees

Risk Index	Maximum charge for the period 1 July 2003 to 30 June 2004				Maximum charge for the period 1 July 2004 to 30 June 2005			
	Standard	With direct electronic reporting (DER)	With on line monitoring (OLM)	With DER and OLM	Standard	With direct electronic reporting (DER)	With on line monitoring (OLM)	With DER and OLM
	\$	\$	\$	\$	\$	\$	\$	\$
1	20589.32	18530.37	16465.32	14406.37	20589.32 x (1+ΔCPI)	18530.37 x (1+ΔCPI)	16465.32 x (1+ΔCPI)	14406.37 x (1+ΔCPI)
2	18586.00	16727.40	14462.00	12603.40	18586.00 x (1+ΔCPI)	16727.40 x (1+ΔCPI)	14462.00 x (1+ΔCPI)	12603.40 x (1+ΔCPI)
3	8680.90	7811.56	5587.90	4719.79	8680.90 x (1+ΔCPI)	7811.56 x (1+ΔCPI)	5587.90 x (1+ΔCPI)	4719.79 x (1+ΔCPI)
4	4896.88	4407.20	1803.88	1314.20	4896.88 x (1+ΔCPI)	4407.20 x (1+ΔCPI)	1803.88 x (1+ΔCPI)	1314.20 x (1+ΔCPI)
5	1891.93	1702.72	na	na	1891.93 x (1+ΔCPI)	1702.72 x (1+ΔCPI)	na	na
6	667.72	601.16	na	na	667.72 x (1+ΔCPI)	601.16 x (1+ΔCPI)	na	na
7	445.14	400.65	na	na	445.14 x (1+ΔCPI)	400.65 x (1+ΔCPI)	na	na

Table 21 Acceptance Standards and Quality Charges for Domestic Substances

Substance	Acceptance Standard (mg/L)	Domestic Equivalent (mg/L)	Maximum charge for the period 1 July 2003 to 30 June 2004 \$/kg	Maximum charge for the period 1 July 2004 to 30 June 2005 \$/kg
Suspended solids	600	200	0.71	0.71 x (1+ΔCPI)
BOD – to primary STP	As determined by Sydney Water in accordance with its Trade Waste Policy	230	0.099 + (0.0166 x (BOD mg/L)/600)	[0.099 + (0.0166 x (BOD mg/L)/600)] x (1+ΔCPI)
BOD – to sec/ tertiary STP	As determined by Sydney Water in accordance with its Trade Waste Policy	230	0.56 + (0.0166 x (BOD mg/L)/600)	[0.56 + (0.0166 x (BOD mg/L)/600)] x (1+ΔCPI)
Grease	Where effluent treated at primary treatment plant -110 Where effluent treated at secondary or tertiary treatment plant – 200	50	1.00	1.00 x (1+ΔCPI)
Ammonia (as N)	50 (or as negotiated, up to 100 in accordance with Sydney Water's trade waste policy)	35	1.66	1.66 x (1+ΔCPI)
Nitrogen (inland only)	Where effluent treated at primary treatment plant - no limit Where effluent treated at secondary or tertiary treatment plant - 150	50	0.14	0.14 x (1+ΔCPI)
Phosphorus (inland only)	Where effluent treated at primary treatment plant - no limit Where effluent treated at secondary or tertiary treatment plant - 50	10	1.11	1.11 x (1+ΔCPI)
Sulphate	2000	50	0.11 x (S04mg/L)/2000	0.11 x (S04mg/L)/2000 x (1+ΔCPI)

Table 22 Threat Level based Acceptance Standards and Associated Charges for Non Domestic Substances

Threat Level	Acceptance Standard mg/L	Maximum charge for the period 1 July 2003 to 30 June 2004 \$/kg	Maximum charge for the period 1 July 2004 to 30 June 2005 \$/kg
0	Provisional	0	0
1	10,000	0.01	0.01 x (1+ΔCPI)
2	5,000	0.01	0.01 x (1+ΔCPI)
3	1,000	0.06	0.06 x (1+ΔCPI)
4	500	0.11	0.11 x (1+ΔCPI)
5	300	0.20	0.20 x (1+ΔCPI)
6	100	0.56	0.56 x (1+ΔCPI)
7	50	1.11	1.11 x (1+ΔCPI)
8	30	1.84	1.84 x (1+ΔCPI)
9	20	2.75	2.75 x (1+ΔCPI)
10	10	5.56	5.56 x (1+ΔCPI)
11	5	11.12	11.12 x (1+ΔCPI)
12	3	18.35	18.35 x (1+ΔCPI)
13	2	27.79	27.79 x (1+ΔCPI)
14	1	55.64	55.64 x (1+ΔCPI)
15	0.5	111.29	111.29 x (1+ΔCPI)
16	0.1	556.44	556.44 x (1+ΔCPI)
17	0.05	1112.93	1112.93 x (1+ΔCPI)
18	0.03	1836.30	1836.30 x (1+ΔCPI)
19	0.01	5564.31	5564.31 x (1+ΔCPI)
20	0.005	11128.61	11128.61 x (1+ΔCPI)
21	0.0001	556430.70	556430.70 x (1+ΔCPI)
22	0	Na	Na

Table 23 Charges for Critical Substances and Over Capacity Substances

Multiplier applicable for the period 1 July 2003 to 30 June 2004 and 1 July 2004 to 30 June 2005	
Substance status	Charging rate multiplier
Critical	2
Over capacity	3

4. Charges for trade waste services to commercial customers

4.1 The maximum price that may be levied by the Corporation for trade waste services to commercial customers is the sum of the following:

- (a) the commercial agreement charge set out in Table 24, corresponding to the applicable period,
- (b) the volumetric charge set out in Table 25, corresponding to the applicable period and charging code determined in accordance with the Corporation's Trade Waste Policy, and
- (c) the wastesafe charge set out in Table 26, corresponding to the applicable period.

Table 24 Commercial Agreement Charge

	Maximum charge for the period 1 July 2003 to 30 June 2004 \$	Maximum charge for the period 1 July 2004 to 30 June 2005 \$
First process	66.77	$66.77 \times (1 + \Delta \text{CPI})$
Each additional process	22.23	$22.23 \times (1 + \Delta \text{CPI})$

4.2 In calculating charges under Table 25, the minimum charge for commercial customers is \$56 per year.

Table 25 Volumetric charge for commercial customers

Charging Code	Maximum charge for the period 1 July 2003 to 30 June 2004 \$/kL	Maximum charge for the period 1 July 2004 to 30 June 2005 \$/kL
A	0	0
B	0	0
C	0.02	$0.02 \times (1 + \Delta \text{CPI})$
D	0.05	$0.05 \times (1 + \Delta \text{CPI})$
E	0.10	$0.10 \times (1 + \Delta \text{CPI})$
F	0.31	$0.31 \times (1 + \Delta \text{CPI})$
G	0.52	$0.52 \times (1 + \Delta \text{CPI})$
H	0.72	$0.72 \times (1 + \Delta \text{CPI})$
I	1.03	$1.03 \times (1 + \Delta \text{CPI})$
J	2.06	$2.06 \times (1 + \Delta \text{CPI})$
K	3.09	$3.09 \times (1 + \Delta \text{CPI})$
L	5.16	$5.16 \times (1 + \Delta \text{CPI})$
M	7.22	$7.22 \times (1 + \Delta \text{CPI})$
N	10.31	$10.31 \times (1 + \Delta \text{CPI})$
O	12.37	$12.37 \times (1 + \Delta \text{CPI})$
P	15.47	$15.47 \times (1 + \Delta \text{CPI})$
Q	20.62	$20.62 \times (1 + \Delta \text{CPI})$
R	30.93	$30.93 \times (1 + \Delta \text{CPI})$
S	51.55	$51.55 \times (1 + \Delta \text{CPI})$

Table 26 Wastesafe charge for commercial customers

	Maximum charge for the period 1 July 2003 to 30 June 2004 \$/kL	Maximum charge for the period 1 July 2004 to 30 June 2005 \$/kL
Wastesafe charge	0.10	$0.10 \times (1 + \Delta\text{CPI})$

Schedule 6

Ancillary and miscellaneous customer services

1. Application

This Schedule sets the maximum prices that the Corporation may charge for services under paragraph (f) of the Order (ancillary and miscellaneous customer services for which no alternative supply exists).

2. Categories for pricing purposes

The prices for ancillary and miscellaneous services in Table 27 apply.

3. Charges for ancillary and miscellaneous services

3.1 The maximum charge that may be levied by the Corporation for miscellaneous service is the fixed price set out in Table 27.

3.2 A reference in Table 27 to "NA" means that the Corporation does not provide the relevant service.

Table 27 Charges for ancillary and miscellaneous services

Service No.	Description	Maximum price per service for the period 1 July 2003 to 30 June 2005 \$
1	Conveyancing Certificate	
	Statement of Outstanding Charges	
	a) Over the Counter	13.00
	b) Electronic	6.50
2	Property Sewerage Diagram - Up to and including A4 size (where available)	
	<i>Diagram showing the location of the house-service line, building and sewer for a property</i>	
	a) Certified	NA
	b) Uncertified	
	1. Over the Counter	13.50
	2. Electronic	6.50
3	Service Location Diagram	
	<i>Location of sewer and/or Water Mains in relation to a property's boundaries</i>	
	a) Over the Counter	13.50
	b) Electronic	6.50
4	Special Meter Reading Statement	15.00
5	Billing Record Search Statement - Up to and including 5 Years	28.00
6	Building Over or Adjacent to Sewer Advice	28.00
	<i>Statement of Approval Status for existing Building Over or Adjacent to a Sewer</i>	
7	Water Reconnection	
	a) During business hours	28.00
	b) Outside business hours	123.00
8	Workshop Test of Water Meter	
	<i>Removal and full mechanical test of the meter by an accredited organisation at the customer's request to determine the accuracy of the water meter. This involves dismantling and inspection of meter components</i>	
	20mm	165.50
	25mm	165.50
	32mm	165.50
	40mm	165.50
	50mm	165.50
	60mm	165.50
	80mm	165.50
	100mm	NA
	150mm	NA
9	Application for Disconnection - All Sizes	30.50
10	Application for Water Service Connection (up to and including 25mm)	31.00
	<i>This covers the administration fee only. There will be a separate charge payable to the utility if they also perform the physical connection</i>	

Service No.	Description	Maximum price per service for the period 1 July 2003 to 30 June 2005 \$
11	Application for Water Service Connection (32-65mm) <i>This covers administration and system capacity analysis as required</i>	207.00
12	Application for Water Service Connection (80mm or greater) <i>This covers administration and system capacity analysis as required</i>	239.00
13	Application to Assess a Water Main Adjustment (Moving a fitting and/or adjusting a section of water main up to and including 25 metres in length) This covers preliminary advice as to the feasibility of the project and will result in either: 1. A rejection of the project in which cases the fee covers the associated investigation costs Or 2. Conditional approval in which case the fee covers the administrative costs associated with the investigation and record amendment.	NA NA
14	Standpipe Hire Security Bond (25mm) Security Bond (63mm)	NA NA
15	Standpipe Hire Quarterly Fee Monthly Fee	NA NA
16	Standpipe Water Usage Fee (All usage)	See clause 4 of schedule 1
17	Backflow Prevention Device Application and Registration fee <i>This fee is for initial registration of the backflow device</i>	NA
18	Backflow Prevention Application Device Annual Administration Fee <i>This fee is for the maintenance of records including logging of inspection reports</i>	NA
19	Major Works Inspection Fee <i>This fee is for the inspection, for the purposes of approval of water and sewer mains, constructed by others, that are longer than 25 metres and/or greater than 2 metres in depth</i> Water Mains (\$ per metre) Gravity Sewer Mains (\$ per metre) Rising Sewer Mains (\$per metre)	NA NA NA
20	Statement of Available Pressure and Flow <i>This fee covers all levels whether modelling is required or not</i>	146.00

Service No.	Description	Maximum price per service for the period 1 July 2003 to 30 June 2005	
		Fixed	Hourly
21	Diagram Discrepancy - known as HS85 <i>Application for Sydney Water to undertake a Property Sewerage Diagram estimation for a property where no diagram currently exists</i>	107.00	NA
22	Request for Asset Construction Details <i>Detailed map of Sydney Water assets indicating water, sewer and drainage.</i>	56.00	NA
23	Sydney Water Supply System Diagram <i>Large Hydra Plan showing water, sewer and drainage assets, covering a large area in a single plot.</i>	12.00	105.00
24	Building Plan Approval <i>Approval of building/development plans certifying that the proposed construction does not adversely impact on Sydney Water's assets.</i>	16.50	NA
25	Determining conditions for building over/adjacent to sewer. <i>Attaching conditional approval requirements to Council approved building/development plans to safeguard Sydney Water's assets.</i>	79.00	NA
26	Watermain Adjustment Application <i>Application for Sydney Water to investigate the feasibility of relocating or adjusting an existing watermain.</i>	138.50	NA
27	Watermain Fitting Adjustment Application <i>Application for an Accredited Supplier to lower or raise an existing watermain fitting.</i>	89.50	NA
28	Pump Application - Water <i>Application for approval of an installation of a pump on the domestic or fire service, serving a property.</i>	119.00	NA
29	Extended Private Service Application <i>Application for Sydney Water to investigate the feasibility of permitting an extended private water service to provide a point of connection.</i>	84.50	NA
30	Sewer Junction Connection Application <i>Application for an Accredited Supplier to insert a junction into Sydney Water's sewer line.</i>	100.50	NA
31	Sewer Sideline Connection Application <i>Application for an Accredited Supplier to extend a junction to provide a suitable point of connection.</i>	100.50	NA
32	Sewermain Adjustment Application <i>Application for Sydney Water to investigate the feasibility of relocating or adjusting a sewermain.</i>	138.50	NA

Service No.	Description	Maximum price per service for the period 1 July 2003 to 30 June 2005 \$	
33	Lamphole Adjustment Application <i>Application for an existing lamphole to be raised or lowered</i>	0.00	NA
34	Maintenance Hole Adjustment Application <i>Application for an existing maintenance hole to be raised or lowered</i>	0.00	NA
35	Vent Shaft Adjustment Application <i>Application for Sydney Water to investigate the feasibility of relocating or disusing a sewer vent shaft and an Accredited Supplier to undertake the work.</i>	190.50	NA
36	Disuse of Sewer Application <i>Application for a Sydney Water to investigate the feasibility to disuse an existing Sydney Water sewer.</i>	117.00	NA
37	Pump to Sewer Application <i>Application for Sydney Water to approve pumping or effluent to the sewer or house service line.</i>	0.00	NA
38	Service Protection Application (peg out) <i>Application for Sydney Water to locate /peg-out the position of Sydney Water's sewer/stormwater to avoid damage during construction activities. This may be required for approval to build over or adjacent to a Sydney Water sewer/stormwater as part of determining building requirements. An Accredited Supplier may also provide this service.</i>	See Note 1	See Note 1
39	Pier Supervision Application <i>Application for Sydney Water to supervise the piercing of an existing sewer. The application and work must be carried out by an approved supplier.</i>	60.50	105.00
40	Concrete Encasement Supervision Application <i>Application for Sydney Water to supervise the encasement of an existing sewer. The application and work must be carried out by an approved supplier.</i>	60.50	105.00
41(a)	Plumbing and Drainage Inspection Application <i>Application for Sydney Water to inspect any new sewer or drainage connections. This includes the drawing up of property sewerage diagrams on completion.</i>	46.50	NA
41(b)	Plumbing and Drainage Inspection Fee <i>Fee per inspection for Sydney Water to inspect any new sewer or drainage connections. NB: Application fee also applies.</i>	65.00	NA
41(c)	Plumbing and Drainage Re-inspection Fee <i>Fee per re-inspection for Sydney Water to inspect any sewer or drainage connections. NB: Application fee does not apply.</i>	65.00	NA

Service No.	Description	Maximum price per service for the period 1 July 2003 to 30 June 2005 \$	
42	Connection to Stormwater Channel Approval Application <i>Application for approval to connect to Sydney Water's stormwater channel greater than 300mm.</i>	242.00	NA
43	Inspection of Break In Stormwater Channel Application <i>Application for an inspection of a connection to Sydney Water's stormwater channel greater than 300mm</i>	179.50	NA
44	Inspection of Drainage Lines Application <i>Application for an inspection of drainage lines from stormwater connection to silt arrestor and updating of records.</i>	96.00	NA
45	Review of Hydraulic Plans <i>Application for Sydney Water to examine hydraulic drawings to determine if internal drainage meets plumbing regulations. Water and fire hydraulics to be submitted and examined individually.</i>	38.00	105.00
46	Subdivider/Developer Compliance Certificate (also known as a Section 73) <i>Application for a subdivider/developer compliance certificate stating whether a proposed development complies with Section 73 of the Sydney Water Act (1994). In addition, developer charges and various requirements may apply.</i>	300.50	NA
47	Developer Investigation Fee <i>Investigation of expanding reticulation systems to cater for developments requirements and to safeguard Sydney Water's assets.</i>	80.00	105.00
48	Design and Construct Contract Administration <i>Performance of various activities to ensure the quality of the work under contract during the development and to safeguard Sydney Water's assets.</i>	NA	105.00
49	Minor Extension Approval Application <i>Application for approval to undertake a minor extension of an existing service or for expanding reticulation systems for a development.</i>	130.00	NA
50	Hydrant Resealing <i>Charge levied on the property owner to reseal a fire hydrant to prevent illegal use of unmetered water.</i>	16.50	NA
51	Product Approval Application <i>Application for a product to be approved for use with Sydney Water's infrastructure.</i>	45.50	105.00
52	Dishonoured or Declined Payment Fee <i>Fee for dishonoured reversal/payment processing where a financial institute declined a payment to Sydney Water.</i>	18.50	NA

Service No.	Description	Maximum price per service for the period 1 July 2003 to 30 June 2005 \$	
53(a)	Supplement to WSAA Documents (includes supplement to Sewerage Code of Australia) <i>Covers Sydney Water's variations to the Water Reticulation Code of Australia for the design and construction of water reticulation mains.</i>	0.00	NA
53(b)	Minor Construction Standards <i>Standards set in construction of sewer sidelines and/or sewer mains of length not greater than 25 meters.</i>	0.00	NA
54(a)	Cancellation of Plumbers Permit <i>Application for Sydney Water to cancel a plumber's permit where both parties sign the application</i>	0.00	NA
54(b)	Cancellation of Plumbers Permit <i>Application for Sydney Water to cancel a plumber's permit where only one signatory is received.</i>	39.00	NA
55	Plumbing and Drainage Quality Assurance Application <i>New charge which is expected to be utilised when Sydney Water's Quality Assurance audit role becomes effective. With Sydney Water's Plumbing and Drainage inspectors moving towards a Quality Assurance role.</i>	141.50	NA
56	Hourly Rate - Technical Services <i>Hourly rate for provision of expertise and technical services</i>	NA	105.00
57	Hourly Rate - Civil Maintenance	NA	75.00
58(a)	Trade waste miscellaneous charges Industrial and commercial trade waste inspections		
	- with one Sydney Water representative	NA	66.70
	- with two Sydney Water representative	NA	133.40
	Minimum increment	33.35	NA
58(b)	Trade waste application fees <i>Applicable to industrial customers only</i>	222.00	NA
	- Variation	267.00	NA
58 (c)	Product authorisation / assessment <i>Applicable to commercial customers only</i>		
	- Application fee	200.00	NA
	- Assessment fee	NA	66.70
58 (d)	Sale of trade waste data	NA	66.70

Note 1: This service is contestable and can be provided by Sydney Water or other service providers based on market rates. As such these charges are not regulated by the Tribunal.

Schedule 7

Minor Service Extensions

1. Application

This Schedule sets the maximum prices that the Corporation may charge for certain services under paragraph (a) of the Order (water supply services) and paragraph (b) of the Order (sewerage services).

2. Prices for minor service extensions

- 2.1 The maximum price that the Corporation may charge for the provision of water and sewerage services that constitute a minor service extension is the price calculated under clause 3.
- 2.2 The price calculated under clause 3 may only be levied by the Corporation on a property after the application date for that property.

3. Calculating the price

- 3.1 The maximum price for the services in clause 2.1, when the connection date is the same as the availability date, is the price determined by the following formula:

$$P = \left[\frac{(NPV(K) - NPV(R))}{NPV(S)} \right]$$

- 3.2 The maximum price for the services in clause 2.1, when the connection date is the year following the availability date, is the price determined by the following formula:

$$P = \left[\frac{(NPV(K) - NPV(R))}{NPV(S)} \right] \times (qCPI_B)$$

- 3.3 The maximum price for the services in clause 2.1, when clauses 3.1 and 3.2 do not apply, is the price determined by the following formula:

$$P = \left[\frac{(NPV(K) - NPV(R))}{NPV(S)} \right] \times [(qCPI_A) \times \dots \times (qCPI_B)]$$

- 3.4 In clauses 3.1, 3.2 and 3.3:

P is the price per ET that the Corporation may levy under clause 2.2;

NPV means:

- (a) when applied to K or R, the net present value of K or R (as the case may be), applying a discount rate of 7 per cent;

- (b) when applied to S , the net present value of S (over the same period as that used to calculate R), applying a discount rate of 7 per cent.

K is the total capital cost of the minor service extension to which this Schedule applies;

R is the estimated future revenue to be derived in a given year from the provision of a minor service extension to the owners of the properties capable of being connected to the Corporation's water supply system or sewerage system, following a minor service connection;

S is so much of ET that the Corporation estimates is attributable to connections in a given year, following a minor service extension;

ET in relation to a minor service extension is a unit of measure of the additional load the Corporation estimates is placed on its water supply system or sewerage system from properties being connected to those systems following the minor service extension when compared to the load placed on those systems by an average residential property.

$qCPI_A$ is:

- (a) the sum of the CPI's for each of the four quarters in the financial year immediately following the availability date

divided by

- (b) the sum of the CPI's for each of the four quarters in the financial year of the availability date.

$qCPI_B$ is:

- (a) the sum of the CPI's for each of the four quarters in the financial year immediately preceding the connection date

divided by

- (b) the sum of the CPI's for each of the four quarters in the financial year immediately preceding the earliest quarter in paragraph (a).

"..." denotes:

- (a) the number of financial years between the year following the availability date and the connection date; and

(b) that in each of the financial years in paragraph (a) there is to be applied an index which is:

(i) the sum of the CPI's for each of the four quarters of that financial year;

divided by

(ii) the sum of the CPI's for each of the four quarters of the financial year immediately preceding the financial year in paragraph (i).

3.5 For example, if the proposed availability date for a property is January 2004, and the connection date for the property is May 2007, the charge under clause 2.2 is calculated by applying the formula in clause 3.3 as follows:

$$P_{example} = \text{Connection price}_{2004} \times (qCPI_{2005}) \times (qCPI_{2006}) \times (qCPI_{2007})$$

Where:

$P_{example}$ means the price that may be levied by the Corporation in this example,

Connection price₂₀₀₄ means the price for connection at the availability date, which is the amount derived from $\left[\frac{(NPV(K) - NPV(R))}{NPV(S)} \right]$

$$qCPI_{2005} = \left(\frac{CPI_{Sept2004} + CPI_{Dec2004} + CPI_{Mar2005} + CPI_{Jun2005}}{CPI_{Sept2003} + CPI_{Dec2003} + CPI_{Mar2004} + CPI_{Jun2004}} \right)$$

$$qCPI_{2006} = \left(\frac{CPI_{Sept2005} + CPI_{Dec2005} + CPI_{Mar2006} + CPI_{Jun2006}}{CPI_{Sept2004} + CPI_{Dec2004} + CPI_{Mar2005} + CPI_{Jun2005}} \right)$$

$$qCPI_{2007} = \left(\frac{CPI_{Sept2005} + CPI_{Dec2005} + CPI_{Mar2006} + CPI_{Jun2006}}{CPI_{Sept2004} + CPI_{Dec2004} + CPI_{Mar2005} + CPI_{Jun2005}} \right)$$

The application of the formula in clause 3.3 given the definitions in clause 3.4 results in $qCPI_{2006} = qCPI_{2007}$ in this example.

Assume in this example NPV(S) is calculated in the following way:

The Corporation estimates that the total ET for the minor service extension is 20. S is so much of the 20 ET that the Corporation estimates is attributable to connections in a given year.

If 10 ET were expected to connect to the system in the first year it became available, 4 in the next and the remaining 6 in the third, then applying a discount rate of 7 per cent:

$$NPV(S) = 10 + \frac{4}{1.07} + \frac{6}{1.07^2} \approx 18.99$$

4. Interpretation

4.1 In this Schedule:

Area of Operations has the same meaning as in the Corporation's operating licence in force at the commencement of this Determination.

application date is the date on which a person applies to the Corporation for connection, following a minor service extension.

availability date is the date on which a property is capable of being connected to the Corporation's water supply system or sewerage system, following a minor service connection, irrespective of whether the property is connected on that date.

connection date is the date on which a property is connected to the Corporation's water supply system or sewerage system, following a minor service extension.

4.2 A quarter is a period of three months.

4.3 The worked example in clause 3.5 may be used as guidance in interpreting this Schedule.

Schedule 8

Definitions and Interpretation

1.1 Definitions

In this Determination:

AAV means the assessed annual value of land as defined by the *Valuation of Land Act 1916*.

Blue Mountains septic service means the service, of pumping out effluent from properties with septic tanks, that the Corporation provides to some properties within the Blue Mountains City Council area proclaimed under the *Local Government Act, 1993*.

commercial customer is defined in the Trade Waste Policy.

community association has the meaning given to that term under the *Community Land Development Act 1989*.

community development lot has the meaning given to that term under the *Community Land Development Act 1989*.

community title property means a community parcel as defined in the *Community Land Development Act 1989*.

company title means a type of title for multi occupancy buildings (usually home units), where the company owns the building, and the company shares are divided into a number of blocks or classes, entitling the owner of the shares to exclusive occupation of a part of the building.

Corporation means the Sydney Water Corporation constituted under the *Sydney Water Act 1994*.

declared stormwater drainage area has the meaning given to that term under the *Sydney Water Act 1994*.

Determination means this determination, including all appendices, attachments, schedules, tables and documents forming part of or referred to in this determination

df% or discharge factor for a non-residential property, means the ratio of the amount of waste water discharged from the property into the Corporation's sewerage system, to the metered water entering the property, expressed as a percentage as determined by the Corporation.

exempt property means land described in Part 1, Schedule 2 of the *Sydney Water Act, 1994* .

filtered water means water that has been treated at a water filtration plant.

GST means the Goods and Services Tax as defined in *A New Tax System (Goods and Services Tax) Act, 1999*.

industrial customer is defined in the Trade Waste Policy.

IPART Act means the *Independent Pricing and Regulatory Tribunal Act 1992*.

kL means kilolitre or one thousand litres.

meter means a meter or other apparatus for the measurement of water, including any pipes and like fittings ancillary to such apparatus.

metered property means a property that has its water supply measured by a meter either directly or jointly with other properties.

metered standpipe means a metered device for connecting to one of the Corporation's fire hydrants to enable water to be extracted.

multi premises property means:

- (a) a strata title building,
- (b) a company title building,
- (c) a community parcel, or
- (d) a building comprised of separate premises.

However, it does not include a hotel, motel, guest-house or backpacker hostel.

non-residential property means a property that is not residential property.

Order means *Independent Pricing and Regulatory Tribunal (Water, Sewerage and Drainage Services) Order 1997* made on 5 February 1997 and published in Government Gazette No. 18, on 14 February 1997.

owners corporation has the meaning given to that term under the *Strata Schemes Management Act 1996*.

premises means each of the following within a multi premises property:

- (a) a strata title unit,

- (b) a company title unit,
- (c) a community development lot, or
- (d) a part of a building lawfully occupied or available for occupation for residential purposes

each of which has a direct or indirect connection to the Corporation's water supply system (in the case of water supply charges) or the Corporation's sewerage system (in the case of sewerage charges).

property means:

- (a) land, whether built on or not, or
- (b) premises within a multi premises property, where this Determination deems those premises to be one or more separate properties,

that is within the Corporation's area of operations.

relevant multi premises body, in respect of a multi premises property, means:

- (a) an owners corporation (in respect of a strata title building),
- (b) a company (in respect of a company title building),
- (c) a community association (in respect of a community parcel),
- (d) an owner (in respect of a building lawfully occupied or available for occupation).

residential property means a property where:

- (a) the dominant use is residential; and
- (b) in the case of each premises in a multi premises property that is deemed to be a property for any purpose under this Determination:
 - (i) the land upon which the premises are located is categorised as residential under section 516 of the Local Government Act, or
 - (ii) the dominant use of those premises is residential.

[Note: section 516 of the *Local Government Act 1993* defines how land is categorised as residential. Under that section, hotels, motels, guest-houses, backpacker hostels or nursing homes or any other form of residential accommodation (not being a boarding house or a lodging house) prescribed by the regulations, are not included in this definition].

Rouse Hill Development Area means that area in the map bounded by the broken line in the Attachment excluding that area described as "Kellyville existing residential area" and the "cemetery".

strata title building means a building that is subject to a strata scheme under the *Strata Schemes (Freehold Development) Act 1973*.

strata title unit means a lot as defined under the *Strata Schemes (Freehold Development) Act 1973*.

Trade Waste Policy means the Corporation's *Trade Waste Policy and Management Plan* (July 2001) as amended from time to time.

Tribunal means the Independent Pricing and Regulatory Tribunal of New South Wales established under the IPART Act.

unconnected when used in relation to a property (whether a residential property or a non-residential property) means a property that is not connected, either directly or jointly with other properties to a water main or sewerage main owned by the Corporation.

unfiltered water means water that has been chemically treated but not treated at a water filtration plant.

unmetered when used in relation to a property means a property that does not have its water supply measured by a meter either directly or indirectly or jointly with other properties.

vacant property means a property with no capital improvements and no connection to the Corporation's water supply system.

year means a period of twelve months commencing 1 July and ending on 30 June in the ensuing calendar year.

1.2 Consumer Price Index

In this Determination:

- (a) **CPI** means the consumer price index All Groups index number for the, weighted average of eight capital cities, published by the Australian Bureau of Statistics, or if the Australian Bureau of Statistics does not or ceases to publish the index, then CPI will mean an index determined by the Tribunal that is its best estimate of the index.

(b)
$$DCPI = \left(\frac{CPI_{Jun2003} + CPI_{Sep2003} + CPI_{Dec2003} + CPI_{Mar2004}}{CPI_{Jun2002} + CPI_{Sep2002} + CPI_{Dec2002} + CPI_{Mar2003}} \right) - 1$$

- (c) The subtext (for example _{Jun 2003}) when used in relation to CPI means the CPI for the quarter and year indicated (in the example the June quarter for 2003).

2. Interpretation

2.1 Prices exclusive of GST

Prices or charges specified in this Determination do not include GST.

2.2 Billing cycle of the Corporation

- (a) Nothing in this Determination affects when the Corporation may issue a bill to a customer for prices or charges under this Determination.
- (b) Where the bill traverses the period in determination No. 8 of 2000 and this Determination or where this Determination provides for a price variation between one period and another, the Corporation may apply the price variation on the date of its next bill or date of the next meter reading period or any other date nominated after the price variation.

2.3 General provisions

- (a) A schedule means a schedule to this Determination.
- (b) A clause means a clause in this Determination and when used in a schedule means a clause in that schedule, unless otherwise indicated.
- (c) Words importing the singular include the plural and vice versa.
- (d) The explanatory notes do not form part of this Determination, but in the case of uncertainty may be relied on for interpretation purposes.

