

Review of Metropolitan Water Agency Prices

Issues Paper

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

Review of Metropolitan Water Agency Prices

Issues Paper

Discussion Paper DP55

June 2002

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Submissions must be made in writing and should be sent to the postal address, fax number or email address below. Where possible submissions should be provided in a computer readable format (eg, word processor, PDF or spreadsheet) either on disk or by email.

Submissions from water agencies should be received by 30th September 2002

Submissions from other stakeholders should be received by 15th November 2002

Submissions should be sent to:

Review of Metropolitan Water Agency Prices
Independent Pricing and Regulatory Tribunal
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1 INTRODUCTION

The Independent Pricing and Regulatory Tribunal (the Tribunal) is conducting a price review of the maximum charges to apply from 1 July 2003 for each of the four metropolitan water supply authorities: Sydney Water Corporation, Hunter Water Corporation, Gosford City Council and Wyong Shire Council. The review is being conducted under Section 11 of the *Independent Pricing and Regulatory Tribunal Act 1992*.

Concurrently, the Tribunal is also conducting a Mid Term Review of the Sydney Catchment Authority's price path. The current price path is due to expire at 30 June 2005. In the event that the Tribunal deems a price adjustment is necessary, it will introduce a fresh determination, effectively repealing the current determination.

In 2000, the Tribunal determined maximum prices for water, sewerage and drainage services charged by Sydney Water Corporation (Sydney Water), Hunter Water Corporation (Hunter Water), Gosford City Council (Gosford Council) and Wyong Shire Council (Wyong Council). At the same time, the Tribunal also determined maximum prices for the bulk water supplied by the Sydney Catchment Authority (SCA).

The existing price paths for all except the Sydney Catchment Authority expire at 30 June 2003. In response to a specific reference by the Premier, the Tribunal determined a five year price path for Sydney Catchment Authority from 1 October 2000 to 30 June 2005.

This review will provide the opportunity to continue the fundamental reform of pricing structures commenced in 1992. However, the Tribunal is aware that it faces fresh challenges in setting urban water prices. In particular, constraints on water availability because of population growth and requirements for environmental flows for the river systems will focus particular attention on demand management and supply augmentation issues.

Similarly, the enhancement of wastewater transport and treatment systems to ensure improved environmental outcomes is likely to be a significant issue in considering future costs and prices. The Tribunal will also, after several years of consecutive real cost reductions, be carefully considering the extent of further efficiency gains that may be made by water agencies.

Some of the key issues for the Tribunal in making this price determination which are raised in this Issues Paper are:

- What is the most appropriate way to create incentives to encourage achievement of an optimal level of service quality?
- How efficient are the operating costs of the water agencies and what scope is there for further efficiency gains to be achieved over the next price determination period?
- What are the capital expenditure requirements of the water agencies and what outcomes will be achieved by proposed capital expenditure?
- What is an appropriate return on capital for these water agencies?
- Is it appropriate for the Tribunal to adopt the 2000 regulatory asset base (RAB) as the ongoing basis for valuation? What implications would this have for revenue and prices?

Independent Pricing and Regulatory Tribunal

- What water demand assumptions should the Tribunal adopt for setting prices in the 2003 determination?
- Should a form of 'step pricing' be introduced to the prices paid by Sydney Water to the Sydney Catchment Authority to provide a commercial demand management incentive for Sydney Water?
- How efficiently and effectively is the Sydney Catchment Authority managing the Sydney catchment and what is the optimum level of revenue required by SCA for its catchment management activities?

2 REVIEW PROCESS

2.1 Matters to be considered

In making its determination, the Tribunal is guided by the *Independent Pricing and Regulatory Tribunal Act 1992*. In this regard, Section 15 of the Act requires that the Tribunal consider various matters in making its pricing decisions. Section 15 is set out in full in Appendix 1. 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.

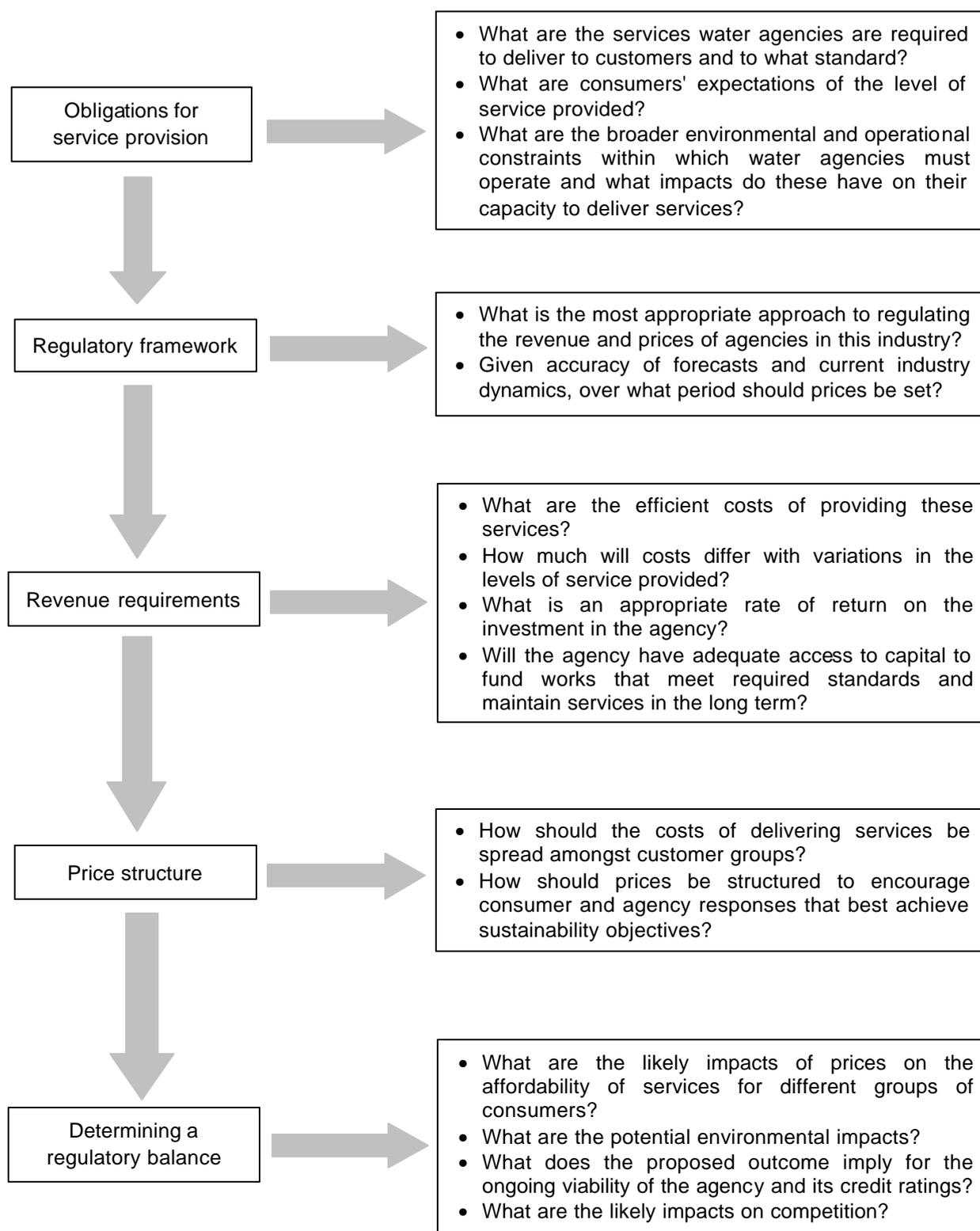
Environmental

- promotion of ecologically sustainable development via appropriate pricing policies
- considerations of demand management and least cost planning.

2.2 Tribunal decision making

The Tribunal will carefully consider these issues, along with submissions received, as it works through a decision process to arrive at a set of prices for each agency. The decision making stages are highlighted in the following diagram.

Table 2.1 IPART's determination process



2.3 Timetable for review

The proposed timetable for the price path review is:

Action	Timetable
Release of issues paper	June 2002
Water agency submissions due	30 September 2002
Public submissions due	15 November 2002
Public hearings	December 2002
Final reports	May 2003

Please note that the above dates are indicative and may be subject to change.

2.4 Submissions

This Issues Paper is intended to help the water agencies and interested parties prepare submissions to this price review. The paper explains how the price review will be undertaken, provides background on the water industry, and identifies issues on which the Tribunal seeks input and public comments. The issues raised in this paper are those the Tribunal considers to be relevant for assessing potential water, sewerage and drainage charges. However, the Tribunal welcomes submissions on any issues relevant to pricing that interested parties believe should be addressed.

3 INDUSTRY STRUCTURE

3.1 Overview

The four metropolitan retail water agencies and the Sydney Catchment Authority are responsible for the provision of water, sewerage and some drainage services to almost 5 million people. The region they service stretches from south of Wollongong to north of Newcastle.

Sydney Water serves the Illawarra, Blue Mountains and Sydney regions. The two local councils (Gosford and Wyong) provide water and sewerage services to their own communities on the Central Coast. Hunter Water provides services in the lower Hunter Valley, which encompasses the localities of Newcastle, Lake Macquarie, Cessnock and Port Stephens.

The size of operation of the four metropolitan water suppliers varies significantly (see Table 3.1). The *asset values* presented in this table are the values quoted in the agencies' financial accounts. These are distinguished from the values used for pricing purposes included in the table as the *regulatory asset base*.

Table 3.1 Customer profile and revenue base (\$m), 2000/01

	Sydney Water	Hunter Water	Gosford	Wyong
Operating area (sq km)	13,000	5,400	1,028	827
Estimated population	4,092,000	484,206	155,486	137,000
No. of properties (including vacant properties)	1,614,443	213,932	62,766	55,474
Tariff income (\$m)	1,216.4	113.9	37.6	30.3
Asset value (written down replacement cost \$m)	13,103.7	1,949.7	521.3	526.2
Regulatory asset base \$m ¹	5,922	862	235	206

Source: 2001 IPART annual information returns from water agencies.

3.1.1 Sydney Water Corporation

Sydney Water is the largest water agency regulated by IPART, providing services to a population of around 4 million in Sydney, the Blue Mountains and Illawarra regions. Unlike the other water agencies included in this review, Sydney Water does not manage its own bulk water supplies. Instead, the Sydney Catchment Authority, from whom Sydney Water purchases bulk water, now manages Sydney's drinking water storages and catchments.

¹ These values were projected for the Tribunal's pricing determinations in 2000. For a detailed discussion of the regulatory asset bases of the utilities please refer to section 6.3 *Regulatory Asset Base*.

In 1995, the Sydney Water Board was corporatised, to form Sydney Water, a state owned corporation (SOC) under the *State Owned Corporations Act 1989*. Under Section 21 of the *Sydney Water Act 1994*, the Corporation 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.

In return for its virtual monopoly status, the operating licence sets minimum performance standards for Sydney Water and places obligations on the corporation with respect to customer service, system performance and environmental performance. IPART is responsible for conducting annual audits of Sydney Water's compliance with its licence. Large financial and other penalties can be imposed for breach of the licence. Sydney Water is also required 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.

3.1.2 Sydney Catchment Authority

The Sydney Catchment Authority (SCA) was established to manage water supply and protect catchments, supply bulk water and regulate activities within Sydney's catchment areas to improve water quality, protect public health and the environment.

As such the SCA has primary responsibility for Sydney's bulk water supply, which is drawn from the catchments of four major river systems – the Warragamba, Upper Nepean, Woronora and Shoalhaven. These catchments extend over 16,000 square kilometres and surround the Sydney Greater Metropolitan Region.

The Catchment Authority endeavours to sustainably manage these catchment areas in order to supply Sydney Water and its other bulk water customers with high quality bulk water. The Authority was created as a result of the Sydney Water Inquiry, headed by Peter McClellan QC (the McClellan Inquiry). This Inquiry investigated the water quality incidents experienced in Sydney between July and September 1998. The Inquiry found that the catchments were seriously compromised by many possible sources of contamination and that in relation to catchment management, there were:

...a large number of government and non-government agencies operating with fragmented responsibilities potential overlaps and gaps. No one body is responsible for ensuring the catchment is managed to minimise contamination of the available waters.²

² Sydney Water Inquiry, *Third Report: Assessment of the contamination events and future directions for the management of the catchment*, October 1998, p 101.

In order to correct these deficiencies, the McClellan Inquiry recommended the establishment of an independent agency:

...tasked to protect the water quality in the Inner and Outer Catchments and given management responsibilities for the Inner Catchment and powers to oversight a new strong and strategic Regional Environmental Plan for the whole catchment.³

In response to the McClellan Inquiry, the State Government enacted the *Sydney Water Catchment Management Act 1998* which created the SCA. The Authority became operational on 2 July 1999.

In common with both Sydney Water and Hunter Water, the Catchment Authority is required to comply with, and be audited against an Operating Licence issued by the NSW Government. The licence set standards and obligations on aspects of the Authority's operations, such as, bulk water quality, catchment management, customer service and management of catchment infrastructure.

3.1.3 Hunter Water Corporation

Hunter Water provides water, sewerage and some stormwater drainage services within the local government areas of Newcastle, Lake Macquarie, Maitland, Cessnock and Port Stephens. Hunter Water also supplies bulk water to the towns of Dungog, Clarence Town and Paterson.

Three major water sources supply water to Hunter Water – Chichester and Grahamstown Dams and the Tomago Sandbeds. Hunter Water is also able to access other ground water sources at Nelson Bay and Lemon Tree Passage if required.

In 1992, the then Hunter Water Board was corporatised becoming Hunter Water Corporation. Hunter Water was one of the first authorities in Australia to be corporatised and as such it introduced the type of regulatory structure that now exists for Sydney Water and the Sydney Catchment Authority.

The *Hunter Water Act 1991*⁴, sets out that Hunter Water is to have an operating licence that specifies certain quality and performance standards and which incorporates a Customer Contract which sets out the rights and obligations of customers.

In 2001, the Tribunal undertook a review of Hunter Water's operating licence, developing a new licence which will take effect from 1 July 2002. It will also shortly commence a further review of the Corporation's Customer Contract.

³ Sydney Water Inquiry, *Third Report: Assessment of the contamination events and future directions for the management of the catchment*, October 1998, p 117.

⁴ Sections 12 and 35, *Hunter Water Act 1991*.

3.1.4 Gosford City Council and Wyong Shire Council

Gosford City Council and Wyong Shire Council are responsible for the supply of water and provision of wastewater services within their own local government areas, but share bulk water sources. Since the early 1970's, Wyong Council and Gosford Council have jointly developed water supply headworks to supply both councils. In 1997, the joint committee established by the councils was renamed the Gosford/Wyong Councils' Water Authority and its charter was widened to address regional water supply and sewerage issues.

The water storages are Mooney and Mangrove Creek Dams in Gosford Council's area and Mardi Dam in Wyong Shire.

Unlike the other metropolitan water agencies, Gosford and Wyong Councils do not have operating licences which set targets, outline compliance requirements and establish a customer contract. Instead, under the *Local Government Act 1993*, the Councils are required to develop annual management plans with respect to all their activities, including water and wastewater services.⁵

The Councils' performance in managing the water and wastewater business is also subject to public scrutiny via an annual performance comparisons report on local government water services throughout NSW. This report is produced jointly by DLWC and the Local Government and Shires Associations of NSW and aims to improve service quality through competition by comparison.

⁵ Section 402, *Local Government Act 1993*.

4 OBLIGATIONS FOR SERVICE PROVISION

4.1 Service obligations

The water agencies are paid a price for services delivered. What services are delivered, and how they are delivered, are defined in several legal instruments and are subject to the control and direction of regulators. Over and above these basic service conditions, the agencies have limited ability to differentiate between customers and the prices customers pay for different service levels. However, some variations in service levels do occur because of local geography (eg water pressure) as well as demands made on the water and wastewater systems (eg content and quantity of industrial discharges to the wastewater system).

In addition, price regulators in other jurisdictions (eg United Kingdom) have allowed prices to fluctuate within a narrow band for variations in discretionary service levels.

4.2 Regulators

Each agency operates within a broad regulatory environment, in which the Tribunal's role as economic regulator is just one component. Whilst the two state owned corporations (SOC) are governed by their own Acts and their operating licences, Gosford and Wyong Councils are subject to the *Local Government Act 1993* and the *Water Management Act 2000*. In addition to this there are also a number of primary government regulators with responsibility for all the metropolitan water agencies:

- **Independent Pricing and Regulatory Tribunal (IPART)**, is responsible for setting maximum prices that can be charged by the metropolitan water agencies for monopoly services. In the case of Sydney Water, Hunter Water and the Sydney Catchment Authority, IPART is responsible for monitoring and reporting the agencies compliance with their operating licences.
- **Department of Land and Water Conservation (DLWC)**, has primary responsibility for the management of water resources throughout NSW. DLWC issues Water Management Licences to water authorities, which regulate water extractions, environmental flow requirements in natural waterways and other resource management issues.
- **Environment Protection Authority (EPA)**. In the context of water and wastewater businesses, the primary focus of the EPA's activities is in licensing sewage treatment facilities and ensuring that effluent discharges do not harm receiving waters.
- **NSW Health**, is responsible for ensuring the quality and safety of drinking water.

4.3 Licensing

The Tribunal's primary role is to establish prices for government monopoly services. However, under amendments to the IPART Act in November 2000, the Tribunal assumed significant utility licensing functions across both the water and energy sectors.

In the context of the metropolitan water agencies, the Tribunal is now the Licence Regulator for Sydney Water, Hunter Water and the Sydney Catchment Authority. The role of the Licence Regulator is to conduct audits of the respective agencies' operating licences and report on their compliance against these instruments.

The operating licences are designed to protect customers and the public interest. They do so by imposing performance standards, obligations and reporting requirements for customer service, system performance and environmental protection.

As Licence Regulator, IPART has undertaken the 1999/2000 audits of the Sydney Catchment Authority and Hunter Water, and has recently completed the 2000/01 audits of all three agencies. The Tribunal has also reviewed Hunter Water's operating licence and Sydney Water's system performance standards and customer contract. In 2002, IPART will also conduct mid term reviews of the licence arrangements for Sydney Water and the Catchment Authority, as well as recommending the terms of a new customer contract for Hunter Water.

4.4 Customers' willingness to pay

In a competitive market customers would be able to compare services and the associated prices offered by numerous suppliers. There is limited opportunity for this to occur in the water industry. The agencies undertake customer surveys, maintain records of complaints, operate customer forums and provide various opportunities for customer input into the decision process (eg public exhibition of plans, Council elections).

In addition, some customers wish to disconnect from the water agencies' systems and have their needs met by on-site systems. This creates environmental and regulatory issues that go beyond the Tribunal's regulatory powers. However, the Tribunal is required under its legislation to encourage competition and would be concerned to ensure that pricing structures did not have the effect of precluding otherwise acceptable small scale systems.

How best can the Tribunal assess customers' willingness to pay for the services offered and the need for any enhancement in services?

5 REGULATORY FRAMEWORK: PRICING

Regulation of the water businesses is used in the absence of competitive markets, to ensure that the joint aims of economic efficiency, and meeting social and environmental objectives are achieved. Given the monopolistic nature of these businesses, without regulation, there are few incentives to ensure that the businesses operate efficiently and meet society's social and environmental objectives.

In general, pricing certainty increases with the length of the price path. However, it also introduces rigidity that may not reflect adequately the dynamics of the industry, customers' interests and community expectations. The price path period needs to balance the desire for certainty with these other factors.

5.1 Incentive regulation

There is a range of alternative approaches to price regulation. The Tribunal's current approach in the water industry is to determine the maximum prices for specific services. These prices are then adjusted over the period of the price path for:

- movements in general inflation
- efficiency gains, and
- significant changes in the operating environment, for example new environmental standards or customer service standards.

These prices will generate a given level of revenue based on an assumed level of services delivered, in terms of both quality and quantity. The level of prices may, in turn, influence the demand of customers for the particular services (see Chapter 7).

The revenue generated will be used to pay for the costs of service provision. These costs or 'building blocks' (see Chapter 6) have been outlined by the Council of Australian Governments⁶ and can be categorised as:

- operations, maintenance and administration
- provision for the cost of asset consumption
- provision for the cost of capital
- externalities.

While an assessment of each of the building blocks is central to the Tribunal's price determination, simple aggregation of the building blocks is considered too rigid to be used in isolation of the Tribunal's regulatory judgement. The Tribunal also considers the implications of the pricing outcome on consumers and the agencies' overall profitability and financial viability.

⁶ COAG, *Compendium of National Competition Policy Agreements*, Second Edition, 1998, p 112.

5.2 Linking price and service levels

The Tribunal has used an incentive regulation approach to drive operational efficiency improvements from water businesses. The Tribunal has set a targeted level of efficiency improvement for a given level of prices and level of services. To the extent that agencies have exceeded the targeted efficiency gains they have been allowed to retain those additional savings within the agency for the period of the price path.

The Tribunal is now also seeking to create better incentives for the delivery of quality services consistent with customers' demonstrated willingness to pay for higher service levels.

5.2.1 Current regulatory framework

In seeking efficiency improvements the Tribunal has been conscious of the need to ensure that increases in efficiency are not achieved at the cost of standards of service. The Tribunal sets prices for water services on the assumption that existing standards of service⁷ will at least be maintained. Additionally, other regulatory instruments, such as the Operating Licence for Sydney Water and Hunter Water, or discharge standards set by the EPA prescribe minimum standards that must be met. For some of the basic system service parameters these standards are comfortably met by the water agencies; indeed here are some indications that these standards have historically been set in light of the operating capacity of the businesses.

The Tribunal is concerned that these approaches, whilst ensuring a minimum or baseline of service is delivered, provide little incentive to water businesses to improve the levels of service delivered to customers above the minimum requirements. Further, they may not provide an adequate safeguard against reductions in service levels to minimum standards through the implementation of efficiency measures.

Whilst Sydney Water and Hunter Water are subject to minimum standards for key services in operating licences, Gosford and Wyong Councils' water businesses are not subject to operating licence requirements. They are, however, subject to oversight by their respective councils and other regulators such as the EPA and NSW Health.

5.2.2 Approaches to protect and enhance service levels

The Tribunal is considering two, potentially complementary, approaches to facilitating enhancements to customer service levels.

Water agencies, in making submissions to the Tribunal, may seek price rises specifically to fund costs associated with proposed enhancements to service levels. Where agencies propose such enhancements they will need to demonstrate to the Tribunal:

- the benefits that will accrue to customers
- customers willingness to pay for proposed enhancements to service
- that performance data is available to verify achievement of proposed outcomes, and

⁷ Service standards in Operating Licences for Hunter Water and Sydney Water address water quality, pressure, continuity, and sewage overflows to private land.

- that the proposed enhancements are the most efficient means of achieving the proposed outcomes.

Where a water agency has satisfactorily addressed these issues the Tribunal will consider allowing for increased expenditure in calculating a revenue requirement, subject to what it considers to be appropriate restraints on overall price movements. It would then monitor the related expenditure and resulting service performance outcomes.

Additionally, the Tribunal is considering development of approaches to enhance the financial incentive to businesses to provide improved or comparatively higher levels of customer service during the course of a price determination period.

Effectively, this would mean that businesses that increase the level of service provided to customers in key areas, within an existing price framework, would be allowed marginally higher prices at the next periodic pricing review. Businesses that decreased pre existing levels of service delivery would be allowed marginally lower prices than would otherwise be the case.

In some other jurisdictions a service performance index is calculated based on performance measures weighted to reflect customer priority. This index forms part of the calculated price adjustment. However, the Tribunal's preferred approach, given the currently limited system performance data available, would be for it to take into account performance against agreed indicators over a prior determination period when making price adjustment judgements at a subsequent periodic review.

In taking service performance improvements into account the Tribunal would need to be satisfied that the additional revenue allowed was proportionate to the cost to the business of the relevant service quality improvements. Additionally, to the extent practicable, it would need to be satisfied that any price increases as a result of enhanced service levels did not exceed the value placed on enhanced service by customers.

A primary requirement for the development of a closer link between service levels and prices is the availability of high quality, verifiable data on system performance indicators and standards. At this stage the Tribunal is not satisfied that appropriately robust data is available from all agencies. As an initial step towards developing a closer price/quality link the Tribunal intends working with the water agencies to develop a standardised, reliable set of performance measures.

The Tribunal does not intend implementing an approach of this nature for this price review. Rather, it is interested in developing the approach to enable price adjustment to occur at the conclusion of the subsequent price review period. It is of the view that water agencies should be aware, at the commencement of a price determination period, of any measures to be used and the scope of financial incentives/penalties that might be applied by a service performance adjustment to prices at the end of the period.

What is the most appropriate way to create incentives to encourage achievement of an optimal level of service quality?

5.3 Period of price path

Sydney Water have requested that the price path be limited to a maximum of two years because of major changes occurring within their business and in the regulatory and institutional environment within which they operate.

A two year price path is at the lower end of the Tribunal's preferred length of pricing determination because it provides limited certainty to customers and additional workload with associated costs.

There are significant economies for the Tribunal in determining prices for all metropolitan water agencies concurrently.

However, after carefully considering this issue, the Tribunal is persuaded that the circumstances facing the industry generally, and specific agencies particularly, over the short to medium term, indicate that a two year price determination is appropriate for all four retail water agencies. The factors that led the Tribunal to this conclusion include:

- uncertainty about the impacts of environmental flow requirements on water supply capacity and the possible requirement for additional capital investment
- broader reviews of stormwater institutional structures currently being undertaken and the likelihood of impacts on funding and pricing arrangements
- difficulties being experienced by Sydney Water meeting demand management targets currently contained in its operating licence
- the expiry of the current SCA price path in 2005 and the opportunity to synchronise the price determinations of the SCA and Sydney Water and
- the operating licences of both the SCA and Sydney Water are current until 2005. Synchronisation of renewal of these licences with a new price path is considered desirable.

The Tribunal considers it appropriate, having reached this conclusion, to signal its intention to make a two year determination to commence from 1 July 2003. This will enable water agencies and other stakeholders to frame submissions to the Tribunal's inquiry in a more focussed and efficient manner.

6 REVENUE REQUIREMENTS

As part of the building block assessment of the revenue needs of the water businesses, the Tribunal considers projections of operating and capital expenditure for the determination period. These are considered in the context of its implications for overall service quality and performance. For these purposes, the Tribunal will seek detailed information on the performance of each water business in these areas, and projections of future requirements.

For the 2000 determination, the Tribunal engaged an independent consultant to review the operating and capital expenditure programs of the water agencies and make recommendations of where efficiency gains could be made. It is the Tribunal's intention to conduct a similar review for the forthcoming determination. The review will be directed at assessing the efficiency of operations and the prudence and effectiveness of capital expenditure programs.

6.1 Operating expenditure

Operating expenditure refers to costs incurred in the operation, maintenance and administration of the core business of the water agencies. These costs are substantial in the water industry as they include labour, materials, contracting and energy costs. Much of the efficiency gains made by the water agencies in past determinations have been due to reductions in operating expenditure.

6.1.1 Trends in operating expenditure

Figure 6.1 shows that the real operating costs for wastewater and water on a per property serviced basis for Sydney Water, Hunter Water and Wyong Council have declined between 1993 and 2001. Gosford Council's costs have remained steady. Over the last half of the decade, Hunter Water and Wyong Council have shown the greatest reduction in operating costs. Hunter Water's operating costs are the lowest in absolute terms.

Figure 6.1 Operating costs per property serviced (\$2001, real)

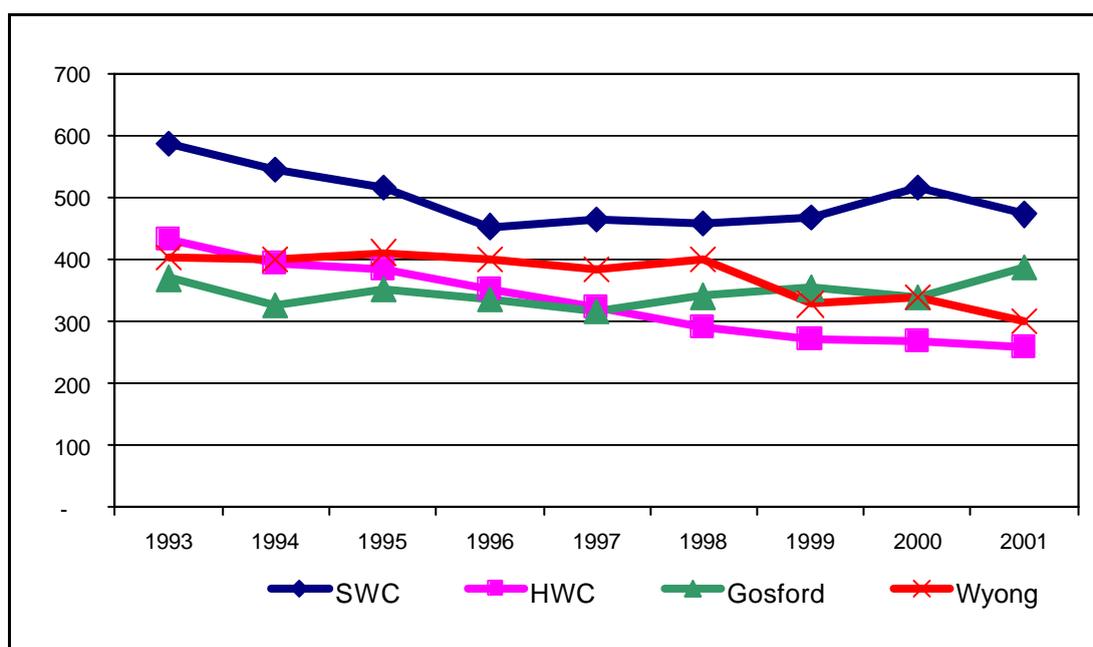


Table 6.1 presents information on the difference between actual and expected operating expenditure for the water agencies. While actual operating expenditure may vary from that projected within a given year, these variations might be expected to balance out through the course of a price determination period.

For a more extensive overview of operating expenditure by the water agencies see IPART's *Water Industry Overview 2001*.

Table 6.1 Actual versus expected total operating expenditure

	2001	2002
	(\$ million, nominal)	
Sydney Water		
Operating expenditure		
- actual/budgeted	762.8	724.6
- expected	734.6	728.5
- difference	3.8%	-0.5%
Hunter Water		
Operating expenditure		
- actual/budgeted	55.2	56.7
- expected	51.4	52.6
- difference	7.4%	7.9%
Sydney Catchment Authority		
Operating expenditure		
- actual/budgeted	57.8	73.5
- expected	60	63.5
- difference	-3.7%	15.8%
Wyong Shire Council		
Operating expenditure		
- actual/budgeted	16.7	18.8
- expected	16.4	16.3
- difference	2.0%	15.5%
Gosford City Council		
Operating expenditure		
- actual/budgeted	24.3	27.0
- expected	21.6	22.3
- difference	12.3%	21.3%

Note: Actual/budgeted expenditure based on information in the 2001 Annual Information Return provided to IPART by the water agencies containing revised agency expectations for operating expenditure in 2002. Expected expenditure is based on those reported in the 2000 price determination for each water agency.

6.1.2 Sharing the benefits and costs of differences between expected and actual operating expenditure

A substantial issue facing the Tribunal for the forthcoming determination period is how to deal with discrepancies between actual and expected operating expenditure for the price determination period. Projections for operating expenditure in the 2000 determination were decided by the Tribunal on the basis of expectations about revenue needs and the potential for efficiency gains. These projections may not be met for a range of reasons, including unexpected changes in environmental requirements and climatic conditions, beyond the control of the water agency.

There is a range of possible options for handling over and under spending of operating expenditure. The Tribunal proposes to review operating expenditure for the determination from the baseline of *actual* operating expenditure in 2001-2002.

6.1.3 Future projected operating expenditure

The Tribunal will be reviewing operating expenditure projections provided by the water agencies and asking them to provide information on the potential for further future efficiency gains. The Tribunal will also be asking agencies to provide information on the drivers behind any projected real increases in operating expenditure during the determination period.

The information provided by the agencies will be used in conjunction with the Tribunal's own analysis to determine appropriate levels of future operating expenditure for each agency.

How efficient are the operating costs of the water agencies? What scope is there for further efficiency gains to be achieved over the next price determination period?

6.2 Capital expenditure

Capital expenditure enters the revenue requirement through its addition to the regulatory asset base (RAB). Depreciation of the RAB and a rate of return on the RAB is added to the revenue requirements of the business. A sufficient rate of return is needed to ensure that efficient capital expenditure investment is undertaken. If the rate of return is too high or too low, then over or under investment in capital can occur.

In its considerations for the 2000 price determination, the Tribunal engaged a consultant to undertake a capital expenditure review. This review was, in part, the basis for the Tribunal's determination as to whether proposed capital expenditure was prudent given the efficient capital needs of the businesses.

Part of the capital review identified how the efficiency of capital expenditure can be improved through a range of approaches. These included increasing program effectiveness by revising capital works to minimise inputs; achieving procurement efficiencies by improving contract management; and the use of innovation by encouraging and adopting new technologies which achieve outcomes with overall lower inputs.

There are a number of key drivers which affect capital expenditure, including, but not limited to; growth in demand for the agencies services; changes to standards, especially increased environmental requirements; and the state of existing infrastructure and its need for replacement. The Tribunal in its price determination process will consider all of these factors.

6.2.1 Trends in capital expenditure

Figure 6.2 shows the relative movement of real capital expenditure between the water agencies between 1997 and 2001. Although the levels vary on a year-to-year basis, capital expenditure for Sydney Water, Hunter Water and Wyong Council have risen considerably since 1997.

Figure 6.2 Index of real actual capital expenditure (1997 = 100)

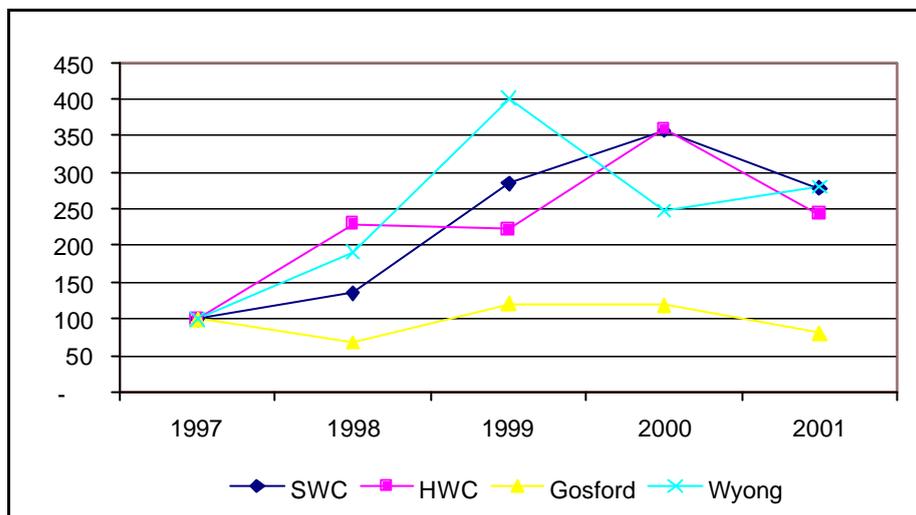


Table 6.2 Actual versus expected capital expenditure

	2001	2002
	(\$ million, nominal)	
Sydney Water		
Capital expenditure		
- actual/budgeted	370.9	440.4
- expected	450.0	397.0
Hunter Water		
Capital expenditure		
- actual/budgeted	32.1	47.1
- expected	42.6	45.4
Sydney Catchment Authority		
Capital expenditure		
- actual/budgeted	33.3	45.4
- expected	45.8	52.6
Wyong Shire Council		
Capital expenditure		
- actual/budgeted	8.9	10.1
- expected	15.0	14.1
Gosford City Council		
Capital expenditure		
- actual/budgeted	1.7	5.1
- expected	7.2	2.6

Note: Capital expenditure is net of capital contributions. Actual/budgeted expenditure based on information provided in the 2001 Annual Information Returns. 2002 budgeted expenditure is based on revised agency projections for the year 2002. Expected expenditure as reported in each 2000 price determination by IPART.

Given the long term nature of capital expenditure projects there may be discrepancies on the basis of delays or changing priorities of the water agencies. Table 6.2 presents information on the difference between actual and expected capital expenditure by the water agencies during the current determination period.

6.2.2 Sharing the benefits and costs of differences between expected and actual capital expenditure

Like operating expenditure, it is possible that actual capital expenditure can differ widely from expected capital expenditure during the period of a price determination for a range of reasons. In making its pricing decision, the Tribunal assumes that allowed projected capital expenditure occurs, and consequently allows a rate of return plus depreciation on this additional capital expenditure from the time it was to be spent. When capital expenditure does not proceed as planned, then there are potential windfall revenue gains to the business, as unspent capital expenditure earns a rate of return during the pricing period.

These windfall gains need to be balanced against ensuring that appropriate incentives are in place to ensure the efficient timing of capital expenditure. If circumstances change, then the regulator would not want to create an environment where timing efficiencies are not utilised because of the business' concern that extra revenue will be taken away from the business at the next pricing review.

The Tribunal proposes to review capital expenditure from the 2000 determination period and include in the regulatory asset base all capital expenditure that is considered prudent.

6.2.3 Proposed capital expenditure

The Tribunal will review information from the agencies on their proposed capital expenditure programs for the determination period. The agencies will be required to provide information on the drivers behind the proposed capital expenditure, and the likely implications for service outcomes where appropriate.

What are the capital expenditure requirements of the water agencies and what outcomes will be achieved by proposed capital expenditure?

6.2.4 Return on capital

Capital expenditure enters the building block approach to calculating revenue requirements through its addition to the RAB. The RAB earns a rate of return that reflects the risks inherent with the operation of the business, to ensure that efficient investment occurs.

There are a number of approaches to calculating a basis for determining an appropriate rate of return. The Tribunal's preferred approach is to use the weighted average cost of capital approach (WACC)⁸ to determine an appropriate range for the rate of return.

⁸ Office of the Regulator-General, 1998, *Weighted average cost of capital for revenue determination: Gas distribution*, Staff Paper Number 1, Victoria. A general formulation for WACC is: $WACC = R_e \times (S/V) + R_d \times (D/V)$, where R_e is the return to equity, S is market value of equity, R_d is the return to debt, D is market value of debt, V is market value of debt plus equity.

Within the WACC, the cost of debt is calculated by estimating an agency's risk premium relative to the risk free rate, and the cost of equity is calculated by using the capital asset pricing model (CAPM).

What is an appropriate return on capital for these water agencies?

6.3 Regulatory asset base

There is not a common understanding amongst stakeholders about what the RAB represents and its implications for prices, revenue requirements and the ability of water businesses to fund infrastructure renewals.

6.3.1 The regulatory asset base defined

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. There are a number of different approaches to setting a regulatory asset base and meanings behind what it represents. The Tribunal has adopted an approach where the regulatory asset base represents the value of the financial investment (capital) in the business. The monetary value of the financial investment is a representation of the value of the business given its potential to earn returns.

In the United Kingdom, the Office of Water Services (OFWAT) calculated the RAB for the water businesses on the basis of an average share value within the first 200 days of trading after privatisation.⁹ The OFWAT approach to valuing the financial capital of the business is inappropriate for the NSW context, so the Tribunal has valued the RAB on the basis of its worth at a point in time (based on revenue generation) plus new investment less any reductions to the existing capital base.

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 value of 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.

6.3.2 Implications for the calculation of return of capital

Given that the RAB reflects financial value in the business, depreciation (amortisation) of the RAB ensures that the value of the financial assets is maintained through time.

Depreciation of the RAB reflects the return of shareholder value, analogous to payments of the principal amount of a loan. As a result, depreciation of the RAB may vary from book value depreciation, reflecting the difference between the RAB and book values.

The Tribunal proposes to calculate depreciation for the building block revenue requirement by determining an average asset life for the water agency and then using straight-line amortisation of the RAB.

⁹ IPART, *Rolling Forward the Regulatory Asset Bases of the Electricity and Gas Industries*, Discussion Paper, January 1999, p 39.

Should the revenue requirements of the water agencies be calculated with reference to the financial or the physical investments in the business and how should this investment be amortised?

6.3.3 Revenue for renewals of existing infrastructure

The Tribunal ensures that sufficient revenue is available to regulated businesses to pay for the replacement of existing infrastructure by including all prudent renewals investment in the RAB. Through its inclusion in the RAB, renewals capital expenditure earns a sufficiently high rate of return and the cost of the investment will be refunded through an allowance for depreciation.

The Tribunal approach gives the businesses some certainty that the renewals investment will be financially viable. By providing investment certainty, renewals expenditure can be funded through debt, equity or a combination of the two.

6.3.4 Rolling forward the regulatory asset base

For the 2000 price determination, the Tribunal calculated an initial RAB as the present value of 1999 cash flows rolled forward to 2000. The initial RAB was rolled forward for the price determination period by adding new capital expenditure, subtracting depreciation and disposals and indexing for price movements.

While the RAB in the 2000 determination provided, in the Tribunal's view, a sound basis for calculation of a revenue requirement, the Tribunal did not commit to the future use of this RAB.

The Tribunal acknowledges that there is a need to provide increased certainty between price reviews about its approach to valuing the RAB. The Tribunal is therefore considering establishing the 2000 RAB from the current determination as the ongoing basis for valuing the RAB. The RAB in subsequent years would be calculated by using the same approach to rolling forward the RAB as applied in the 2000 determination process. Where actual capital expenditure differs substantially from projected capital expenditure then the Tribunal will determine what will be included in the RAB on the basis of prudence. It is proposed that this would form the basis for rolling forward the RAB for future price determination periods.

Is it appropriate for the Tribunal to adopt the 2000 RAB as the ongoing basis for valuation? What implications would this have for revenue and prices?

7 PRICE STRUCTURE AND DETERMINING A REGULATORY BALANCE

In determining an appropriate price structure the Tribunal is required to balance a range of often competing interests and pressures. These impact not only on the assessment of the overall level of revenue required by a water agency but also on the structure of prices. In setting a price structure the Tribunal, as required by Section 15 of the IPART Act, will pay particular attention to environmental and equity issues.

7.1 Demand management

The damming and diversion of natural watercourses to secure a supply of water for urban areas has significant environmental impacts including inundation of river valleys, interruption of stream flow by dams and weirs and the reduction in normal downstream river flows.

There is an increasing level of community and government concern about these environmental impacts. The continuing growth of major urban areas, particularly the Sydney metropolitan area, and increasing demands for improvements in river health have focussed particular attention on the need to constrain the demand for water. Failure to do so will at least limit capacity to mitigate environmental degradation and may result in a requirement to consider supply augmentation options, which are very costly, environmentally damaging or both.

The Tribunal will be carefully considering demand management in this pricing inquiry. One reason for this is the possible link between price structure and demand. Another is that predictions of demand over the period of a determination are required to allocate a revenue requirement across consumption in order to determine prices.

The operating licence for Sydney Water which is also overseen and audited by the Tribunal, contains demand management targets. In its 2000 determination the Tribunal set prices on the assumption that demand would decline over the price period towards these targets. To date this has not occurred and the Tribunal will need to give careful consideration to how it responds in this pricing determination.

What water demand assumptions should the Tribunal adopt for setting prices in the 2003 determination?

7.1.1 Current demand

Sydney Water's operating licence, currently being reviewed by the Tribunal, contains demand management targets that require it to reduce water consumption from 505 litres per capita per day (lcd) released from all sources in 1991 to:

- 364 lcd in 2004/5
- 329 lcd in 2010/11.¹⁰

¹⁰ Sydney Water Corporation Operating Licence 2000, p 20.

These targets are set on a total consumption per person per day basis to allow for population growth across the supply area. Setting demand management targets in terms of releases from storage rather than end user consumption provides an incentive to Sydney Water to reduce the level of leakage from its system, which would contribute to reducing per capita releases from storage. Table 7.1 shows the total releases from storage per capita per day for distribution by Sydney Water.

Table 7.1 Sydney Water total releases per capita per day 1995 to 2001

Year	1995	1996	1997	1998	1999	2000	2001
Total Releases (lcd)	412.1	393.7	417.4	435.4	417.2	413.4	427.0

Source: Sydney Water email 11 March 2002.

The key driver of consumption levels is residential consumption which is measured in kilolitres (kL or 1000 litres) per property per year. Table 7.2 compares residential consumption across the four water utilities. It indicates that, although consumption varies with weather patterns, Sydney Water customers have consumed 15 per cent more on average over the last 5 years than the average of the other three utilities. Hunter Water, Gosford Council and Wyong Councils are all at or below the 2004/05 targets set for Sydney Water in its Operating Licence.

Table 7.2 Residential consumption data across IPART regulated water businesses

	1997 (kL pa) per property	1998 (kL pa) per property	1999 (kL pa) per property	2000 (kL pa) per property	2001 (kL pa) per property	Average (kL pa) per property	Average (lcd)
Sydney Water	240	256	242	244	255	247	250.2
Gosford	203	210	204	225	247	218	220.3
Wyong	175	213	209	209	224	206	208.3
Hunter Water	199	212	195	196	214	203	205.3

Sources:

WASA Facts 2001.

Wyong Shire Council.

7.1.2 Why reduce demand?

Augmentation of the existing water supply for Sydney through building a new dam at Welcome Reef would impose a significant financial and environmental cost on the State. The State Government has therefore decided that the building of Welcome Reef dam is to be deferred indefinitely. This implies that the future demand for water in Sydney will need to be met either through managing demand to better utilise existing sources or through utilisation of other supply options such as effluent or stormwater reuse, desalination or domestic rainwater collection.

Given the currently available information about rainfall, Sydney Water appears to be already drawing close to the long-term safe yield of water available from existing storages under current operating rules. Requirements for additional releases for environmental flows to improve river health may further constrain the available supply.

7.1.3 Approaches to reducing demand

A wide range of techniques are potentially available to enable reduction in demand for water and the water agencies have, with varying degrees of success, been pursuing demand management programs for some time. Sydney Water is spending \$40m on demand management initiatives over the period 1998/99 to 2004/05 which include:

- residential retrofitting
- active leakage control
- smart shower heads and
- every-drop-counts initiatives in schools and businesses.¹¹

The Tribunal has recently instigated an investigation to review the effectiveness of Sydney Water's demand management program. It is envisaged that this review will give a clearer indication of the effectiveness of the initiatives pursued by Sydney Water to date and the opportunities for further gains from these initiatives and additional approaches that Sydney Water might pursue.

Price Increases

It is sometimes suggested that price should be used as the means of reducing water users' demand. Whilst the Tribunal could consider raising prices for demand management purposes it is far from convinced that this is either appropriate or likely to be successful in the absence of other initiatives.

In previous determinations the Tribunal has endeavoured to set prices that reflect the efficient costs of the water utilities. To set the overall prices for water above the efficient financial costs of the water businesses may be considered inappropriate as it would invariably either allow excessive returns to the businesses or establish cross-subsidies between customer classes.

In the context of water extraction to serve, for example, Sydney Water's customers, there may be costs (both quantifiable and non quantifiable), that are imposed on the broader environment and on communities that are not customers of Sydney Water. It is inappropriate for Sydney Water to retain an amount included in prices (or possibly a water extraction tax) that offsets these costs, where Sydney Water does not make any corresponding outlay of funds.

The Tribunal Secretariat has recently reviewed both Australian and international data on the responsiveness of water demand to changes in price. This review indicated that in general water demand is not very responsive to price changes. That is, a large increase in price will only result in a relatively small reduction in demand.¹²

¹¹ Sydney Water Corporation, *Water Conservation and Recycling Implementation Report*, 2001.

¹² The responsiveness of demand to changes in price (price elasticity) was found to be in the order of -0.1 to -0.3 per cent. This means, all other things unchanged, if the water price was increased by 10 per cent, demand would only fall by between 1 to 3 per cent.

The price per kilolitre of water charged by Sydney Water is \$0.93 kL. If price alone were to be used to reduce demand to the level necessary for Sydney Water to meet its demand management targets then the price per kilolitre would need to rise significantly. This is illustrated by Table 7.3 which shows a range of prices required to achieve the targets given different assumptions about the price responsiveness of demand.

Table 7.3 Price required to reduce demand to licence target based on various demand responsiveness assumptions

Water Usage (lcd)	Demand responsiveness		
	(-0.13%) ¹³	(-0.20%) ¹⁴	(-0.30%) ¹⁵
217 lcd (2004/05 target)	\$1.99	\$1.62	\$1.39
196 lcd (2010/11 target)	\$2.57	\$2.00	\$1.65

Inclining block tariffs

The OECD¹⁶ and indeed many European countries support inclining block tariffs as a means of strengthening the demand management signal to consumers. The OECD further contends equity is enhanced by an inclining block tariff as it is generally wealthier people who use more water and therefore are able to pay more.

The Tribunal is not necessarily convinced by this argument. Literature reviewed by the Tribunal Secretariat indicates that customers are generally basing their consumption decisions on average price rather than marginal price which varies when an inclining block tariffs is used. This is most likely because customers are generally billed on a quarterly basis and therefore have little idea of what block and consequently what the marginal price of their current consumption is.

If this is the case, then imposition of an inclining block tariff would be viewed by customers as simply a relatively small increase in the average price rather than a relatively significant increase in the marginal price. Marginal consumption is therefore unlikely to be significantly affected.

The Tribunal also questions whether inclining block tariffs are equitable. Presently it is household consumption that is billed. An inclining block tariff would mean that large households would pay more per person for the same level of consumption than small households. Whilst this equity problem might be overcome by linking the inclining blocks to the number of persons in each household, as has been done in Barcelona¹⁷, this would result in excessive complexity and administrative costs.

The Tribunal is also concerned that an inclining block tariff would not be cost reflective. To be cost reflective the price of the marginal (next) kilolitre of water drawn from storage should be the same regardless of who is using it.

¹³ Warner, R., Sydney Water Corporation, *Water Pricing and the Marginal Cost of Water*, 1995.

¹⁴ Sydney Water Corporation, *Demand Management Strategy*, 1999. This is the elasticity that Sydney Water use for planning purposes.

¹⁵ Upper bound of findings from literature review.

¹⁶ OECD, *The Price of Water-Trends in OECD Countries*, Paris, 1999b.

¹⁷ *Ibid* p 32.

Split between access and usage price for water

The Tribunal could consider increasing the proportion of total bills resulting from usage charges for water by reducing fixed charges with the intention of increasing the consumption price signal. However, the Tribunal would need to be satisfied that the demand management signal this would send would be effective enough to justify the inequity this would bring. Additionally, it is concerned that this approach is not cost reflective and would increase revenue volatility for the water businesses.

Given the apparent limited effectiveness of price as a demand signal and consumer response to average, rather than marginal price, it is not clear to the Tribunal that increasing usage charges would have a sufficiently significant impact on demand to outweigh the necessary move away from a cost reflective approach.

There are significant costs associated with maintaining the water infrastructure to residences that are largely independent of volume consumed. To further increase the usage charge component of the regulated charges, by reducing fixed charges, would not be reflective of the high level of fixed costs and would therefore result in larger households cross-subsidising smaller ones.

Cost reflective pricing suggests that the usage charge reflect the long run marginal cost (LRMC) of supply. Determining the LRMC of supply requires the calculation of supply augmentation options using least cost planning. This implies that the LRMC will vary with technological and policy changes over time, depending on the cost of and availability of various supply options. Although this implies considerable scope for variation in these calculations, the Tribunal believes that it has already set usage charges which broadly reflect the upper bound of current LRMC calculations for the individual utilities. The current fixed and usage charges for the four water utilities are presented in Table 7.4.

Table 7.4 Water charges based on 250kL consumption

	Sydney Water	Hunter Water	Gosford Council	Wyong Council
Access Charge (Water)	\$75.00	\$25.80	\$70.00	\$80.00
Usage Charge (Water)	\$0.93	\$0.93	\$0.68	\$0.68
Water Bill (250kL)	\$308.45	\$258.30	\$238.75	\$248.75

Note: The Water Bill for the different utilities is calculated on an assumed consumption level of 250/kL pa.

Are pricing strategies likely to have a significant effect on demand?

Step Pricing

At present water businesses have limited financial incentives to pursue demand management programs.

In order to address the lack of commercial incentive the Tribunal will consider whether a form of 'step up' pricing is appropriate in the price charged by SCA to Sydney Water for bulk water supplies. This would mean that the volumetric charge paid by Sydney Water to the SCA would rise significantly for water drawn beyond the demand management targets, on

which the Tribunal has based its pricing decisions. If the Tribunal were to implement step pricing it would not allow this cost to be passed on to Sydney Water customers.

The Tribunal sets prices for Sydney Water so it recovers all its fixed and variable costs at the assumed consumption level; equal to the demand management target. Therefore for Sydney Water to be neither advantaged nor penalised when this target is exceeded, the only additional revenue required beyond this point is to cover variable costs. This implies that the step price paid by Sydney Water should be the usage price it charges less its marginal cost of supply.

For example, if the marginal or incremental cost to Sydney Water of purchasing, processing and delivering water is \$0.20/kL then the additional price Sydney Water would pay for each kilolitre in excess of its demand management target would be \$0.73/kL.

This would, however, provide a commercial incentive to Sydney Water to pursue leakage control, reuse schemes and other non-dam augmentation options at a much higher marginal price. Currently there is no commercial incentive for Sydney Water to pursue these options beyond the marginal water delivery cost.

The Tribunal is aware that this approach may generate significant funds for SCA if the assumed level of consumption is exceeded. The use of these funds would be a matter for the SCA in consultation with Government.

Should a form of 'step pricing' be introduced to the prices paid by Sydney Water to SCA for bulk water to provide a commercial demand management incentive for Sydney Water?

7.1.4 Revenue surplus

As indicated above, the Tribunal set water prices in 2000 on the basis that Sydney Water would meet its demand management targets. Sydney Water is above the trend line necessary to meet the 2004/05 demand management target and as such will receive significant additional revenue in the current determination period. This amount will be at least \$35m and possibly as much as \$72m.

7.2 Wastewater/sewerage pricing

Wastewater pricing or charging for sewerage by volume has become widespread in Europe and America. All states in Australia charge by volume for trade-waste discharges. The metropolitan authorities in Victoria all charge by volume for domestic wastewater and the Tribunal has also sanctioned the use of a volume charge (two-part tariff) for sewerage by Hunter Water.

The rationale generally given for the introduction of wastewater volume pricing are that it strengthens the demand management signal for water and is more cost reflective as it imposes greater costs on people who discharge greater volumes into the sewerage system.

7.2.1 Different approaches to determining consumption

It is extremely difficult to meter domestic wastewater discharges as domestic meters are prone to clogging and severe corrosion. As a consequence, where usage charges are applied, domestic wastewater discharges are estimated as a proportion of the water volumes supplied to the household (discharge factor). Hunter Water assumes a standard discharge factor of 50 per cent. That assumes that 50 per cent of all inbound water to domestic properties is discharged to the sewerage system and 50 per cent is used outdoors.

The Victorian approach is to estimate individual discharge factors based on the variation between freshwater consumption in the winter months, when outdoor water use is assumed to be 10 per cent, and freshwater consumption in summer months when outdoor consumption rises. This requires the assumption that indoor water use is fairly consistent month to month across the year, which the metering trials conducted in the Hunter over a decade bear out.

7.2.2 Problems with the different approaches

The problem with the Victorian regime is that it generates a significant number of complaints about discharge factors from customers wishing to have their discharge factors altered. Generally this is because they believe that their indoor to outdoor water use ratio is lower in winter and higher in summer than the assumptions made by the utilities.

A particular problem with the Hunter regime is that whilst it is administratively simple customers have no way of reducing their wastewater bill by reducing the amount of wastewater they discharge to the system. The only way they can reduce their wastewater bill is to reduce their freshwater consumption.

7.2.3 Is a two-part tariff for wastewater cost reflective?

The Tribunal is not convinced that a two-part tariff is warranted for cost reflective reasons. The Tribunal believes that the costs of transporting and processing wastewater are driven by the infrastructure cost of laying large diameter pipes deep in the ground and the capital cost of building sewage treatment plants and pumping stations.

The main driver for the capacity of these systems is wet weather inflows rather than residential discharges. As such the fixed costs of the system are significantly greater than the variable costs. By way of illustration SA Water have conducted a study where they have determined the incremental cost of one house to the sewerage system is approximately \$12.00 pa.¹⁸

7.2.4 Is it an indirect form of water demand management

If reducing freshwater consumption is the goal of wastewater pricing then the Tribunal is inclined to the view that pricing wastewater sends an ambiguous message to customers and it would be more appropriate to directly increase the price of water. As indicated in 7.1.3 of this paper, the sensitivity of demand to changes in the price of water is low. Consequently the Tribunal is not convinced that the extension of a usage charge for wastewater, to all

¹⁸ SA Water, *Sewerage Pricing in South Australia - A Discussion Paper*, March 2000, pp 12–16.

agencies or its maintenance for Hunter Water, for the purpose of strengthening the water price signal, would be effective.

7.3 Sydney Catchment Authority

The primary function of the Catchment Authority is to protect the quality of water within the catchment areas in order to provide safe drinking water to around 4 million people living in the Greater Sydney region.¹⁹ The objective necessitates activities to safeguard the health of the catchment areas surrounding the Authority's water storages and other waterways which flow to the storages.

The SCA's main powers of catchment management enforcement stem from two regulations. The first, the *Sydney Water Catchment Management (General) Regulation 2000*, which enables penalties and fines to be levied for illegal access or polluting activities within the restricted inner catchments. Using this Regulation over 2000/01 some 46 Penalty Infringement Notices were issued by the SCA, representing around \$14,000 in fines issued.²⁰

Secondly, the *Sydney Water Catchment (Environment Protection) Regulation 2001* allows the Authority to take action to prevent unlicensed polluting activities throughout the entire catchment area.

In addition, the Authority has powers under State Environmental Planning Policy 58 (SEPP 58) to prevent proposed developments which are likely to have an adverse effect on water quality in the catchments. This policy gives the SCA a concurrence role with respect to developments within the Catchment which are likely to impact on water quality.

These powers are expected to be enhanced with the development of a Regional Environment Plan (REP) for Sydney's drinking water catchments. The REP will replace the existing SEPP 58 and will override any other planning instruments to the extent of the inconsistency with the REP. The Plan will contain a number of elements:

- directions for councils when preparing new or amended local environmental plans
- a requirement for councils to review their principal local environmental plan to ensure its consistency with the REP
- a requirement for the SCA to develop Rectification Action Plans to remedy existing problem areas
- matters to be addressed by developers, councils, government agencies, the SCA and the Minister when considering new developments and activities in the catchments.²¹

The draft REP is currently on public exhibition. The final version is expected to be released in September 2002.

¹⁹ Section 15 (2), *Sydney Water Catchment Management Act 1998*.

²⁰ IPART, *Sydney Catchment Authority Operational Audit 2000/2001*, p 55.

²¹ Planning NSW, *Sustaining the Catchments – A draft regional plan for the drinking water catchments of Sydney and adjacent regional centres*, p 23.

The Catchment Authority has also established a catchment improvement funding program to encourage cooperative environmental improvement programs. The funding allows community groups, farmers and local government to apply for grants to assist in funding initiatives within the catchment areas which will have a beneficial effect on catchment health and water quality. This program has assisted funding of works such as river bank erosion and stock access control, detention and beneficial reuse of on-farm effluent and sewage treatment improvements in towns within the catchments.

Total expenditure on this program over 2000/01 was approximately \$2.2m.²²

A key issue for the Tribunal's review of the Catchment Authority will be the efficiency and effectiveness of the Authority's catchment management activities. Additionally, it will give some consideration to the rate at which the Authority has developed these functions and the appropriate level of revenue needed to support these functions.

How efficiently and effectively is the SCA managing the catchment and what is the optimum level of funding required by SCA for its catchment management activities?

7.4 Stormwater management

Sydney Water, Hunter Water and Gosford and Wyong Councils each have some responsibility for the provision of stormwater services in their areas of operation.

Sydney Water and Hunter Water have ownership and responsibility for some, but not all, of the larger or trunk stormwater drains in the urban areas they serve. However, responsibility for stormwater in these areas is split between local government and the water agencies. This is further complicated in Sydney where stormwater catchments may include a number of local government areas as well as assets owned by Sydney Water.

In recent years it has become clear that urban runoff or stormwater is a major contributor to waterways pollution and increasing attention is being paid to the need for better management of stormwater.²³ In the Tribunal's view, the current institutional arrangements, with responsibility split across several agencies, do not assist improved management for better outcomes.

The Government is currently reviewing the most appropriate institutional arrangements for the management of stormwater. It is likely that, on revised arrangements being settled, the appropriate level and mechanisms for funding stormwater costs will need to be further reviewed, as in some areas the level of expenditure on stormwater assets by water businesses has been at a low level. The Tribunal is reluctant to increase the levels of revenue available for stormwater expenditure until these matters are resolved.

The Tribunal expects that institutional arrangements will be settled sufficiently to enable a more thorough review of stormwater funding requirements, should it retain its current pricing role, at the time of its next determination.

²² SCA, email, 29 May 2002.

²³ See, for example, Healthy Rivers Commission; *Independent Inquiry into the Georges River-Botany Bay System - Final Report*, September 2001.

7.5 Compliance with environmental standards

Expenditure by water agencies to improve environmental outcomes has been a significant driver of costs over the past two decades. This has been most clearly seen in the level of capital expenditure on improvements to wastewater transport and treatment systems. This has been directed at reducing sewage overflows into the environment and raising the level of sewage treatment prior to its discharge to the environment.

This type of capital expenditure is generally driven in one of two ways. Increasingly stringent standards imposed by the EPA as environmental regulator through discharge licences are the principal driver. In other cases water businesses may invest to produce higher standards of treatment or transport of wastewater because of perceived stakeholder or customer pressure to do so.

Generally, capital expenditure to enable water agencies to meet externally imposed environmental standards would, provided the approach taken is a cost efficient method of meeting the standard, be considered by the Tribunal to be required and prudent investment. However, it is less clear that the Tribunal should automatically pass through to customers the capital costs associated with environmental upgrades where these are not being undertaken to meet the requirements of the EPA. In such cases agencies will need to clearly demonstrate to the Tribunal that there is high level of customer willingness to pay for proposed, improved environmental outcomes.

8 OTHER PRICING ISSUES

8.1 Removal of property value based pricing

In accordance with guidelines of the Council of Australian Governments, the Tribunal has been progressively reducing links between prices for water services and property values. The Tribunal's 2000 price determination for Sydney Water retained only relatively small, and progressively declining, non-residential property value based wastewater and stormwater charges.

The 2000 price determination for Hunter Water also retained a property value based charge for stormwater services for non-residential properties.

The Tribunal will be seeking, subject to other constraints on price adjustment, to eliminate these residual property value based charges by the end of the 2003 price determination period.

8.2 Cross-subsidies between water and wastewater businesses

The extent and impact of cross-subsidies between water agency businesses has been raised as an issue in past determination submissions. It is claimed that tariffs are not always reflective of the costs associated with delivering individual water, sewerage or stormwater services.

By ensuring that tariffs are cost reflective, appropriate price signals are given to customers to encourage the efficient use of the service to occur. If the price is less than the cost of delivering the service, this can encourage the over use of the service. Similarly if price is higher than the cost of delivery, then this can encourage the under use of the service. Difficulties arise however, when usage is not very responsive to price changes, limiting the effectiveness of cost reflective pricing to achieve economically efficient usage.

There are likely to be equity issues associated with any move to more cost reflective pricing. These may arise because some existing customers will be better off and some worse off after a change in pricing structure. It would be possible however to use a glide path, where price changes occur incrementally through a determination period, to minimise the overall impact on customers.

Any equity impacts would need to be weighed against the potential for overall efficiency gains and the other regulatory objectives of the Tribunal prior to any decision to ensure tariffs are more cost reflective.

To what extent do cross-subsidies exist between water and wastewater businesses, do these serve a valid purpose and what are the likely benefits and costs of changing price structures to eliminate them?

8.3 Miscellaneous charges

Prior to making the 2000 price determination the Tribunal worked with the four retail water agencies to introduce a higher level of commonality between the agencies for miscellaneous charges and services. It intends continuing that process for the 2003 determination.

APPENDIX 1 SECTION 15 REQUIREMENTS

In making determinations the Tribunal is required by the IPART Act (1992) 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).