



ICRC

independent competition and regulatory commission

Issues paper

**Investigation into prices
for water and wastewater services
in the ACT**

July 2003

The Independent Competition and Regulatory Commission (the commission) was established by the *Independent Competition and Regulatory Commission Act 1997* (ICRC Act) to determine prices for regulated industries, advise government about industry matters, advise on access to infrastructure and determine access disputes. The commission also has responsibilities under the Act for determining competitive neutrality complaints and providing advice about other government-regulated activities.

The commission has three commissioners:

Paul Baxter, Senior Commissioner
Robin Creyke, Commissioner
Peter McGhie, Commissioner.

Submissions, correspondence or other enquiries may be directed to the commission at the addresses below:

The Independent Competition and Regulatory Commission
PO Box 975
CIVIC SQUARE ACT 2608

Level 7 Eclipse House
197 London Circuit
CIVIC ACT

The secretariat may be contacted at the above addresses, by telephone on 6205 0799, or by fax on 6207 5887. The commission's website is at www.icrc.act.gov.au and its email address is icrc@act.gov.au or ian.primrose@act.gov.au.

For further information on this investigation or any other matters of concern to the commission please contact Ian Primrose, Chief Executive Officer, on 6205 0779.

Foreword

The Independent Competition and Regulatory Commission (the commission) has been issued with a reference from the ACT Treasurer to investigate water and wastewater services in the Australian Capital Territory (ACT).

In May 1999, the commission released its price direction for ACTEW Corporation's (ACTEW) electricity, water and sewerage charges for 1999–2000 to 2003–04. This direction expires on 30 June 2004. The commission is currently undertaking a review of ACTEW's water and wastewater network to determine an appropriate level of revenue for ACTEW's regulated water businesses.

Proposed timetable for the inquiry

<i>Event</i>	<i>Date</i>
Issues paper released	23 July 2003
Submissions on the issues paper close	19 August 2003
Draft report	14 November 2003
Submissions on the draft report close	24 December 2003
Release of the final report and direction	31 March 2004

The process of review undertaken by the commission is transparent and designed to facilitate wider community involvement and input. To this end, the commission is seeking to provide every opportunity for the community to be informed on all aspects of the review, and to have access to information on the prices being sought by ACTEW for the next regulatory period and the rationale for these new prices.

This issues paper is the first step in a public awareness program that will be a feature of the price review process undertaken by the commission. The commission is seeking to encourage submissions and community views on all aspects of the price review, covering not only the issue of price, but also the associated matters of service quality and reliability. Submissions can be made on any aspect of the matters listed for review at this time. In addition, after the release of a draft report by the commission, expected in November,

there will again be an opportunity for further submissions from the general public on that draft report. There will also be a public hearing at which those seeking to have their views considered will be able to present these views and hear the comments and arguments advanced by other parties with an interest in the inquiry.

Those intending to make a submission should be aware that the commission publishes all submissions made to its inquiries, unless there is a specific claim for information to be treated as confidential and the commission agrees with that claim. Submissions are published on the commission's website and are available for scrutiny at the commission's offices.

For further information about making a submission or about the investigation in general, please contact the Chief Executive Officer of the commission, Ian Primrose, on 6205 0779 or by fax on 6207 5887.

Paul Baxter
Senior Commissioner
July 2003

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1 Introduction

The Independent Competition and Regulatory Commission (the commission), as the jurisdictional regulator of utility services for the Australian Capital Territory (ACT), is conducting an investigation into prices for water services provided by ACTEW Corporation (ACTEW) within the territory. The investigation will allow for a price determination to be issued for water services from 1 July 2004. This review is being undertaken in conjunction with a review of prices for electricity services being provided by ActewAGL. The two reviews will be undertaken separately although there is some overlap in terms of issues considered.

1.1 The commission's decision-making process

The commission is responsible for determining the annual revenue requirement for water and wastewater services provided by ACTEW. Water and wastewater services are provided, under contractual arrangements between ACTEW and ActewAGL, by ActewAGL, which is joint venture partnership between ACTEW and the Australian Gas Light Company (AGL). While ACTEW retains ownership of the water and wastewater assets, the customer interface is wholly with ActewAGL. These arrangements are outside the scope of the reference issued by the ACT Treasurer. Therefore, in this report ACTEW is referred to as the business providing all water and wastewater services in the ACT.

1.1.1 Matters to be considered

The commission is required under the terms of reference to regulate the water and wastewater services provided by ACTEW. The commission has been issued a reference by the ACT Treasurer to review and report on an appropriate costing and pricing methodology and pricing level for regulated water, sewerage and trade waste services. This reference is set out in full in Appendix 1. In summary, the commission must:

- examine the impact on cost and revenue structures of unmetered properties

- review coverage of services and undertake analysis of which services are contestable
- give consideration to appropriate incentives for ACTEW
- review the value of water and sewerage assets in the ACT and appropriate, risk-adjusted, commercial rates of return on capital utilised
- consider future capacity requirements
- examine the impacts of price changes on consumers and demand, including disadvantaged consumers, low income earners and large households, and the adequacy of concessions for services
- consider the impact on ACTEW's Community Service Obligations.

The commission is also bound by the *Independent Competition and Regulatory Commission Act 1997* (the ICRC Act) when determining a price direction. Section 20 (2) of the ICRC Act requires the commission to have regard to:

- protection of consumers from abuses of monopoly powers
- standards of quality, reliability and safety of the regulated services
- the fairness and transparency of the price determination, and accountability of the regulator
- the need to ensure that investment is made and used efficiently, including in existing infrastructure
- the social and environmental impacts of the decision
- the need to ensure that industry participants are able to achieve reasonable returns on their investment, assuming efficiencies in relation to operation, investment and maintenance.

The commission seeks to ensure that regulation is cost effective, transparent, accountable, applied consistently and balanced between the interests of customers and the regulated businesses. Additionally, regulated prices should aim to achieve economic efficiency, revenue sufficiency and equity.

1.2 Consultancies

The commission has engaged two consultants to provide expert advice on the review of electricity, water and wastewater network services in the ACT.

The New South Wales Independent Pricing and Regulatory Tribunal (IPART) will provide specialist regulatory and financial advice, while also providing peer review during the commission's investigative process.

Burns and Roe Worley (BRW) will review demand forecasts, cost attribution, and operating and capital expenditure programs for both ActewAGL and ACTEW Corporation. BRW has employed Halcrow Pacific and McLennan Magasanik Associates as subconsultants to ensure that all aspects of the review are addressed with the necessary specialist expertise. The team has considerable experience in providing advice to regulators and business.

While the commission has appointed IPART and BRW to provide advice and detailed analysis, the final decisions and price directions/determinations will be made by the commission alone.

1.3 Outline of paper

This paper outlines the commission's process for conducting this review, and explains the context of the review and the key issues the commission will consider in making its determination.

Chapter 2 sets out the structure of the water market.

Chapter 3 sets out the commission's approach to incentive regulation, the cost building-block model for determining notional revenue requirements, and the determination of the X factor.

Chapter 4 sets out alternative pricing methodologies for water, wastewater and trade waste.

Chapter 5 sets out additional issues, including the introduction of a minimum service level, side constraints, efficiency carryover mechanism, length of regulatory period, and the cost attribution between ActewAGL businesses.

Chapter 6 sets out issues affecting the environment.

The commission invites submissions on the issues raised in this paper from interested parties. The commission particularly asks that those making submissions explain how their preferred approaches for addressing the issues meet the principles and objectives set out in the ICRC Act and the Treasurer's reference.

1.4 Timetable for the 2004 review

The release of this issues paper creates the first opportunity for interested parties to make submissions on the issues under review.

The commission is aware of the potential impact an alternative pricing methodology may have on the development and structure of ACTEW's prices during the forthcoming regulatory control period. Consequently, the commission has developed the following timetable for the consultation process:

<i>Event</i>	<i>Date</i>
Issues paper released	23 July 2003
Submissions on the issues paper close	19 August 2003
Draft report	14 November 2003
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2 The structure of the market

Water is an extremely precious commodity. Over the past ten years, ACT consumers have experienced significant changes to the pricing of water, resulting in a rapid reduction in water use per capita. However, much remains to be achieved in terms of increasing the community's water efficiency.

The commission is conscious of the current political and social debate concerning the future use of water in the ACT. It has been strongly argued, as part of this debate, that water holds a value above the price currently paid by the community. However, it is important to recognise that this review is only concerned with the recovery of the costs that are directly attributable to the operation of ACTEW's water businesses, namely the reticulation of water for consumption and the collection and treatment of wastewater.

In addition to this current review, the commission is also engaged in a review of the Water Abstraction Charge (WAC). The WAC aims to recover the cost of such things as:

- maintaining water quality
- maintaining and managing the catchment
- dealing with environmental impacts
- establishing a scarcity value for water.

The commission is also aware of the work being undertaken by both ACTEW and the ACT Government to develop a consistent and coherent water policy. The commission has been involved in many conversations with Environment ACT, the Murray Darling Basin Commission and ACTEW about the ACT's water resources and will continue to contribute to these individual reviews.

The ACT water market can be split into two distinct segments: water (potable water) and wastewater. Water is captured in the rain catchments feeding our dams, and then treated and piped to homes and businesses for consumption. Wastewater is returned to the system through the drains of the sewer system and treated at the Lower Molonglo Water Quality Control

Centre, where it is returned to the river system. ACTEW is responsible for both these tasks. The way in which ACTEW meets its responsibilities, the cost of providing the service, and the charges that are passed on to consumers are the primary focus of this review.

3 The form of economic regulation

Unlike the electricity sector, in which the National Electricity Code provides guidance and direction to the regulation of electricity transmission and distribution, the water market has no corresponding national code.

Regulation of water and wastewater services in the ACT is covered by the *ACT Utilities Act 2000*. The commission is free to choose the form of regulatory control to apply to water and wastewater, as well as the procedures for applying the regulatory process.

The commission aims to provide a consistent approach to regulated industries across the Territory. To date, the commission has applied a cost ‘building-block’ method to determine a notional revenue requirement, which is translated into a revenue cap for the length of the regulatory control period. The commission must consider which regulatory approach to adopt for the regulatory period from 1 July 2004.

3.1 Form of cap

There are at least three main options available to the commission for the regulation of water and wastewater services in the ACT. The commission could adopt:

- a price cap
- a revenue cap
- a hybrid of a price and a revenue cap

Price caps have some advantages. This approach would allow the commission to set the individual prices for services offered by ACTEW, and the corporation would effectively have to apply those prices. The prices would normally be determined by the commission in the context of some form of an overall revenue requirement for ACTEW, although individual prices could reflect the costs of providing individual services. Thus, the

commission could use this approach to avoid any cross-subsidisation between the revenue and the costs of individual services.

Price caps usually imply that there is no limit on the total revenue that the regulated entity may earn. However, this may encourage the regulated entity to increase sales in an attempt to generate additional revenue. If the initial price caps have been set so as to recover the costs (both marginal and fixed) and an additional kilolitre of water has a very low marginal cost, the regulated entity will effectively earn an 'above normal' profit from the sale of the extra kilolitre of water at the fixed price. This may encourage the regulated entity to seek to expand sales in order to maximise its profits. Clearly, from a water management and conservation perspective, a form of cap that encourages water consumption would not be environmentally responsible.

In contrast, revenue caps set the maximum revenue that the regulated entity can earn in a particular period and avoids the problem of potential creation of increased demand.

Revenue caps rely on forward projections of demand; to the extent that the regulated entity over- or underachieves the demand projections, revenue outcomes can be below or above the level necessary to recover the costs of providing the service. For example, during a period of drought such as currently being experienced in the ACT, ACTEW could find that is not able to generate sufficient revenue to cover its operating costs. To overcome these problems, a form of under or over recovery adjustment may be required, which could be accounted for annually or perhaps over a longer period.

Some form of hybrid approach, combining price and revenue caps, would be an alternative to pure price or revenue caps. Such an approach could incorporate a price cap arrangement with a maximum revenue cap that allows some revenue maximising opportunities to the regulated entity, but effectively caps these opportunities by mechanisms that require a 'pay back' if the revenue cap is breached in any given year.

Previously, the commission has used a revenue cap to set water and wastewater prices in the ACT. The commission notes that, with current water restrictions, a revenue cap may not ensure that ACTEW generates sufficient revenue to meets its costs.

The commission seeks comments from interested parties on its past decision to use a revenue cap to regulate ACTEW's maximum allowable revenues.

3.2 Cap adjustment

In the commission's May 1999 price direction for ACTEW's electricity, water and sewerage charges for 1999–2000 to 2003–04, the commission adopted a prospective 'CPI-X' approach¹ to incentive regulation:

$$(CPI-X) * (\text{maximum allowable revenue in the base year})$$

where the commission set the maximum allowable base year revenue requirement using the building-block approach (outlined below).

Using this approach, the commission effectively adjusted the maximum allowable revenue by inflation, less an adjustment for efficiency and other underlying changes in the revenue path as projected at the time the previous price path was determined.

To set the revenue cap for water and wastewater services, the commission will:

- undertake a building-block analysis to determine the notional revenue requirement for ACTEW for each year of the regulatory control period
- test the notional revenue requirements using financial analysis to ensure that they allow ACTEW to remain financially viable.

The commission will establish the amount by which revenues will move (either up or down) over the regulatory control period. CPI (consumer price index) minus X is the mechanism by which revenues are adjusted in each year of the regulatory control period. This movement will be expressed, in real terms, through the X factor in the revenue cap formula. The X factor is defined in detail in section 3.9.

¹ Independent Competition and Regulatory Commission: *ACTEW's Electricity, Water and Sewerage Charges for 1999–2000 to 2003–04 — Price Direction*, May 1999, p. 76.

3.3 Building-block approach

The commission is intending to adopt a ‘cost building-block’ approach to calculate the efficient levels of costs, which will be the notional revenue requirement for ACTEW. The purpose of this notional revenue requirement is to ensure that all the business’s operating costs are covered.

The notional revenue requirement for a particular year in the price path can then be expressed as:

$$\text{notional revenue requirement} = \text{efficient operating cost} + \text{return on capital} + \text{return of capital}$$

where:

- efficient operating costs include efficient operating and maintenance costs
- return on capital includes the return on the regulatory asset base (RAB) and any return on an allowance for working capital (to be decided)
- return of capital is the allowance for depreciation in each year.

3.4 Establishing efficient cost building blocks

The commission will use a cost building-block approach to determine the notional revenue requirements for ACTEW. The cost building blocks comprise allowances for each of the following costs:

- efficient capital, operating and maintenance expenditures
- a rate of return on the RAB, including an adjustment for tax liability
- depreciation of the RAB.

The commission may also include allowances for other factors that affect the amount of revenue ACTEW can recover through water and wastewater charges. Each of these building blocks is discussed below.

3.5 Efficient and prudent capital, operating and maintenance expenditures

Major components of the building-block methodology are the allowable capital and operating expenditure programs. Each component is discussed below.

3.5.1 Incentives for efficient capital investment

A key element of the economic regulation of utilities is to ensure that incentives are in place to encourage efficient investment by the regulated business in capital infrastructure. Given the infrastructure-intensive nature of this business and the impact of investment decisions on business costs and consumer prices, the approach to capital expenditure regulation is crucial to the price investigation process.

Economic regulation, and therefore capital expenditure regulation, aims to promote economic efficiency, protect customers from monopoly power, maintain financial stability for the regulated business, and ensure that sufficient funds are available to achieve environmental and other standards of service. In a ‘workably competitive’ market, in which a number of providers of the services compete, the forces of demand and supply ensure that there are incentives to achieve these aims. In the absence of a workably competitive market, the commission’s regulatory framework needs to provide these incentives.

3.5.2 Capital expenditure regulation in the building-block methodology

The commission’s current approach to capital expenditure regulation involves a two-stage review process.

The first stage requires consideration of the efficiency of the proposed forward capital expenditure program. This typically involves a review by an expert consultant who provides advice to the commission on the efficient amount of capital expenditure required to achieve the service outcomes desired by customers. The efficient amount of capital expenditure is assessed by a combination of internal historical benchmarking, benchmarking against similar businesses, and expert analysis. An assessment of typical productivity improvements in similar industries is often used as a guide. The

efficient capital expenditure allowance is used as the basis for determining the revenue requirements of the business in the building-block methodology. By implication, only efficient capital expenditure earns a rate of return for the regulatory period.

The efficiency test also implicitly requires an assessment of the appropriateness of the capital expenditure program to the delivery of service outcomes to customers. In relation to renewals and maintenance expenditure, or the delivery of mandatory standard outcomes, this may be easy to demonstrate. Difficulties can arise when the business decides to increase or decrease service standards without demonstrating a clear link to customers' willingness to pay for such changes.

The second stage involves a backward review of actual capital expenditure during the previous regulatory period, to determine if it was prudent or imprudent. This requires an assessment of the reasonableness of the business's decision to make particular capital investments, given the information available at the time the decision was made. If new information that affected the prudence of the investment decision became available during the implementation of a capital project, the review also considers the reasonableness of the business's response to the new information.

The backward test of the prudence of actual capital expenditure does not involve a check against the performance of the business in achieving the efficient level of capital expenditure set at the previous determination. This allows a business to adapt its capital expenditure program during a regulatory period in the event of new information or changed circumstances. As long as changes to the capital program are considered by the commission at the next price investigation to have been prudent, the business will be able to earn a rate of return on the changed capital expenditure program during the next regulatory period.

The application of the efficiency and prudence tests to capital expenditure allows decisions to be made on the capital expenditure allowances to use in the building-block methodology. This in turn assists with the determination of revenue allowances for the business. Once revenue allowances have been set for the regulatory period, the revenue the business earns is independent of the costs borne by the business to deliver its services to customers. The independence of revenue and actual costs during a regulatory period is what creates an incentive for the business to seek cost efficiencies.

3.5.3 How should prudent capital expenditure be rolled into the regulatory asset base?

Once the prudence of actual capital expenditure in the previous regulatory period has been decided, how it is rolled into the building blocks for the calculation of revenue requirements becomes important. Alternative approaches to rolling in capital expenditure have implications for the incentives created for the business to achieve capital efficiencies. There are a number of alternative approaches.

First, all of the prudent capital expenditure from the previous regulatory control period can be rolled into the RAB, irrespective of whether it is above the efficient allowance from the previous price direction. This means that, to the extent there have been prudent increases in the capital program above the levels expected at the previous investigation, the losses are borne by the business only until the next regulatory investigation. At the next investigation, the overspend is rolled into the opening RAB and earns a rate of return for the remainder of the asset's life. Similarly, all prudent decreases in the capital program below those expected at the previous regulatory investigation result in higher profits to the business until the next price investigation, when the benefits are passed back to customers.

This approach distorts the incentives for the business to seek capital efficiencies. It creates an incentive to drive efficiencies in the early years of the regulatory period, as the benefits are kept for the longest period. Further, it creates a weaker incentive to seek efficiencies in the last years of the period, as the benefits of doing so are kept for a shorter time.

A second approach would be to roll in prudent capital expenditure only up to the efficient level of capital expenditure identified at the previous price investigation. This would mean that any overspends would be borne by the business for the entire life of the asset. However, any efficiency savings beyond those expected at the previous investigation would only be kept by the business until the next regulatory period, when they would be passed on to customers.

This approach would create a significant incentive for the business to seek capital efficiencies, but it would also increase the financial risks faced by the business due to unforeseen capital expenditure needs during a regulatory period. This could result in the business not investing in unforeseen capital needs due to the financial costs, and this could ultimately affect service

delivery to customers. This approach would also place pressure on the commission to ensure that the efficient level of capital expenditure is within practical reach of the business.

A third approach (a variant of the second) rolls all efficient capital expenditure into the RAB, irrespective of actual capital expenditure allowed for in the current price direction. Both the losses and the benefits from over and under capital expenditure would be borne by the business for the duration of the asset's life. This approach would eliminate the need for the commission to undertake a prudence review of actual capital expenditure, but still suffers from the problems of increasing the risk to the business of unforeseen capital needs above those expected at the previous review.

A fourth and final approach is a variant of the first, and has the benefit of disassociating the regulatory period from the incentives created for capital expenditure efficiencies. It involves the introduction of a five-year rolling capital expenditure program. This would mean that actual prudent capital expenditure would be rolled progressively into the RAB for the new regulatory period, according to the year it was spent in the previous period. Regardless of which year the business underspends or overspends on its capital expenditure program, the benefits and losses would be borne by the business for five years. This approach ensures that the capital efficiency incentives are evenly spread between all years of the regulatory period.

The commission will consider alternative approaches to rolling actual capital expenditure into the RAB, and its implications for incentives, as part of the 2004 price investigation.

The commission must also consider the treatment of capital contributions in the RAB. Capital contributions are any assets given to the business by a person who is not the owner of the network under the current price determination. Capital contributions are not currently included in ACTEW's RAB. As a result, while capital contributions become part of ACTEW's asset stock, ACTEW is not able to receive a return on this capital, because it has not paid for the asset. The commission has previously considered that the amount of capital contributed by any persons other than ACTEW or the network owner to fund capital expenditure should be excluded from the regulatory asset base. However, the commission is seeking views as to the approach that should be used in the next price determination.

3.5.4 Capital expenditure requirements

Capital expenditure on water and wastewater services over the five-year period to 30 June 2004 is \$84.1 million in real terms, compared with an expected \$125.8 million — almost 33 per cent lower than expected (see Table 3.1 and Figure 3.1).

Table 3.1 ACTEW Corporation capital expenditure, 1999–2004 (2002–03 \$m)

	1999	2000	2001	2002	2003	2004
Water						
Actual	5.6	8.6	5.6	6.9	8.0	8.1
Expected at 1999 price direction	4.9	15.3	9.0	15.1	16.2	2.2
Difference	0.8	-6.8	-3.5	-8.2	-8.2	5.9
Wastewater						
Actual	16.9	18.2	7.1	4.0	6.2	11.6
Expected at 1999 price direction	17.5	23.5	20.3	12.2	5.0	7.1
Difference	-0.7	-5.3	-13.2	-8.2	1.2	4.5
Combined						
Actual	22.5	26.7	12.6	10.9	14.2	19.7
Expected at 1999 price direction	22.4	38.8	29.3	27.3	21.2	9.3
Difference	0.1	-12.1	-16.7	-16.4	-7.0	10.4

The reduction in capital expenditure resulted from the deferral of a number of water and wastewater projects following the formation of the ActewAGL joint venture arrangement, which in turn led to changes in asset management planning practices. Some of the key changes to the capital program for the 1999–2004 period are detailed in Table 3.2 below. The commission’s consultants will consider the implications of these changes for service delivery to customers as part of the review of the prudence of past capital expenditure. The lower than expected capital expenditure implies that ACTEW Corporation has earned a return on funds not spent during the previous regulatory period. This has been offset by higher actual operating expenditure during the period.

Table 3.2 Variations to capital expenditure for water and wastewater, 1999–2004 (2002–03 \$m)

Project description	Expected cost at 1999 price direction	Actual cost / Expected cost
Water		
– Stromlo treatment plant upgrade	24.00	project deferred
– Googong treatment plant upgrade	10.00	project deferred
– water meter replacement	4.35	14.60
– additional security requirements	–	1.20
– working at heights safety modifications	–	0.50
– Googong spillway protection	–	0.40
– Googong electrical control and monitoring upgrade	–	0.25
– Googong mini hydro plant	–	1.50
– Cotter dam anchorage	3.50	5.10
– Corin tower seismic strengthening	0.34	0.86
– Googong tower seismic strengthening	0.60	project deferred
Wastewater		
– bioreactors at LMWQCC	5.00	project deferred
– tertiary filters at LMWQCC	4.00	project deferred
– clarifiers at LMWQCC	5.80	project deferred
– air distribution bioreactors at LMWQCC	0.70	project deferred
– Fyshwick treatment plant	5.00	project deferred
– Ginninderra and Weston Creek vortex drops	2.10	project delayed
– electrical monitoring improvements at LMWQCC	1.80	6.00
– sewer flow monitoring and control	4.60	project deferred
– working at heights safety modifications	–	0.30
– Southwell Park	2.00	0.30
– fine screens at LMWQCC	4.30	7.40
– Belconnen trunk sewer augmentation	0.90	project deferred
– Gungahera trunk sewer construction	2.60	project deferred
– sewer augmentation and rehabilitation	1.70	3.40
– CRANOS sewerage treatment plants	12.00	2.80

Notes: This table only details variations to the capital expenditure program presented as part of the 1999 price investigation. All figures are expressed in nominal dollars. A dash indicates that the project was not anticipated at the 1999 price direction.

The commission notes the deferral of the Stromlo and Googong treatment plant upgrades. As shown above, the commission made allowances for both projects in its previous price direction on the basis of ACTEW’s submission.

ACTEW's submission cited two reasons for the upgrade of the Stromlo treatment plant: increased water quality standards, and risk mitigation due to an absence of filtration capacity in the Cotter catchment. In relation to the Stromlo and Googong projects, ACTEW's submission stated:

... in the event of bushfire followed by heavy rain, contamination and sediment would not be adequately treated by the existing treatment plant and could enter the water supply following such an event. In the absence of settlement and filtration capacity at Stromlo there is a risk that, in such circumstances, ACTEW would be forced to rely solely on Googong for the ACT's filtered water supply .

The submission went on to state:

Upgrades of Googong Treatment Plant and Pumping capacity is incorporated in the program to provide an additional 110ML of treatment and hydraulic capacity at Googong. This would assist in reducing some of the catchment management risks (in relation to the Cotter Dam), allowing greater dependence on Googong should the Cotter Supply become unavailable through low water levels or quality problems.

Both these projects have been included in the RAB for the 1999–2000 to 2003–2004 price determination, earning a return on the capital that was to be invested over the current regulatory control period.

ACTEW has argued, in its May submission to the commission, that the deferral of the Stromlo treatment plant upgrade was a prudent business decision and has foreshadowed that this project will now proceed after the next regulatory control period.

ACTEW expects to increase water and wastewater capital expenditure to \$121.5 million over the coming five-year price path — a 44.5 per cent increase on actual capital expenditure in the previous five-year period. The forward capital expenditure program is based on a new asset management plan for the period 2003 to 2023.

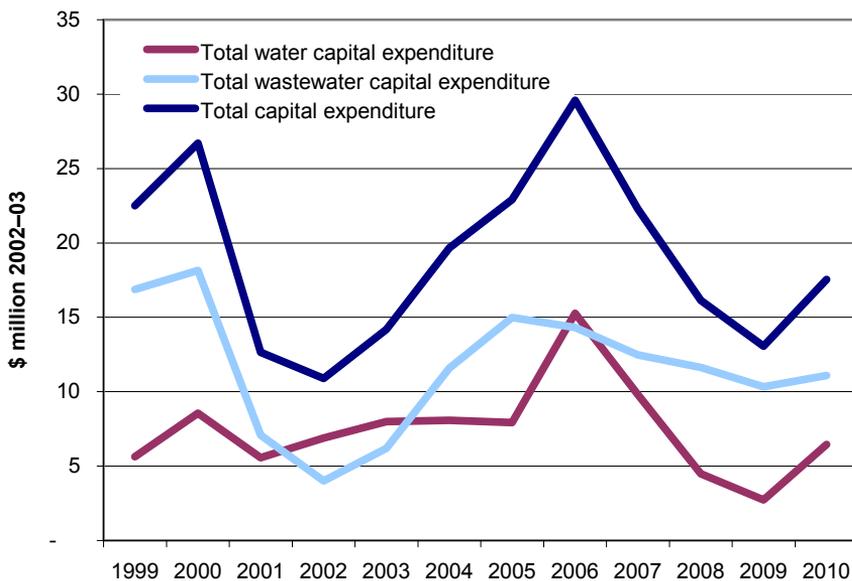
Key elements of the forward program include:

- upgrade of Googong water treatment plant deferred in the previous regulatory period — \$16.8 million
- continuation of the water meter replacement program — \$6.9 million
- trunk water and sewer main augmentation — \$10.8 million

- upgrades to the Lower Molonglo sewage treatment plant — \$12.6 million
- upgrades of the Fyshwick sewage treatment plant — \$6.3 million
- compliance with mandatory standards — \$7.1 million.

Figure 3.1 provides forward projections of capital expenditure over the period 2004 to 2010. The commission notes that this does not include the \$40–50 million expenditure on the Stromlo water treatment plant.

Figure 3.1 Total capital expenditure 1999–2010, water and wastewater

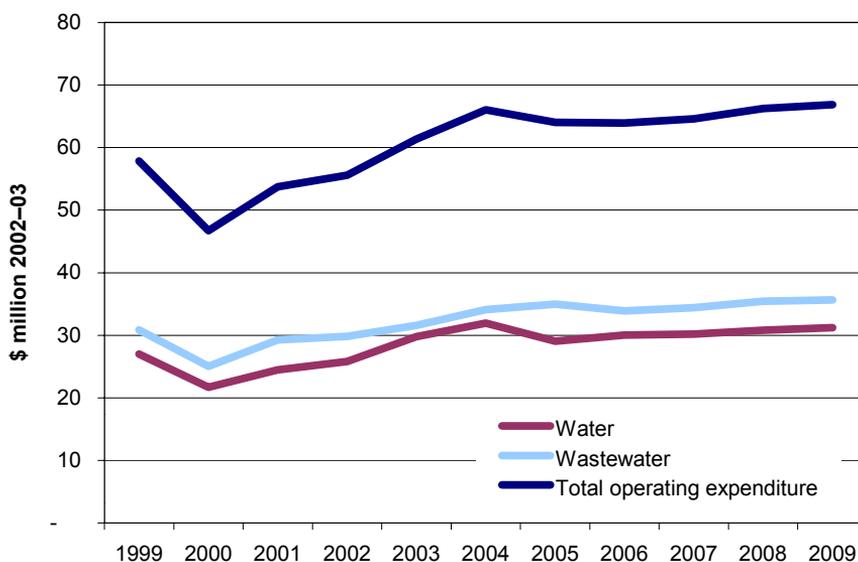


The commission’s consultants will review the proposed capital expenditure program for ACTEW, with a view to making recommendations on its overall efficiency. The commission will review the consultants’ recommendations and the program proposed by the corporation before deciding on the capital expenditure allowance to use in determining revenue requirements for the business.

3.5.5 Operating expenditure requirements

ACTEW has forecast that operating expenditure in real terms² for water and wastewater services will peak in 2004 at around \$66.1 million, from a low of around \$46.7 million in 2000 (see Figure 3.2). This is a 41.5 per cent increase over the last four years of the previous price path, and forms the basis for consideration of operating expenditure into the regulatory period currently under consideration.

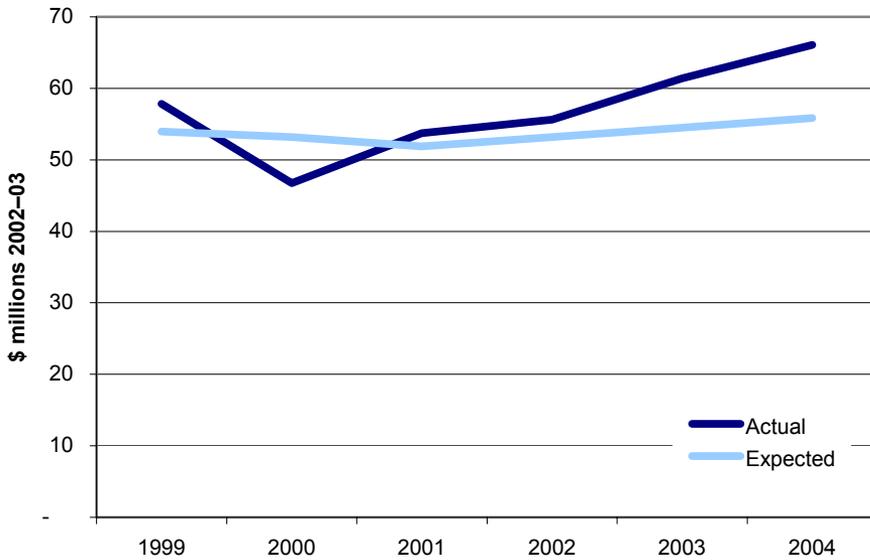
Figure 3.2 Total operating expenditure 1999–2009, water and wastewater



This expenditure is higher than that expected at the 1999 price direction, in which total water and wastewater expenditure was expected to fall to \$51.9 million in 2000–01, with an increase to \$55.8 million in 2003–04 (see Figure 3.3). This higher than expected operating expenditure has resulted in lower than expected real pre-tax rates of return to water assets. The commission is interested in the underlying factors driving the higher operating expenditure and their implications for the projections of operating expenditure between 2004–05 and 2008–09.

² All figures in this section are given in 2002–03 dollars.

Figure 3.3 Actual versus expected operating expenditure 1999–2004, water and wastewater combined



The 2000–2004 increases in operating expenditure have been consistent across both water and wastewater services. The key drivers quantified by ACTEW include additional unexpected costs associated with the drought (\$5.5 million), the January 2003 bushfire within the catchment (\$3 million), new regulatory and compliance costs (\$4.5 million) and insurance cost increases (\$1.87 million). Other cost increases are attributed by the corporation to increased network maintenance costs and real labour costs.

ACTEW argues that the cost increases have been partially offset by cost efficiencies through changes to its shift arrangements; instigation of a maintenance job dispatch centre; the establishment of a health, safety and environment management system; and better monitoring arising from the installation of major electrical monitoring and control improvements.

Some of these key drivers could persist during the 2004–05 to 2008–09 regulatory period. The commission will be relying on its own analysis of these factors, along with the consultants’ review, to determine an appropriate allowance for operating expenditure.

ACTEW expects its operating expenditure to fall from the highs of 2003–04 to \$64 million in 2004–05, before steadily increasing to around \$66.9 million

by the end of the regulatory price period in 2008–09. This is a real increase of 4.5 per cent over the final four years of the period.

ACTEW argues that the real increases in operating expenditure are being driven by a continuation of real labour cost increases, increases in routine maintenance as the average asset age increases, further increases in insurance costs, increases in compliance costs, and costs associated with drought conditions and water quality. The corporation has not yet provided evidence of the cost efficiency measures that it will be implementing during the regulatory period to offset these cost increases.

The basis for the assumptions underlying the operating expenditure forecasts provided by ACTEW will be reviewed as part of the consultants' review of operating expenditure for the forthcoming period.

3.5.6 Rate of return on ACTEW's regulatory asset base

The return on capital invested by ACTEW represents a significant component of the cost of providing network services. This rate of return represents compensation to ACTEW for committing capital to the network and bearing the risks associated with its business.

Current regulatory practice is for the return on capital to be calculated by applying a cost of capital to an asset base. To calculate the rate of return component of the cost building-block approach, the commission will need to determine:

- an appropriate initial value for ACTEW's RAB at the start of the regulatory period
- an appropriate cost of capital to be applied to this asset base.

Calculating the initial value of the RAB

The value of the RAB has strong implications for the prices that consumers pay for water network services.

There will always be strong debate about the appropriate value of the initial RAB. The commission considers that, for the purposes of calculating the building-block costs for the future regulatory period, it will roll forward the RAB on the basis of capital expenditure deemed to be prudent during the

current regulatory control period. This adjusted RAB will form the initial RAB for the 2004 regulatory period.

Specifically, the calculation of the rolled-forward (initial) RAB would involve:

- indexing the opening asset base at 1 July 1999 by the CPI to account for inflation
- adding prudent actual capital expenditure (as determined by the commission) and an allowance for indexation of that expenditure
- deducting depreciation and the value of disposed assets.

For the regulatory period starting July 2004, the commission's preference is to roll forward the initial (1998) RAB from the current regulatory period, making allowances for:

- inflation
- prudent capital expenditure
- depreciation
- asset disposals.

The commission invites comments on its preferred approach.

Depreciation of the RAB

Depreciation of the RAB can be viewed in two ways. One is to consider depreciation as the reduction in the value of capital assets in the current year. The alternative approach is that depreciation is the means for allocating the costs of capital over the expected life of the capital assets, with the depreciation in a given year being the amount of the cost allocated in that year. In theory, the allocation of the costs of capital should equal the reduction in the value of the capital assets. There are two factors that need to be determined when calculating the amount of depreciation in any given year for a given RAB. First, the expected remaining life of the assets needs to be determined. Second, the rate of depreciation needs to be specified. The rate of depreciation represents how quickly the costs of capital can be recovered. In this sense depreciation is the return of capital.

For its current determination, the commission calculated an allowance for depreciation assuming straight line depreciation. In the absence of compelling evidence otherwise the commission intends to continue applying straight line depreciation. Continuing with the straight line approach is envisioned because it is consistent, transparent and simple. Alternative methodologies will be considered and interested parties will need to detail how the specific depreciation they are proposing will lead to a superior outcome.

The commission's preferred approach is to adopt straight line depreciation to calculate the depreciation allowance for individual asset categories. The commission invites comment on its preferred approach.

3.6 Calculating the cost of capital to be applied to the regulatory asset base

There are a number of approaches for calculating an appropriate rate of return on the RAB. The *weighted average cost of capital* (WACC) is the method preferred by Australian regulators for determining a regulated utility's cost of capital.

The rate of return ensures that the business has the resources to maintain an appropriate level of investment in infrastructure. If the commission were to set too high a rate of return, this would lead to overinvestment in the business to the detriment of customers, who would be required to pay unnecessarily higher prices. Too low a rate of return could make it difficult for the regulated business to finance (whether through debt or equity) essential infrastructure expenditure, ultimately affecting the ability of the business to deliver its services to customers. Balancing these impacts is a critical part of the commission's decision-making process.

These factors emphasise the importance of decisions around the calculation of a WACC in the investigation. There are a number of alternative methods for applying the WACC calculation to generate the cost of capital. This section outlines the alternative methods for applying the WACC calculation, and the parameters that are components of the WACC. The parameters used at the 1999 price investigation are discussed and compared with more recent parameter estimates in other regulatory jurisdictions.

While the WACC calculation provides information to the commission for setting an efficient rate of return for capital investment by the business, it is not the only consideration used when deciding rates of return. The commission is also required to balance this against other factors, such as customer impacts and impacts on service quality, when deciding on an appropriate rate of return to apply to the regulated business.

The commission's preferred approach is to use a pre-tax real WACC, and apply a statutory tax rate. The reasons for this preferred approach are discussed in detail below.

3.6.1 Alternative approaches to the WACC formulation

The simplest formula for the WACC calculation is presented in equation (1) below:

$$WACC = R_e \times \frac{E}{V} + R_d \times \frac{D}{V} \quad (1)$$

where R_e is the nominal post-tax cost of equity, R_d is the nominal post-tax cost of debt, E is the total equity, D is the total debt and V is debt plus equity.

The WACC is therefore the sum of the returns to debt and equity, weighted by the share of debt and equity in the total value of the business.

The WACC calculation is affected by taxation and imputation credits, which require equation (1) to be modified as follows:

$$Post - tax WACC = \frac{R_e \times (1 - t)}{1 - t \times (1 - \gamma)} \times \frac{E}{V} + R_d \times (1 - t) \times \frac{D}{V} \quad (2)$$

where t is the tax rate and γ is the value of imputation credits.

The return to debt (R_d) is normally calculated by adding a debt margin to the risk free market rate. Usually the debt margin is based on industry norms and the risk free rate is generally based on the average of a period of time in the 10-year Commonwealth Government bond rate.

The return to equity (R_e) is normally calculated by application of the capital asset pricing model (CAPM). This approach is widely used by commercial businesses and regulators throughout Australia.

The CAPM formula is presented in equation (3):

$$R_e = R_f + \beta_e \times (R_m - R_f) \quad (3)$$

where R_f is the risk free rate, β_e is a measure of the correlation between an asset's risk and that of the overall market, and R_m is the market rate of return.

In effect, the CAPM formula says that the return on equity for a particular business is the difference between the market return and the risk free rate. The margin (and hence the β_e) reflects how risky the business is, compared with the rest of the market.

While the risk free rate is generally observable in the market, the difference between the market return and the risk free rate (also known as the market risk premium) generally reflects the long-term returns on equity in the market. Regulatory practice in Australia puts the market risk premium between 5 and 7 per cent.

The equity beta (β_e or the degree of riskiness of the business relative to the market as a whole) can itself be calculated in various ways. The commission prefers to use the Monkhouse formula, which is presented in equation (4):

$$\beta_e = \beta_a + (\beta_a - \beta_d) \times \left(1 - \frac{R_d}{(1 + R_d) \times t} \right) \times \frac{D}{E} \quad (4)$$

where β_a is the correlation between return to assets of the business and the market (known as the asset beta), and β_d is the correlation between return to debt and debt generally in the market (known as the debt beta).

Decisions about the underlying parameters within the Monkhouse formula will result in the calculation of an equity beta range for the investigation. The calculated equity beta range will form the basis of the calculation for the WACC range.

Given these equations for the calculation of the WACC, the commission has to make choices about a range of parameters used in the calculation. These include:

- t — tax rate applicable
- γ — impact of dividend imputation credits
- debt margin for the business

market risk premium
 β_a — the asset beta
 β_d — the debt beta
the gearing ratio.

The other variables in the equations are either calculated, such as the risk free rate, or known with some certainty from the business.

The application of the above approach provides a post-tax WACC. The commission can then choose to present the WACC as pre-tax or post-tax, based on an assumption about an appropriate tax rate to apply. Additionally, the commission can choose to present the WACC in real or nominal terms. The advantages and disadvantages of the alternative approaches are discussed below.

3.6.2 A post-tax or pre-tax WACC

Theoretically, the expression of the WACC as pre-tax or post-tax should have little impact on the revenue outcome for the regulated business when the building-block methodology is applied. In practice, differences arise.

The building-block methodology calculates the revenue requirement by adding up the various building blocks, including a block for a return to assets. If a post-tax WACC is used, the building block needs to reflect this by including the tax costs. If a tax block is excluded where a post-tax WACC is used, the rate of return to assets would in practice be lower because part of the return to assets would need to be used to pay taxes. Where a pre-tax WACC is determined, the payment of tax is incorporated into the rate of return, and no separate allowance is made for taxes. Under either approach, the commission would need to determine an appropriate allowance for taxation, either explicitly or through an additional rate of return. This requires a consideration of the appropriateness of using a statutory tax rate versus an effective tax rate. This choice is discussed in more detail below.

Once a decision is made between a statutory and an effective tax rate, the decision to express the WACC as pre-tax or post-tax is of less importance. On the basis of consistency with previous investigations, the commission intends to continue presenting the WACC as pre-tax.

The commission invites comments on use of a pre-tax WACC.

Each of the parameters that the commission will need to decide upon, in order to determine an appropriate WACC for the investigation, is discussed in detail below. Parameters used at the 2004 review are compared with parameter decisions in other jurisdictions.

3.6.3 Parameters to be considered by the commission

The commission must decide t (tax rate applicable), γ (impact of dividend imputation credits), debt margin for the business, market risk premium, β_a (asset beta), β_d (debt beta), and the gearing ratio.

Effective or statutory tax rate

The choice of tax rate has become contentious in Australian regulatory jurisdictions due to decisions by the Australian Competition and Consumer Commission (ACCC), the Queensland Competition Authority (QCA) and the Essential Services Commission of Victoria (ESCV) to move to a post-tax WACC with an effective rather than statutory tax rate.

An effective tax rate represents the actual tax paid by the business, taking into consideration tax laws that allow businesses to manage their tax payments through the claiming of deductions, through deferring tax payments and through other methods. The statutory tax rate is the government-set company tax rate, which is currently 30 cents in each dollar of profit. A WACC using a statutory tax rate means those businesses that are able to reduce their tax liability below the statutory tax rate will receive higher returns than an efficiently operating regulated utility. The ESCV and ACCC have argued that using a statutory tax rate allows the benefits of tax minimisation to be retained by owners, which is inconsistent with a competitive market model in which some of these benefits would be shared with customers. It is on this basis that an effective tax rate can be justified.

Unfortunately, considerable difficulties arise in calculating an effective tax rate for a business, because of the complexity of tax laws and the specific taxation arrangements for the business. The approach used in other jurisdictions is to engage a taxation consultant to estimate the business's effective tax rate.

While conceptually the commission accepts that using an effective tax rate would be more theoretically correct, it considers that the level of intrusion and the associated costs outweigh any potential benefits. Because of these difficulties, the commission prefers to use the statutory tax rate of 0.30.

The commission invites comments on use of the statutory tax rate in the WACC.

Dividend imputation credits (γ , gamma)

The WACC formula is also modified for the impact of dividend imputation credits, represented by the gamma. The choice of gamma reflects a view as to whether the CAPM is based on a marginal domestic investor or a marginal international investor. In a freely operating international investment market, the return to equity will be equalised between countries. If the marginal investor is an international investor, they receive no benefits from the dividend imputation credit, and the gamma would be set at zero. Conversely, if the marginal investor is a domestic investor, the dividend imputation credit would have full value, and the gamma should be set at 1.

Australian regulatory agencies have uniformly adopted a gamma of 0.5, giving some weight to both arguments. The commission's preferred approach is to use a gamma of 0.5 for this investigation.

The commission invites comments on an appropriate approach to dividend imputation credits in the WACC.

Debt margin

The debt margin represents the percentage margin, above the risk free interest rate, associated with debt. It reflects the risks in the regulated business's ability to pay back debt.

Regulated utilities can be generally characterised as low risk, with strong, steady cash flows, compared with non-regulated businesses.

Other regulators have used debt margins between 0.8 and 1.65 per cent (see Table 3.3). The commission is likely to adopt a debt margin range within this band.

Table 3.3 Recent regulatory decisions on the debt margin

	Debt margin (%)
Australian Competition and Consumer Commission	
Epic Energy	1.2
Powerlink	1.2
Essential Services Commission of Victoria	
Electricity	1.5
Gas	1.4
Independent Competition and Regulatory Commission (formerly IPARC)	
Electricity	1.0– 1.2
Water	1.0 – 1.2
Independent Pricing and Regulatory Tribunal (NSW)	
AGLGN	0.8 – 1.0
Electricity (2000)	0.9 – 1.1
Water (2003)	0.7 – 1.0
Ofgar (Office of Gas Access Regulation, WA)	
Goldfields (draft)	1.2
Tubridgi	1.2
Queensland Competition Authority	
Electricity	1.65
Gas Networks (draft)	1.60

The commission invites comments on an appropriate debt margin to be used in the WACC.

Market risk premium

The market risk premium is an estimate of the additional return needed by investors to invest in the equity market relative to the risk free rate. It is a measure of the risks associated with investing in the equity market.

A number of studies have estimated the market risk premium within the Australian market.³ These have produced a range of market risk premiums from 3 to 8 per cent. A list of recent decisions by other regulators on the

³ See for example Graham and Harvey (2001), 3.6 to 4.7 per cent; Welch (2001), 5.5 per cent, Welch (2000), 7.1 per cent; Dimson, March and Staunton (2000), 7.6 per cent (nominal) 6.5 per cent (real).

market risk premium is contained in Table 3.4 and suggests a range of 5 to 6 per cent.

Table 3.4 Recent regulatory decisions on the market risk premium

	Market risk premium (%)
Australian Competition and Consumer Commission	
Epic Energy	6.0
Powerlink	6.0
Essential Services Commission of Victoria	
Electricity	6.0
Gas	6.0
Independent Competition and Regulatory Commission (formerly IPARC)	
Electricity	5.0 – 6.0
Water	5.0 – 6.0
Independent Pricing and Regulatory Tribunal (NSW)	
AGLGN	5.0 – 6.0
Electricity (2000)	5.0 – 6.0
Water (2003)	5.0 – 6.0
Ofgar (Office of Gas Access Regulation, WA)	
Goldfields (draft)	6.0
Tubridgi	6.0
Queensland Competition Authority	
Electricity	6.0
Gas Networks (draft)	6.0

The commission will consider proposals on an appropriate market risk premium to apply in this investigation.

Asset beta

The asset beta reflects the correlation between the return to the regulated asset base, and other assets in the equity market. It is a measure of the operational risks associated with the business, and excludes the financial risks associated with the debt-to-equity levels of the business.

A range of recent asset beta decisions is provided in Table 3.5 below. The commission will consider proposals on an appropriate asset beta to apply to ACTEW for this investigation.

Table 3.5 Recent regulatory decisions on the asset beta

	Asset beta
Australian Competition and Consumer Commission	
Epic Energy	0.5
Powerlink	0.4
Essential Services Commission of Victoria	
Electricity	0.4
Independent Competition and Regulatory Commission (formerly IPARC)	
Electricity	0.3 – 0.5
Water	0.3 – 0.5
Independent Pricing and Regulatory Tribunal (NSW)	
AGLGN	
Electricity (2000)	0.4 – 0.5
Water (2003)	0.35 – 0.5
Ofgar (Office of Gas Access Regulation, WA)	
Goldfields (draft)	0.65
Tubridgi	0.65
Queensland Competition Authority	
Electricity	0.45
Gas Networks (draft)	0.55

The commission invites comments on an appropriate asset beta to be used in the WACC.

Debt beta

The debt beta reflects the correlation of the return to debt within the regulated business, and the debt market taken as a whole. It therefore reflects the risk of default by the business. Where the risk is unrelated to the market, the debt beta is general low or zero.

Recent debt beta decisions have been between 0 and 0.28. At the last price investigation, the commission used a debt beta of 0.12. The commission will be considering an appropriate debt beta for the investigation.

The commission invites comments on an appropriate debt beta to be used in the WACC.

Gearing

The calculation of the WACC is based upon an assumed level of gearing consistent with an efficiently operating business. All Australian regulators use a debt-to-equity ratio, or gearing ratio, of 60 per cent, and the commission proposes to maintain this gearing ratio for the investigation.

The commission invites comments on the gearing used in the WACC.

Commission's preferred approach

The commission's preferred approach will be to calculate a pre-tax, real WACC assuming a statutory tax rate. While an effective tax rate would be an appropriate basis for calculating a pre-tax WACC, the commission acknowledges the difficulties associated with the calculation of an effective tax rate for an integrated business like ACTEW. The Commission invites comments on the various parameters to be included and their treatment in the WACC.

3.7 Cost of working capital

There is often a lag between the payments ACTEW has to make to suppliers and the payments it receives from customers. Therefore, there is an amount of capital that the business needs to maintain in order to meet all its various commitments. ACTEW maintains that this capital should earn a rate of return equal to the WACC.

The current determination does not include an allowance for the cost of maintaining an investment in working capital. However, the commission is

investigating the implications of including an allowance for the cost of working capital into the notional revenue requirement.

The commission invites comments on the inclusion of a return on working capital in the revenue requirement.

3.8 X factor

The objective of incentive regulation is to provide the regulated firm with the incentive to become more efficient. This incentive arises from the fact that initial revenues and the revenue adjustment mechanism are set at the beginning of the regulatory control period and hence any efficiency gains in the form of cost reductions over the period of the price direction can be retained by the regulated firm. Under revenue cap regulation the regulated firm's notional revenue may rise by $CPI-X$ year on year.⁴ The X factor is the real change in revenue and represents indirectly the expected efficiency gain per year. The true expected efficiency gain as measured in dollars per unit of output can be determined by dividing the revenue requirement by the forecast level of demand. There are several approaches that can be taken in calculating the X factor.

Before detailing the calculation of the X factor, it is important to note that the regulated firm's incentives to reduce costs or become more efficient are independent of the level of the X factor. The X factor is an expectation of future productivity gains and does not lock in a particular level of gains. The regulated firm is free to determine the effort it will employ to achieve efficiency gains.

The X factor can be calculated as the solution to the problem of equating expected revenue to costs holding the return on capital at the WACC level. Before solving this problem, the dynamic structure of the X factor needs to be determined. One approach is to set a common X factor for each year in the regulatory control period. An alternative approach is allow for a one-off adjustment in the initial year of the regulatory control period and then set a

⁴ CPI refers to the inflation rate. The X factor can be positive or negative. The greater the X factor is the greater the expectation of efficiency gains. If the X factor is negative then the firm's revenue is permitted to increase by greater than the CPI.

fixed X factor for the remaining years of the price determination. Finally, the X factor could vary over the entire length of the price determination.

The X factor includes allowances for increased efficiencies, increased growth (demand forecasts) and the maintenance of an appropriate rate of return for the business. The X factor may also be used by the commission to smooth the revenue requirement over the period of the price determination to take account of peaky capital, operating and maintenance expenditures.

The commission invites comments on the adjustment of revenues during the regulation control period.

4 Pricing alternatives

4.1 Water pricing methodologies

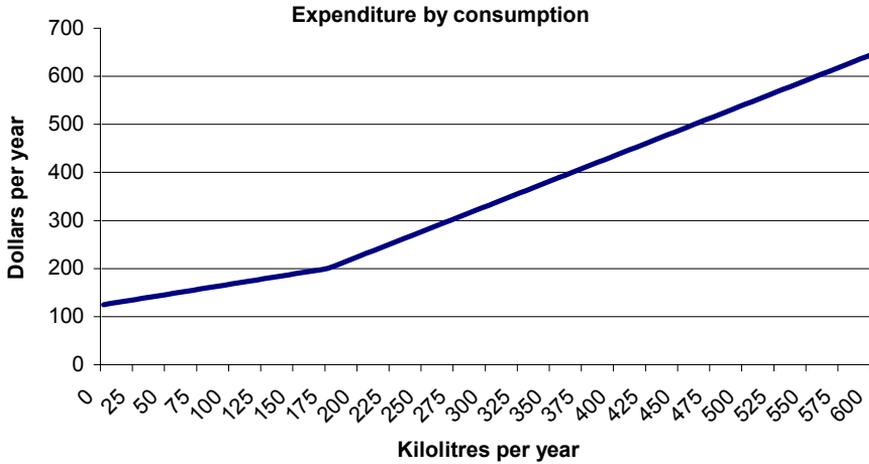
The procedures described in the previous chapter focus on the cost building-block methodology. The revenue side of the water market also poses interesting issues. The current pricing structure for the financial year 2003–2004 for metered properties in the ACT involves a three-part water tariff that includes:

- a fixed water supply charge of \$125
- a \$0.43 variable component for the first 175 kL consumed
- a \$1.05 variable component for consumption thereafter.

This structure of prices is called ‘inclining block pricing’. The theoretical basis for this form of pricing is that it encourages conservation while still providing a modest price for small users. The fixed component is supposed to be consistent with the fixed costs of providing water. The step in water prices has been reduced over the current price direction to 175 kL per year.

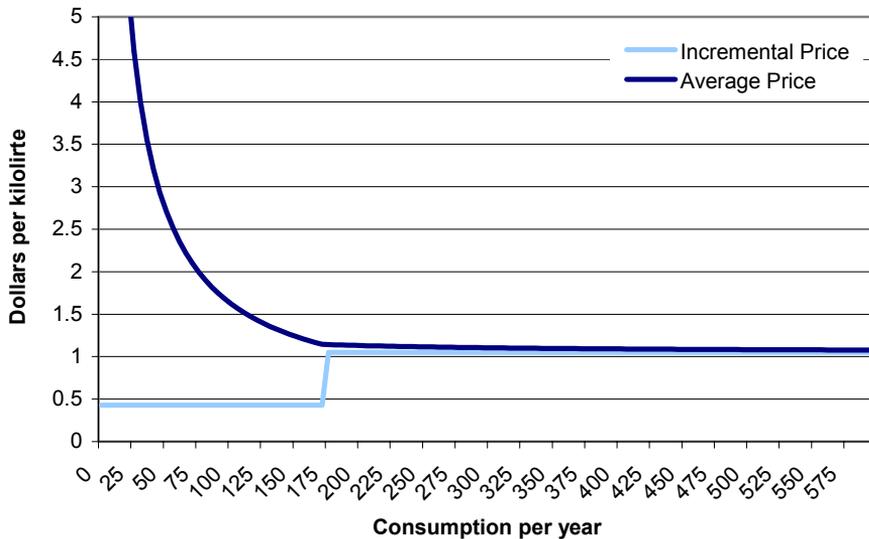
The rationale behind the step is that volume beyond that level is considered to be discretionary. Non-discretionary water use includes most water consumed inside the house, including water used for cooking, washing and hygiene. This water is supplied at a reduced price because it provides important social or community benefits. Figure 4.1 shows the relationship between the kilolitres consumed in a year and the total bill for residential customers. Inspection of the figure shows that the rate of increase in a typical customer’s bill increases after 175 kL.

Figure 4.1 ACTEW's current pricing structure



Another way to understand the current pricing regime is to look at the average and incremental price per kilolitre. The average price per kilolitre is the customer's total bill divided by the number of kilolitres consumed. The incremental price is the price of the next kilolitre after a given level of consumption. Figure 4.2 demonstrates these concepts. One interesting aspect of the current pricing structure is that the average price of water falls as a customer consumes more water.

Figure 4.2 The average and incremental price of water



One choice faced by the commission in the 2004 price direction concerns the structure of the price of water. Should the price structure retain the current step feature in the per kilolitre price of water? Perhaps there should be more than one step. If a single step is retained, the relative prices can have effects on different segments of the market. Lowering the price of the first step and raising the second step price while maintaining the revenue requirement would affect segments of the market in different ways: large users would pay relatively more for water than would small users. While this might increase the incentives for conservation, large households would be adversely affected.

Other pricing issues are discussed below.

The commission is seeking views on the structure of the price of water.

4.1.1 Seasonal pricing

One alternative to the current tariff structure would be to price water according to the season in which it is consumed. Given dry conditions in summer, it might be appropriate to price water consumed in summer higher than water consumed in winter, when demand is generally lower. A fully efficient tariff would have to reflect the fact that water availability varies by season, and that water supplies are lower in summer, when demand is higher. The increased demand in summer can be attributed to a number of factors, including increased garden watering and recreational usage.

While an increase in price due to seasonal availability of water could cause some economic hardship to larger families, it is interesting to note that most increased summer demand arises from discretionary usage. The growth in water demand could be constrained by making summertime water users pay an appropriately higher marginal price: that is, to use seasonal water pricing. This would not discourage essential indoor uses and could also be more equitable, because luxury users would be paying more. If the seasonal tariff was revenue neutral, wintertime rates would go down, and households using roughly the same amount of water throughout the year (which includes most low-income households) would face lower bills overall.

The commission is seeking views on the appropriateness of using seasonal pricing.

4.1.2 Quarterly pricing

Quarterly pricing here means applying inclining block pricing on a quarterly rather than a yearly basis. Currently, the step in prices occurs after the customer has consumed 175 kL in a year. Quarterly pricing would result in the customer paying the higher price in every quarter in which their consumption exceeds 43.75 kL. The application of quarterly pricing to current prices would result in some customers, whose yearly consumption is less than 175 kL, paying the higher rate per kilolitre if their consumption in one quarter exceeds 43.75 kL. Large consumers (those who consume more than 43.75 kL per quarter in every quarter) would pay the same yearly bill for water. Therefore, the customers who could be adversely affected by the introduction of quarterly pricing are those consuming moderate amounts.

The commission seeks views on the adoption of quarterly pricing.

4.1.3 Pro rata billing

The current billing system charges for all water consumed since the previous meter reading at the prices in effect on the day the meter is read. Prices for water change on the first day of a new financial year.

Consider a hypothetical customer whose billing date is 2 July 2003. The 2 July bill is for all water consumed from 2 April through to 1 July. Given that the new price schedule comes into effect on 1 July, this customer currently pays for water at the 2003–04 price, even though 90 days out of 91 were in the previous financial year. If pro rata billing were introduced, this customer would pay for $\frac{90}{91}$ of their water bill at the 2002–03 price and $\frac{1}{91}$ at the 2003–04 price. Every bill issued between 1 July and 30 September would be calculated according to the number of days falling in each financial year.

At first glance this seems to be a reasonable change to make. All water customers should be paying for water at prices that closely reflect the year in

which the water is consumed (this, of course, assumes that consumption is smooth over the period that straddles financial years). Any customer whose water consumption is not smooth over this billing period could be advantaged or disadvantaged in their bill compared to their true daily consumption pattern. This is a small effect that can most likely be ignored. A more significant effect would arise from a transition to a pro rata system.

Moving to pro rata billing would mean that the average customer would pay water bills during 2003–04 at 2002–03 prices for 1½ months and at 2003–04 prices for 10½ months, and the average customer would pay for water at 2002–03 prices for 13½ months in their lifetime. The commission notes that the amount paid in a financial year would differ where customers have identical yearly consumption of water but different billing dates. In this example, the customer with the billing date that is further into the financial year would always pay more.

The commission seeks views on the introduction of pro rata billing.

4.1.4 Unmetered properties

Billing for water consumed on unmetered properties poses a dilemma for water regulators. Within the ACT, most unmetered properties are flats and units that were constructed before usage-based pricing for water was introduced. Metering for new flats and units may not be economically feasible in many situations, as the costs of separately metering units in multistorey buildings are prohibitively high.

The current approach to pricing unmetered properties is to assume that they consume 175 kL per year and bill them in quarterly instalments. The charge for water is not based on the size of the unit, the number of persons dwelling in the unit, the number of plumbing fixtures within the unit or the actual water use. This raises two important issues. First, water customers living in units do not pay a marginal price for water, and therefore have no incentive to reduce consumption. Second, there is a fairness issue with respect to the pricing outcome. The water bill paid by a single resident of a small unit is identical to the water bill paid by the multiple occupants of a large unit.

The commission seeks guidance on the pricing of unmetered properties.

4.2 Wastewater pricing methodologies

The current ACT wastewater pricing regime is different for residential and non-residential consumers. Residential consumers are charged a fixed fee, which represents an access charge for the use of the sewer system and the treatment of waste. Non-residential customers are charged a fixed fee, plus a fee per fixture after the second fixture. The commission is constrained in its ability to price access to sewerage by the absence of meters that measure output flows.

The commission invites submissions on an alternative methodology for pricing access to the sewer system.

4.3 Trade waste pricing methodologies

The commission notes that ACTEW does not currently charge for commercial trade waste. However, the commission is aware that some costs associated with the management and testing of commercial premises are incurred by the corporation. The commission notes the costs involved in administration and inspection of commercial premises and supports ACTEW's attempts to recover these costs. The commission notes that ACTEW is considering a number of pricing options for trade waste, including access charges, volume charges, excess mass charges, agreement and inspection fees.

The commission is seeking comment on trade waste pricing from interested parties.

5 Additional issues

5.1 Length of regulatory control period

The commission must determine the length of the regulatory period that begins on 1 July 2004. The commission is currently undertaking a similar process for ActewAGL's electricity network and has stated a preference for a five-year regulatory control period. In the previous price direction for electricity, water and wastewater services, the ACT Treasurer sought a five-year regulatory control period, with which the commission agreed. However, with the change in the structure of the services that ACTEW now provides and the emergence of ActewAGL, it may be more appropriate to split the regulatory periods for the three services. With this in mind, the commission is considering using a different regulatory control period for water and wastewater than for electricity.

The length of the regulatory period has implications for the incentives for efficiency improvements, the predictability and stability of the regulatory environment, and the effectiveness of the regulation.

The *benefits* of a longer regulatory period include:

- greater incentives for achieving increased efficiency, by allowing the businesses to retain any gains arising from cost reductions
- a more stable and predictable regulatory environment for the businesses, which could lower business risk and lead to better investment decisions
- fewer regulatory reviews and lower costs for the regulator and the interested parties.

The *disadvantages* of a longer regulatory period include:

- delayed benefits for consumers from efficiency gains
- increased risk of industrial and technological changes that could create significant disparity between costs and revenues.

An alternative is to include an efficiency sharing mechanism in the price direction. An efficiency sharing mechanism would involve a trigger whereby identifiable efficiency gains would be partially returned to the consumers during the period of the price direction by means of lower prices. Such a mechanism could reduce the incentives to undertake efficiency improvements, as the firm would not capture all of the benefits.

If the commission decides that it is more appropriate to split the regulatory control period of water and wastewater services from electricity services, it would prefer a shorter, four-year period for water and wastewater services.

The commission seeks comments on the appropriateness of a splitting the regulatory control period for water and wastewater services from the period for electricity services. Assuming that the regulation of these services is split, the commission is seeking comments on the appropriateness of a four-year regulatory control period for water and wastewater services.

5.2 Reset principles

5.2.1 Revocation of a determination

An inappropriate price direction would cause great economic hardship for the regulated business. In the unlikely event that the commission and the business find that the price direction is unworkable, the commission must provide some sort of ‘reset’ mechanism.

A reset could occur if accurate information were not available, or if there were an ‘exogenous’ shock (that is, an upset originating outside the system) to one or more of the underlying assumptions used in the review process. For example, such a reset could be triggered if the commission were to find that it had used incorrect data to set the determination, or if a catastrophic natural or other disaster were to occur.

Sections 20A(3)(c) and 24F of the ICRC Act make provision for reset events. However, the commission, at the time the direction is made, must specify such events.

The commission seeks comments from interested stakeholders on the types of events that might trigger the reset of the price direction.

5.2.2 Yearly reset

The commission recognises that water is a major cost to many households and businesses in the ACT. Under the current arrangements, ACTEW provides the commission with revised prices, based on the allowable adjustments of the commission's price direction. Once the commission has verified that ACTEW's proposed prices comply with the price direction, these prices are published, traditionally on 1 July. The commission is aware that this allows no time for business using a financial year to budget for increases in the price of water and wastewater services. However, as the prices apply from the period commencing 1 July each year, the system reduces any confusion about prices in the broader community.

The commission seeks comments from interested parties about the appropriateness of ACTEW publishing new prices on 1 July each year.

5.3 Cost attributions

5.3.1 The ACT market, ACTEW and ActewAGL

The ACT market differs from other jurisdictions by virtue of the presence of ActewAGL, a large, vertically integrated multi-utility that is partially government-owned. Water and wastewater services are provided, under contractual arrangements between ACTEW and ActewAGL, by ActewAGL, which is joint venture partnership between ACTEW and the Australian Gas Light Company (AGL). While ACTEW retains ownership of the water and wastewater assets, the customer interface is wholly with ActewAGL.

ActewAGL operates through a business structure involving a number of interconnected corporate entities. ACTEW owns the water and wastewater infrastructure but contracts ActewAGL to provide all the system operations and maintenance to deliver water and wastewater services to customers.

ActewAGL is organised as two partnerships — one distribution partnership and one retail partnership. The ActewAGL distribution partners are ACTEW Corporation Limited and AGL Gas Company (ACT) Ltd. ActewAGL Distribution is responsible for the network side of the energy business. It also operates and maintains the water and sewerage network under contract to ACTEW Corporation. ActewAGL Distribution also provides financial, human resources, information technology and legal services to ActewAGL Retail.

The ActewAGL retail partners are ACTEW Retail Limited and AGL ACT Retail Investments Pty Ltd. ActewAGL Retail carries out customer service, marketing and selling energy. Bulk energy is purchased via the AGL group.

5.3.2 Issues for the commission

ACTEW's arrangement with ActewAGL and the resulting corporate and operational structure raises regulatory concerns for the commission primarily because of the risk of cost shifting between ACTEW and ActewAGL's separately regulated businesses, or between its regulated businesses and other unregulated commercial activities.

Specifically, the commission has concerns about the ability of ACTEW to cross-subsidise between its different businesses.

Concerns about ACTEW's involvement in the provision of more than one utility service include the potential misuse of market power in one service in order to create advantage in another. This misuse of market power might take the form of:

- cross-subsidies from regulated monopoly activities to non-regulated competitive activities
- predatory pricing
- discriminatory treatment of customers
- anti-competitive flows of information.

The commission has engaged a consultant to report on ACTEW's operating and capital expenditure as part of the commission's deliberations leading to

its 2004 price direction. The report will also address the cost attribution arrangements, including:

- assurance that all cost allocations between ACTEW and ActewAGL retail businesses and the network businesses are transparent
- identification of any areas in which costs have been inappropriately allocated between either ACTEW and ActewAGL or between the various business operations within each company
- comment on the reasonableness, or otherwise, of ACTEW's and ActewAGL's cost allocations, in terms both of the inter- and intra-business relationships of the businesses.

The commission expects the consultant's draft report in August 2003 and a final report in September 2003.

The commission seeks to ensure that the market for utility services in the ACT remains fair and equitable. The commission will be seeking information from ACTEW and other interested parties in order to ensure that:

- costs from unregulated competitive activities are not being 'loaded' into the activities of regulated monopoly businesses
- cost information provided to the commission represents actual costs and not costs inflated by cross-subsidies from associated businesses within the ActewAGL corporate structure
- joint assets between regulated businesses are not funded twice.

5.4 Service quality

ACTEW's customers enjoy a very high level of service. However, the commission and the businesses have little information on whether customers are prepared to pay a premium for increased service levels. Conversely, customers might be prepared to accept a lower level of service at a lower price. The commission, through various non-market mechanisms including the customer protection code, provides protection for customers through the

maintenance of minimum standard levels that the regulated businesses must meet, and below which service is considered unacceptable. The minimum levels are not an optimal level of service, and they do not provide the regulated businesses with any incentive to improve service beyond them. The commission is considering the introduction of a market mechanism that provides the regulated businesses with opportunities to improve service quality.

The quality of water and wastewater services supplied to customers generally refers to the level of service that they get from ACTEW. This can involve a range of issues, such as:

- the quality of water
- how often customers experience sewerage blockage
- how quickly their water services are restored after outages or blockages
- the quality of telephone response
- making and keeping appointments
- replying to correspondence.

The commission seeks comments on the ways in which customer preferences and priorities can best be reflected in a service quality incentive mechanism.

The commission is interested in linking the prices paid by customers to the level of service received. In a competitive market, this link is provided through the normal demand and supply processes: that is, where a customer is willing to pay for a higher level of service, a price is determined in accordance with the cost of providing the service at the additional quality level. However, this incentive is absent where a firm's revenue is capped by a regulator.

In other jurisdictions, regulators have provided this linkage through the introduction of a service quality factor in the regulatory price cap formula, which provides an incentive for the regulated business to increase service by allowing the firm to collect additional revenue. A service quality factor

would help provide an incentive for the regulated business to increase the level of service while allowing the firm to collect an appropriate level of revenue, which is linked in some way to the cost of the additional level of service.

The commission seeks views about appropriate measures of customer service performance.

The commission notes that the measurement of service quality is difficult. A number of issues need to be resolved before indicators of service quality can provide useful insights into the community's willingness to pay for additional levels of service. The choice of indicators should take into account customers' preferences, and the commission is expecting some guidance from ACTEW's willingness-to-pay study on this topic. However, current difficulties in assessing quality of supply and customer service do not prevent the use of such measures in future regulatory frameworks.

The commission believes that appropriate information, collected now, will at least provide a benchmark for future regulatory decisions. This data could be used in the development of an 'S' factor that would be used in future directions to reward the businesses for increased customer service performance. The resulting form of regulation would include the S factor in the determination of the revenue requirement.

The development of an S factor would require the commission to determine whether it is to be an asymmetrical or symmetrical measure. An asymmetrical measure would reward the business for improvements in service quality but would not penalise the business where the level of service was actually lower in any period. A symmetrical measure would provide both a positive and a negative incentive to the business.

The commission is aware that some aspects of service quality are linked to events outside the control of the regulated business. Events such as storms, bushfires, accidents and acts of vandalism could affect the provision of services in the Territory. At the same time, consumers who experience service disruption during such events need to be reconnected as soon as possible. The inclusion of an S factor would need to take into account these events and their impact on service quality indicators, and also provide the

business with the appropriate incentives to ensure prompt reconnection in such events.

The commission is seeking views on the introduction of a service quality factor, which would allow ACTEW Corporation to collect additional revenue were they to exceed service quality targets.

5.5 Approach to miscellaneous charges

Under the current price direction, miscellaneous charges are regulated by the commission separately from other prescribed distribution services. The maximum prices for ACTEW's miscellaneous monopoly charges are not to exceed the equivalent charges as at 30 June 1999 plus CPI-2% each year thereafter. The commission is considering a number of alternative approaches in relation to the regulation of miscellaneous charges, including:

- *Setting maximum prices.* This would require the business to submit to the commission information on the total cost base for the provision of miscellaneous charges. The commission would then be required to set a maximum price that includes recovery of all associated costs.
- *Setting a revenue cap.* This would include the maximum allowable revenue for these services in the total revenue collected by the regulated firm.

It is likely that the commission will continue to apply an adjustment similar to the CPI-X mechanism for other water and wastewater services.

The commission is seeking views on an appropriate approach to regulating miscellaneous charges.

5.6 Side constraints

Previous directions issued by the commission have set side constraints on water prices. For example, the current direction stated that:

No single domestic household bill (for the same level and pattern of consumption of water) is to increase by more than 6 percent real over the same bill in the same period of the previous year

The commission also set a one per cent real side constraint on sewerage prices. The purpose of side constraints is to limit the variation of tariffs for particular customer groups from year to year. They provide price stability for customers, but they may have adverse effects in terms of the ability of the regulated entity to recover fully its revenue requirement. The commission is considering using side constraints to limit price shocks.

The commission seeks comments on whether or not it is appropriate to use side constraints for water and wastewater network charges.

5.7 Allocation of risks between ACTEW and customers

ACTEW has proposed that it should be able to recover in future regulatory periods the losses associated with increases in uncontrollable costs during the previous period. It is argued that there have been a number of unforeseen operating and capital cost increases above those expected at the 1999 price direction. ACTEW argues that these costs should be passed through to customers during the next regulatory period.

While ACTEW has not detailed its proposal for a cost pass-through mechanism, it does outline the categories of costs that it considers outside of its control, and thereby eligible for cost pass-through. These include cost changes due to:

- changes in statutory requirements
- unexpected or very rare and easily identifiable events
- significant changes in cost drivers (for example, significant increases in insurance premiums).

A cost pass-through mechanism removes from the business the risk associated with unexpected cost changes during a regulatory period, and passes the risk to customers. The appropriateness of such a risk transfer, the

incentives it creates for the business to seek cost efficiencies, and the subsequent implications for the rate of return given to the business, will need to be considered by the commission as part of the price investigation.

The commission seeks views on an appropriate allocation of risks between ACTEW and its customers. The commission is also seeking comments on the circumstances under which significant changes to ACTEW's operating environment should be passed through to customers.

5.8 Incentive carryover

The commission is examining the introduction of an incentive carryover mechanism that continues to encourage the business to outperform the mandated efficiency targets. Under the current regulatory arrangements, the benefit of any such overperformance by the business is kept by the business for the length of the regulatory control period. Savings in the first year of the control period are retained by the business for the full five years of the period, while savings made in the last year are retained for less than one year. This results in a relatively strong incentive for the business to overperform in the early years of the control period while providing little incentive at the conclusion of the period — that is, efficiency savings are translated into price reductions at the next regulatory reset. The commission is considering an incentive carryover mechanism to provide the business with consistent incentives to make efficiency savings.

The commission notes the work done in other jurisdictions, including work done by the Essential Services Commission of Victoria (ESCV), which has developed a carryover mechanism. The ESCV's mechanism allows the business to keep any overperformance for a five-year period, regardless of the stage of the regulatory control period in which the saving was made. Such a scheme would give incentive to the business to make efficiency savings in excess of the targets set by the commission.

The commission seeks comments on the merits of an incentive carryover mechanism.

6 Issues affecting the environment

6.1 Demand management

The damming and diversion of natural watercourses to secure a supply of water for urban areas has significant environmental impacts. There is an increasing level of community and government concern about these impacts. The recent drought and bushfires have drawn attention to the need to constrain the demand for water. The possible need for an additional dam and the associated costs, financial and environmental, also focus attention on demand issues. The commission will be carefully considering demand management in this pricing inquiry.

The extent to which price is an effective tool for demand management is potentially limited by three factors:

- the regulatory process
- the sensitivity of water consumption to price changes
- equity and social policy considerations.

The current regulatory approach, of first determining efficient costs through the building-block methodology and then setting a notional revenue requirement to cover these costs, limits the scope for price increases. Prices are limited in the sense that they cannot earn supernormal returns for the regulated firm.

Studies on the elasticity of demand for water have demonstrated that demand is very inelastic. A study undertaken by ACTEW indicates that in the ACT the demand elasticity of water is -0.22 , which indicates that a 10 per cent increase in price would only result in a 2 per cent decrease in consumption. A 20 per cent reduction in consumption would require a doubling of the price.

Large price increases adversely affect large households and can have significant social costs for households on limited budgets. Often these

households may be consuming very little non-discretionary water. Given that there is likely to be an even lower demand elasticity for the non-discretionary proportion of water used, the price signal is further minimised.

The commission seeks views on the effectiveness of price as a demand management tool.

There are alternative (non-price) means for demand management. The current water restrictions in the ACT have reduced water consumption. Programs such as subsidies for low-flow shower heads, as undertaken earlier this year, can have real effects on water usage. Significant water use reduction can occur through the installation of dual-flush toilets, greater market penetration of front-loading washing machines, and public campaigns emphasising the precious nature of water.

The commission seeks comments on demand management solutions as an alternative to costly network augmentation solutions and invites interested parties to participate in the development of demand management options.

6.2 Water resource strategy

The ACT Government has released a draft water policy outlining the broad direction, targets and objectives for the management of the Territory's water resources. The commission considers this document, and its policy initiatives, as a vital step in the reduction of demand and the development of a sustainable water system in the Territory.

The commission is seeking views on the interaction between the draft water policy statement and regulated pricing for ACTEW's services.

6.3 Compliance with environmental standards

Expenditure by ACTEW to meet environmental standards is a significant driver of costs. This type of capital expenditure is generally driven by two

factors: standards imposed by Environment ACT (the environmental regulator), and community expectations.

Where capital expenditure has been spent to enable compliance by ACTEW with externally imposed environmental standards, provided the approach taken is a cost-efficient method of meeting the standard, the commission will normally consider the expenditure to be required and prudent investment. The commission will also give consideration to expenditure aimed at producing environmental outcomes above the standard set by the environmental regulator, but would need to be convinced that this is what the community requires and is willing to fund through the price for water and wastewater services.

The commission seeks views from interested parties on the community's willingness to pay for performance higher than the standards set by Environment ACT

6.4 Water reuse

ACTEW has developed a number of water reuse programs, including the Fyshwick effluent reuse system and the Southwell Park effluent reuse plant. The development of such facilities was foreshadowed in submissions to the 1999–2000 inquiry. However, as noted in Table 3.2, there appears to have been a change in the priorities given to these reuse projects, perhaps due to prohibitive costs. Expenditure on CRANOS sewerage treatment plants has been reduced from a projected \$12 million at the 1999–2000 inquiry to an actual spend of \$2.8 million over the current regulatory control period.

A number of important factors affect considerations of appropriate pricing methodology for water reuse in the Territory, including:

- the cost and availability of potable water
- the treatment of infrastructure designed to take advantage of reuse opportunities, including the costs of an alternative piping network and treatment facilities
- the social and environmental implications of the quality of water used

- the extent to which the use of reused water encourages water use additional to existing water use.

The commission is seeking comments from interested parties regarding the use and pricing of reused water.

6.5 Other environmental issues

The commission seeks comments on other environmental issues related to water abstraction and use, as well as wastewater collection and treatment, including any environmental issues that should be reflected in the price and services standards for ACTEW. In particular, views are sought on likely impacts, options for amelioration of those impacts, and the costs and benefits of those options.

Appendix 1 Reference issued by the ACT Treasurer

Australian Capital Territory

Reference to the Independent Competition and Regulatory Commission to investigate water, sewerage and trade waste pricing for the period 1 July 2004 to 30 June 2009 and other water related matters

Disallowable instrument DI2003–70, made under the *Independent Competition and Regulatory Commission Act 1997*, section 15 (Nature of industry references) and section 16 (Terms of industry references)

Reference for investigation under section 15

Pursuant to subsection 15(1) of the Act, I refer to the Independent Competition and Regulatory Commission (‘the Commission’) the matter of:

1. the provision of advice to the Government on the appropriate methodology for the determination of the water abstraction charge, the appropriate level for the charge, and the impact on consumers; and
2. an investigation into and determination of a price path for regulated water, sewerage and trade waste services provided by ACTEW Corporation.

Specified requirements in relation to investigation under section 16

Pursuant to subsection 16(1) of the Act, I specify the following requirements in relation to the conduct of the investigation: The investigation is to be conducted in two stages and consider the following matters:

Stage I

Specified requirements in relation to investigation under section 16(2)(b)

The Commission should advise on the charge to utility service providers and extractors of water from Territory-owned water resources. Specifically, the Commission should consider and advise on:

- a) The methodology for the calculation of the Water Abstraction Charge on an annual basis, the appropriate components of the charge, including but not limited to catchment management costs, the opportunity cost of water usage, the environmental cost of extraction and the current value of water as a resource;
- b) An appropriate level for the Water Abstraction Charge;
- c) The value of the charge as a demand management tool and its impact on consumer behaviour;
- d) The impact of the charge on low income earners and larger households and concession payment requirements;
- e) Consideration of changes in the relative value of water due to environmental change, the costs of maintaining the quality and security of supply of water, drought conditions, flooding etc; and
- f) The impact of the charge on ACTEW Corporation's revenue and expenditure, including future infrastructure costs.

Specified requirements in relation to investigation under section 16(2)(a)

The Commission should report to Government on Stage I of these terms of reference by 31 August 2003.

Stage II

Specified requirements in relation to investigation under section 16(2)(b)

The Commission is to review and report on an appropriate costing and pricing methodology and pricing level for regulated water, sewerage and trade waste services for the five-year period 1 July 2004 to 30 June 2009.

As provided under section 20(2), (3) and (4) of the Act, the Commission will have regard to such matters as standards of service, efficiency, appropriate rates of return, the cost of provision of services; the principles of ecologically sustainable development, social impacts, demand management, requirements for maintenance and renewal of infrastructure, the effect of price inflation; and arrangements entered in to by the regulated service provider; and specifically,

- a) Examination of the impact on cost and revenue structures of unmetered properties;
- b) Coverage of services and analysis of which services are contestable;
- c) Consideration of appropriate incentives for ACTEW;
- d) The value of water and sewerage assets in the ACT and appropriate, risk-adjusted, commercial rates of return on capital utilised;
- e) Future capacity requirements;
- f) The impacts on consumers and demand, including disadvantaged consumers, low income earners and large households, and the adequacy of concessions for services; and
- g) The impact on ACTEW's Community Service Obligations.

Specified requirements in relation to investigation under section 20B

The Commission is also to consider the principles which should apply to any price reset during the period.

Specified requirements in relation to investigation under section 20C

The Commission should advise on effective dates of the price direction.

Specified requirements in relation to investigation under section 16(2)(a)

The Commission should report to Government on Stage II of these terms of reference by 31 March 2004.

Ted Quinlan
Treasurer

14 May 2003

Glossary and abbreviations

ACCC	Australian Competition and Consumer Commission
BRW	Burns and Roe Worley
CAPM	capital asset pricing model
commission	Independent Competition and Regulatory Commission
CPI	consumer price index as published by the Australian Bureau of Statistics
ESCV	Essential Services Commission of Victoria
ICRC Act	<i>Independent Competition and Regulatory Commission Act 1997</i>
IPART	Independent Pricing and Regulatory Tribunal (New South Wales)
RAB	regulatory asset base
WACC	weighted average cost of capital

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