



independent competition and regulatory commission

Water and Wastewater  
Price Review  
**Draft Report and Price  
Determination**

**Report 11 of 2007  
December 2007**

The Independent Competition and Regulatory Commission (the Commission) was established by the *Independent Competition and Regulatory Commission Act 1997* 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. Under the *Utilities Act 2000* the Commission also has responsibility for licensing utility services and ensuring compliance with licence conditions.

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For further information on this investigation or any other matters of concern please contact the Commission on 6205 0799.

# Foreword

The Independent Competition and Regulatory Commission (the Commission) is responsible for determining the tariffs that ACTEW Corporation (ACTEW) applies for the provision of water and wastewater services in the Australian Capital Territory (ACT). In order to determine these charges, the Commission undertakes a comprehensive inquiry into ACTEW's water and wastewater business on a regular basis, typically once every four or five years. Each inquiry results in the determination of a price path to apply for the length of the subsequent review period. The most recent review determined a price path to apply for the four years from 1 July 2004 to 30 June 2008.

It should be noted that the tariffs for water and wastewater set by the Commission recover the prudent and efficient costs of ACTEW providing those services. They do not include a recovery of the scarcity value of water, nor do they include costs incurred by the ACT Government to manage water conservation in the territory. The ACT Government has introduced a Water Abstraction Charge (WAC) that goes towards the recovery of these costs. In addition, the ACT Government has announced a tax to apply to utilities in the ACT. These are costs that may also be included in the final price that consumers pay for water and wastewater services. The Commission, however, is not responsible for determining these charges and taxes.

In preparation for this price inquiry, which will determine water and wastewater tariffs to be charged by ACTEW and to apply in the ACT from 1 July 2008, the Commission has released three discussion papers.

The first discussion paper was released in November 2006 and set out some of the technical regulatory issues the Commission must consider in determining a regulatory price path. The second discussion paper was released in March 2007 and addressed issues related to the calculation of an appropriate return on capital. The third and final paper, released in August 2007, considered the issue of water and wastewater pricing structures.

As always, the Commission believes that community involvement is a crucial part of the regulatory process. The Commission sought and received submissions on its discussion papers from the ACT community. The Commission also invited a number of interested parties to participate in a roundtable discussion on water pricing issues on 4 September 2007.

The Commission also released a Working Conclusions paper on 26 September 2007. The Working Conclusions paper detailed the Commission's proposed approach to a number of key elements of the price determination. It reflected the Commission's further consideration of issues identified in the discussion papers, as well as other (but not all) issues relevant to the price inquiry. It also reflected stakeholder input made in response to the discussion papers and at the pricing roundtable, and drew upon ACTEW's initial submission (received on 31 July 2007) and response to the discussion papers. Several submissions were received in response to the Working Conclusions paper, including from ACTEW. Where relevant these submissions are reflected in this draft decision.

This draft decision represents the Commission's draft position in relation to all of the matters relevant to the price of water and wastewater services in the ACT over the next five years. The Commission welcomes comments on this draft decision; they should be provided to the Commission by 8 February 2008. Details of how to provide comments are set out in section 1.7 of this draft decision.

The Commission expects to release its final decision on 11 April 2008. The Commission will seek comments from interested parties, and intends to hold a public hearing on 14 February 2008. The Commission's timetable for the inquiry is as follows.

<b>Event</b>	<b>Date</b>
Release of information paper	August 2006
Release of discussion paper 1	November 2006
Release of discussion paper 2	March 2007
Release of discussion paper 3	August 2007
Close of submissions on discussion papers	7 September 2007
Release of working conclusions paper	26 September 2007
Close of submissions on working conclusions paper	19 October 2007
Release of draft decision	14 December 2007
Close of submissions on draft decision	8 February 2008
Public hearing	14 February 2008
Release of final report and price direction	11 April 2008

**Paul Baxter**  
**Senior Commissioner**  
**December 2007**

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# Executive summary

## Overview

The Commission has been asked by the ACT Government to make a price direction in respect of regulated water and sewerage services provided by ACTEW Corporation (ACTEW) from 1 July 2008 to 30 June 2013. The direction will replace the price path previously established by the Commission for the four years from 1 July 2004 to 30 June 2008. This draft decision represents the Commission's initial views regarding ACTEW's water and wastewater charges. Following public comment and further consideration by the Commission, a final report will be released on 11 April 2008.

This is the fifth occasion on which the Commission (or its predecessor bodies) has been requested to undertake a review of water and wastewater pricing. The current review is taking place at a time of heightened public interest in water and the environment, prompted partly by drought conditions which have severely impacted south-eastern Australia in recent years. The water supply of the Australian Capital Territory (ACT) has also been affected by the 2003 bushfires, which influenced both the quality and quantity of water available.

As a consequence of the drought and bushfires, in recent years customers in the ACT have been subject to increasingly severe water restrictions, as well as increases in prices. ACTEW's prices, when combined with the Water Abstraction Charge (WAC) and Network Facilities Charge (NFT) mean that water and wastewater prices in the ACT are the highest of any major Australian city.

During the last few years the ACTEW and the ACT Government have devoted substantial time and resources towards identifying a preferred solution for solving the water shortage in the ACT. This culminated in an announcement in October 2007 of a number of water security measures to be implemented in the ACT. The water security measures incorporate two separate project types. Firstly, there are a number of 'phase 1' projects which the Government has indicated will be implemented immediately. These are:

- enlarging the Cotter Dam from 4 GL to 74 GL at a capital cost of approximately \$145 million (in 2006–07 dollars)
- the transfer of water from the Murrumbidgee River to the Googong Reservoir at a capital cost of \$70 million
- design of a demonstration water treatment plant at a cost of \$6 million
- a pilot smart metering project at a capital cost of \$1.7 million.

Secondly there are two 'contingent' projects which are to be subject to further investigation. These are the purchase and transfer of water from the Tantangara Reservoir at an estimated capital cost of \$38 million, and the construction of the demonstration water purification plant at a cost of \$50 million.

Given that details of these projects were not provided to the Commission until 14 November, they have not been reviewed in any detail by the Commission or its consultants. However, to ensure that a full picture of potential tariffs is provided, the Commission has included ACTEW's forecast

expenditure in this draft decision. The Commission will examine the proposed projects in more detail, including timing and costs, prior to the release of its final decision.

## The Commission's approach

The Commission has been guided in its approach to this review by the terms of reference issued by the Government and the provisions of the *Independent Competition and Regulatory Commission Act 1997* (the Act). The Commission has also needed to have regard to announced government policy initiatives designed to address issues of climate change and potential reduced reliability of existing sources of water supply for the Territory.

In the terms of the provisions of the Act, the Commission is required to balance the interests of the utility providing reticulated water and wastewater treatment services with the interests of consumers, and the wider environmental and social issues associated with the use of water and treatment of wastewater in the Territory. The balancing of these interests requires the Commission to give careful consideration to the various submissions and arguments advanced by different groups across the community and to recognise the implications not only of the Territory laws and policies, but of federal laws and policies on water and environmental matters which impact the Territory.

In addressing these often competing and conflicting issues, the Commission has sought to:

- ensure that the utility service provider, ACTEW Corporation, recovers its efficient costs incurred in providing water reticulation and water and wastewater treatment services, including an appropriate return on its investment in the infrastructure that provides these services at a level that meets health and technical regulatory requirements and the expectations of consumers and the Territory;
- provide consumers with greater certainty regarding water and wastewater tariffs over the next regulatory period;
- enable new investment to be undertaken which will increase the security of supply of water for consumptive purposes in the Territory;
- encourage a continuation of water saving measures across the community while ensuring that consumers are able to access adequate water to meet essential health and hygiene requirements at reasonable cost;
- address the need for appropriate support for consumers who have financial difficulties in meeting the cost of accessing essential quantities of water; and
- reinforce government initiatives to encourage reductions in per capita consumption of water and make greater use of recycled water, thereby contributing to an improved environmental outcome.

The Commission has given particular attention to the financial arrangements between ACTEW and its related entity ActewAGL, in developing forward estimates of prudent and efficient costs upon which the final prices are based. Under the arrangements agreed at the time of the merger between ACTEW and Australian Gas Light Company (AGL) in terms of their respective electricity and gas distribution and retailing businesses, the joint venture entity, ActewAGL, was to provide services to ACTEW in terms of the management of the day-to-day operation and broader capital investment activities of ACTEW. Under the arrangement, a 'fee' in various forms has been paid by ACTEW

to ActewAGL for their management services. However, due to of the nature of the relationship between ACTEW and ActewAGL, the quantum of the ‘fee’ has never been tested by the market. Thus while the Commission acknowledges the potential for various efficiencies from contracting out service from ACTEW to ActewAGL, the Commission is concerned by the increasing cost associated with the supply of this service. Thus, in this draft report, the Commission has declined to pass through additional charges that ACTEW has proposed to pay to ACTEW over the next regulatory period subject to the provision of evidence demonstrating that consumers do benefit from this outsourcing arrangement.

Notwithstanding this one issue, the Commission has been generally supportive of the cost proposals provided by ACTEW. These costs include significant additional new investment costs designed to provide greater security of supply for water in the ACT. However, the Commission believes that consumers generally will support realistic programs designed to improve water security and will recognise the trade off that is needed between price and the availability of water to meet prudent indoor and outdoor use of water across the Territory. Thus, the Commission has been prepared to accept cost increases associated with the securing of future water supplies.

## Pricing outcomes

The Commission has considered the structure of water and wastewater tariffs and how these tariffs will be determined in making this draft decision. Important in the Commission deliberations on this topic has been the need for tariffs to recover the efficient costs of providing water and wastewater services. The Commission also considers that consumers after facing significant price increases over the past four year should expect, barring a natural disaster, some certainty going forward. The Commission also received submissions calling for a simpler tariff structure for water.

The Commission’s draft decision on water and wastewater tariffs has the following properties:

- tariffs for 2008-09 are specified in the price direction;
- tariffs for 2009-10 through 2012-13 will increase by changes in the Consumer Price Index (CPI);
- water tariffs will contain only two steps with the second step beginning at 200 kilolitres per year;
- daily pricing has been introduced;
- the structure wastewater tariffs will remain unchanged; and
- the Commission expects ACTEW to develop more cost reflective wastewater tariffs to be implemented in the next price review.

During the current regulatory period the Commission has permitted annual price ‘pass-throughs’ for certain unanticipated changes in costs, including:

- a change in taxes—some taxes such as income taxes, stamp duty and debits taxes are excluded from pass-through;
- an act of terrorism;
- a major natural disaster—such as floods or fires;
- a subvention payment event—the Commonwealth government currently provides approximately \$10 million per year to ACTEW to operate the water and wastewater system;

- a service standard event; and
- an augmentation event.

The Commission has also permitted price increases to offset reductions in revenues caused by lower sales of water. However, the Commission has included certain protections for consumers in this process, one being that any price increases as a result of lower sales of water will not be passed through until the next regulatory period.

The impact of the drought and bushfires has meant that annual price increases, particularly in 2006–07 and 2007–08, have been substantial and well above those envisaged by the Commission in its 2004 determination. This has created uncertainty for customers and imposed substantial additional costs for ACTEW and the Commission in considering the pass-through proposals.

As a result, while the Commission has elected to broadly retain the same range of cost pass-through items, it has decided that rather than being passed through on an annual basis, they should be aggregated and passed through in the subsequent regulatory period. The exception to this is in relation to the WAC, which is essentially a matter of government policy and hence should be able to be passed through in the year any change is made.

Low storage levels and the uncertain nature of the timing and impact of the water security measures mean that ACTEW's revenue will be somewhat uncertain over the next five years. To address this situation the Commission has intends to introduce a deadband mechanism to protect both ACTEW and consumers from the risk that revenue falls outside this range. Under this deadband mechanism, if revenue from all water and wastewater charges (including sales to Queanbeyan and miscellaneous services) falls outside a range of +/- 10% from that established in this price determination then the difference will be recouped/offset against prices in the next regulatory period in the same way that cost pass-throughs are.

## **Relationship between ACTEW and ActewAGL**

In October 2000, ACTEW formed a joint venture with AGL. The joint venture, known as ActewAGL, combined ACTEW's electricity network and retail operations with AGL's ACT and Queanbeyan gas network and retail operations in an equal partnership.

ActewAGL operates and maintains ACTEW's water and wastewater operations under an alliance service contract arrangement known as the Utilities Management Agreement (UMA). The UMA took effect on 1 July 2004 and is the successor to the October 2000 Water and Sewerage Managing Contractor Alliance Agreement (MCAA) between ACTEW and ActewAGL. The principles of the MCAA were used to develop the UMA, with the addition that the UMA specifically deals with risk allocation. The UMA takes account of regulatory requirements including the Commission's 2004 price determinations.

Among other things the UMA sets out the roles and obligations of each party, the manner in which payments are made between ACTEW and ActewAGL, and provides a framework for the settling of disputes between the parties.

The Commission acknowledges that there are a number of potential benefits that may accrue from the current organisational and governance arrangements. These include the exploitation of potential economies of scale and scope associated with ActewAGL.

However, the benefits of the separation of activities between ACTEW and ActewAGL must be weighed against any potential costs. These costs include those associated with the negotiation of the initial contracts (such as the UMA) and the ongoing transactional costs associated with negotiations between ACTEW and ActewAGL—for example in relation to capital programming and the approval of projects. ACTEW has also proposed to pay ActewAGL a specific margin for managing the operating and capital program for ACTEW during the next regulatory period. This is a cost that would not be incurred if all activities were undertaken in-house by ACTEW.

The costs associated with the ACTEW/ActewAGL interaction have been increasing in recent years and costs proposed by ACTEW for the next regulatory period are shown in the table below. They average approximately \$8 million per annum. Costs incurred by ActewAGL in managing the relationship are additional and, assuming they are similar in size to the proposed contractor management costs incurred by ACTEW, hence the total costs of the ACTEW/ActewAGL relationship are likely to an average \$10 million per annum. These costs are discussed further in chapters 6 and 7.

Table ES1 ACTEW's costs associated with the ACTEW/ActewAGL relationship  
(\$000s, 2006–07 dollars)

	2008–09	2009–10	2010–11	2011–12	2012–13
ACTEW's contractor management costs	2,023	2,027	2,085	2,175	2,270
5% operating expenditure margin	3,597	3,674	3,721	3,841	3,873
4% capital expenditure margin	3,544	2,745	1,131	2,190	882
Total payment	9,164	8,445	6,936	8,206	7,026

## Expenditure forecasts

ACTEW's forecasts of expenditure over the next 5 years are an important determinant of future prices. The Commission, with the assistance of consultants Mclennan Magasanik Associates and WorleyParsons, has reviewed ACTEW's original forecasts of operating and capital expenditure. Due to the timing of the announcement of the new water security measures the Commission has not had the opportunity to review the forecasts of expenditure associated with these projects, but will do so prior to its final decision.

The Commission's draft decision is that ACTEW's forecasts of both capital and operating expenditure are higher than the costs that would be incurred by an efficient business, and as a result the Commission has reduced ACTEW's forecasts. In relation to capital expenditure the Commission has:

- removed from the capital expenditure program costs associated with maximum flow upgrades at Corin and Bendora Dams, as these projects are unlikely to proceed
- removed the 'margin' payment between ACTEW and ActewAGL as ACTEW has not justified this expenditure
- reduced the cost of the program as ACTEW's forecast of escalation in capital costs is excessive.

The Commission's draft decision in relation to capital expenditure is as follows:

**Table ES2 Draft decision—capital expenditure (\$2006–07, 000s)**

	Draft Decision				
	2008–09	2009–10	2010–11	2011–12	2012–13
ACTEW original proposal—Water	33,934	59,412	17,446	44,024	10,541
Less amendments					
Max flow upgrades, Corin and Bendora Dams	15,634	15,252	14,880	14,517	–
Capital margin	704	1,698	99	1,135	405
Total original proposal with amendments	17,597	42,462	2,467	28,371	10,136
Capital adjustment factor	0.978	0.978	0.978	0.978	0.978
Draft Decision—original program	17,205	41,517	2,412	27,740	9,910
Phase 1 water security measures	76,200	97,199	40,000	–	–
<b>Draft Decision—Water</b>	<b>93,406</b>	<b>138,716</b>	<b>42,412</b>	<b>27,740</b>	<b>9,910</b>
ACTEW proposal—Wastewater	59,351	12,762	12,758	13,741	13,232
Less amendments					
Capital margin	2,283	491	491	529	509
Total proposal with amendments	57,068	12,271	12,268	13,213	12,723
Capital adjustment factor	0.978	0.978	0.978	0.978	0.978
<b>Draft decision—wastewater</b>	<b>55,799</b>	<b>11,998</b>	<b>11,995</b>	<b>12,919</b>	<b>12,440</b>

In relation to operating expenditure the Commission has:

- reduced the cost forecasts associated with operation of the Mt Stromlo water treatment plant and the Lower Molonglo Water Quality Control Centre (LMWQQC)
- amended forecast wages costs to reflect the Commission’s view that ACTEW’s forecast growth in wage rates is excessive
- removed the operating cost margin payment between ACTEW and ActewAGL as ACTEW has not justified this expenditure
- reduced the costs associated with ACTEW’s forecast strategic directions and contractor management expenditure.

For the purposes of this draft decision the Commission has accepted the forecasts of operating expenditure associated with the water security measures but will review them prior to its final decision.

The Commission’s draft decision in relation to operating expenditure is as follows:

Table ES3 Draft decision—operating and maintenance expenditure (\$000s, 2006–07)

	Draft decision				
	2008–09	2009–10	2010–11	2011–12	2012–13
<b>ACTEW original proposal—Water</b>	49,445	47,322	47,923	47,924	50,014
Less amendments					
Mt Stromlo	190	186	181	177	172
Finance and administration	83	81	79	77	75
Strategic directions	1,386	1,262	1,194	1,346	2,001
Wages adjustment	216	417	638	838	1,047
Sub-total	47,569	45,376	45,831	45,485	46,718
Margin adjustment	1,808	1,750	1,782	1,794	1,786
Draft decision original program	45,761	43,626	44,050	43,691	44,932
Water security measures phase 1	2,300	2,300	3,001	3,000	3,000
<b>Draft decision</b>	<b>48,060</b>	<b>45,926</b>	<b>47,050</b>	<b>46,691</b>	<b>47,932</b>
<b>ACTEW proposal—Wastewater</b>	45,208	47,909	47,780	49,478	51,282
Less amendments					
LMWQCC	381	836	815	795	776
Finance and administration	83	81	79	77	75
Strategic directions	720	795	919	1,050	1,163
Wages adjustment	217	460	684	939	1,207
Sub-total	43,807	45,737	45,283	46,616	48,060
Margin adjustment	1,665	1,764	1,760	1,839	1,838
<b>Draft decision</b>	<b>42,142</b>	<b>43,973</b>	<b>43,522</b>	<b>44,777</b>	<b>46,223</b>

## Value of the regulatory asset base (RAB)

The regulatory value of ACTEW’s assets is known as the regulatory asset base (RAB). The value of the RAB has significant implications for the prices that ACTEW can charge over the course of the regulatory period and beyond. It also has implications for the level of returns that will be received by ACTEW’s owner, the ACT Government.

It is important to note that the value of the RAB used for regulatory *price setting* purposes is different from the value that ACTEW adopts for accounting purposes. This arises for a number of reasons, including the way the initial RAB is determined. However there are a number of other causes — including, for example, that gifted assets are not included in the RAB but are reflected in the accounting value of assets.

Once the initial RAB is determined, for all subsequent years, the opening value is usually calculated as the closing value from the previous year. The formula for calculating the closing value is:

$$\begin{aligned} \text{Closing value of RAB} = & \text{opening value } \textit{plus} \\ & \text{capital expenditure } \textit{less} \\ & \text{disposals } \textit{less} \\ & \text{depreciation } \textit{plus} \\ & \text{indexation.} \end{aligned}$$

Thus, in rolling forward the RAB for the forthcoming regulatory period, the standard approach would be for the Commission to take the opening value of the RAB in 2004–05 as the starting point.<sup>1</sup> The Commission would then assess the actual value of new capital expenditure that took place during the current regulatory period, and estimated capital expenditure in 2007–08. Based on the actual value of disposals, depreciation and indexation the Commission would recalculate the value of the RAB to arrive at the closing value of the RAB in 2007–08. This figure represents the opening value for the RAB in 2008–09.

In its submission ACTEW has proposed that the opening RAB (i.e. as at 1 July 2008) should not be calculated using the roll forward approach described above and instead should be completely revalued on the basis of Optimised Depreciated Replacement Cost (ODRC). ACTEW has also proposed that the Commission should increase the RAB to reflect the reinstatement of Cotter Dam. The ODRC approach seeks to value an asset based on the most efficient method of providing the same level of service. ACTEW contends that such a valuation is a good proxy for a commercial value of the assets in a competitive market place.

ACTEW cited three key reasons why a revaluation is necessary. These are:<sup>2</sup>

- there is a need for water prices to reflect the true economic value of water provision to ensure that appropriate investment occurs, both by ACTEW and potential competitors.
- the water and wastewater assets were purchased from the Commonwealth government. It is therefore appropriate for ACTEW's owners to earn an appropriate rate of return on the value of the assets that it purchased.
- the ODRC valuation approach has been widely applied by regulators when determining asset values for regulated businesses.

The Commission considered these three reasons and a subsequent claim that the RAB needed to be revalued to preserve the debt-to-equity ratio. The Commission's view is that there is no merit in these claims.

The Commission's draft decision is therefore not to revalue the RAB using an ODRC methodology. Instead, it will roll forward the existing value of the RAB to reflect the capital expenditure that ACTEW has undertaken in the current period along with the disposals and depreciation it has incurred.

## The return on capital (WACC)

The terms of reference require the Commission the Commission to determine an appropriate level of the cost of capital. The following table shows the values of the parameters the Commission has determined as providing ACTEW with an appropriate return on capital through the calculation of the weighted average cost of capital (WACC). Those parameters of the WACC calculation which can be observed from market data, which includes the risk-free rate, the real risk-free rate and the debt margin, were measured as of 2 November 2007. Based on these parameters the pre-tax real WACC calculated by the Commission is 6.55 percent.

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<sup>1</sup> An adjustment also needs to be made for the difference between estimated and actual expenditure in 2003–04.

<sup>2</sup> ACTEW Corporation, *Submission: Investigation into Prices for Water and Wastewater Services in the ACT*, 31 July 2007, pp. 161–165.

**Table ES4 Parameters used by the commission in the weighted average cost of capital calculation**

Parameter	Value
Risk-free rate	6.187%
CPI	3.405%
Real risk-free rate	2.682%
Market risk premium	6.0%
Debt margin	1.705%
Gearing	60%
Gamma	0.50
Tax rate	30%
Equity beta	0.90
WACC (pre-tax real)	6.55%

## Service standards

ACTEW did not propose any substantial changes to service standards over the forthcoming regulatory period. In doing so it noted that its compliance with required service standards, both those imposed by external parties through relevant licence conditions and Codes, and those established under the UMA, was high.

The Commission received a report from the ACT Planning and Land Authority (ACTPLA) in its capacity as Technical Regulator under the Utilities Act.

The ACTPLA report suggested there is a significant issue with declining asset performance that is undetected by current performance reporting and compliance standards. ACTPLA suggested the focus on efficiency within the accepted existing analysis framework, and the lack of a mechanism to focus on asset performance has perhaps blinkered parties to the possibility that aggregate performance measures may mask an emerging major renewals problem. ACTPLA cited declining water mains performance and continuing high levels of sewer main chokes as examples of this.

The Commission has noted the concerns expressed by the Technical Regulator. However, due to the timing of the receipt of the submission, the Commission has not had time to fully consider the submission, nor has ACTEW been provided with the opportunity to comment on it. The Commission's final decision will provide a full response and make appropriate recommendations in response to the submission.

A service standard incentive scheme aims to create a link between service quality and revenues by creating a situation in which revenues adjust in response to changes in service quality, thereby providing the business with an incentive to improve service levels.

In its Working Conclusions paper the Commission indicated that it did not believe a service standard mechanism to link revenue to service standards was necessary given that existing arrangements were ensuring that appropriate customer service standards were being achieved. However, pending the Commission's further consideration of ACTPLA's submission, the Commission will reconsider its decision on this matter in the final decision.

The Commission has considered the application of an efficiency carryover mechanism (which links efficiency improvements to prices) but remains of the view that efficiency mechanisms that

have been developed and used by jurisdictional regulators to date have been sufficiently flawed that the benefits of the mechanisms are unlikely to exceed the costs. Given that ACTEW has not offered an alternative proposal, the Commission's draft decision is that it does not intend to introduce an efficiency mechanism in the next regulatory period.

## **Impact on customers and ACTEW**

This draft decision will have financial impacts on customers due to:

- the increase in average revenue that ACTEW may recover, as set out in Chapter 10;
- the proposed changes to the water tariff structure set out in Chapter 11;
- the introduction of daily pricing; and
- the holding of prices constant in real terms for the final 4 years of the regulatory period.

There will be nominal increases in customer's water and wastewater bills from 2007–08 to 2008–09 of around 9% to 12%. Thereafter, water and wastewater customers should expect only increases in their bills at the rate of the CPI. Large commercial customers should expect increases in their bills from 2007–08 to 2008–09 of around 8% to 9% and only CPI increases for the remaining four years of the price direction.

The Commission has considered the impacts of its decision on the financial status of ACTEW. The Commission's analysis shows that ACTEW's overall financial ratios will remain strong.

## **Terms of reference**

The Commission was provided with detailed terms of reference under which to conduct this review. A summary of the Commission's deliberations against each of the terms of reference is provided below.

TOR Requirement	Draft Decision
3. Commission must have regard to	Forecast WAC payments are included in ACTEW's cost base—see section 6.9.
—the level of the WAC	
—ACT government policy for reducing water use	The draft decision is consistent with the Government's policy to reduce per capital consumption of mains water by 12% by 2013.
—Ecologically sustainable development	The draft decision will continue to allow ACTEW to meet its environmental obligations, including environmental flow requirements. The proposed tariff structure will continue to encourage efficient water use and provides funding for ACTEW to continue and expand its water recycling program
—National water initiative policies	ACTEW's prices and the regulatory pricing regime is consistent with NWI policies—see section 12.4
4. Examine all regulatory models	The Commission has considered the regulatory models open to it. These are discussed in Chapter 10. The Commission considers that a price cap approach to setting prices, combined with a range of pass-through measures, represents the most appropriate trade off between price certainty, cost and revenue risk, and the need to ensure incentives to reduce costs.
5. Commission should have regard to	The Commission has allowed all of ACTEW's reported expenditure in the current regulatory period to enter the RAB. However, it does not believe there will be any economic benefits to the community from a revaluation of the RAB or an increase in the RAB to reflect the value of Cotter Dam. The main effect of such actions would simply be to increase ACTEW's profits at the expense of customers. Chapter 8 provides further information on this decision.
(a) need to invest and manage assets to maximise security of water supply	
(b) commercial value of past investments by ACTEW	
(c) value of the RAB that considers investment in the network and the reinstatement of assets to service	
(d) an appropriate level of a cost of capital	The draft decision provides for a cost of capital of 6.55%. See Chapter 9.
(e) ACTEW's interests under Territory owned Corporations Act	The draft decision provides sufficient funding for ACTEW to continue to provide services at standards required by the community, while also ensuring ACTEW's financial needs are met. See Chapter 12
(f) Incentives to undertake commercial investment in research and development	The Commission agrees that ACTEW should be permitted to undertake commercial R&D but requires further information on ACTEW's proposed R&D expenditure before approving it—see section 6.7.8
(g) efficiencies in service delivery and appropriate incentives to ensure ongoing efficiencies	The Commission believes the existing framework provides sufficient incentives for efficient behaviour and that a formal efficiency carryover mechanism is not required—see section 4.4



# 1 Introduction

## 1.1 Introduction

The *Independent Competition and Regulatory Commission Act 1997* (ICRC Act) established the Commission to regulate pricing, access and other matters in relation to industries involved in the provision of electricity, water and sewerage services, and other services, and to investigate competitive neutrality complaints and government-regulated activities. Under the ICRC Act, the ACT Government issues references to the Commission directing it to undertake inquiries as required.

The Commission has been asked by the ACT Government to make a price direction in respect of regulated water and sewerage services provided by ACTEW Corporation (ACTEW) from 1 July 2008 to 30 June 2013. The direction will replace the price path previously established by the Commission for the four years from 1 July 2004 to 30 June 2008.

This is the fifth occasion on which the Commission (or its predecessor bodies) have been requested to undertake a review of water and wastewater pricing. The current review is taking place at a time of heightened public interest in water and the environment, prompted partly by drought conditions which have severely impacted south-eastern Australia in recent years. The water supply of the Australian Capital Territory (ACT) has also been affected by the 2003 bushfires, which influenced both the quality and quantity of water available.

## 1.2 Statutory obligations

As in all its price determinations, the Commission must have regard to the requirements contained in the ICRC Act:

- the protection of consumers from abuses of monopoly power in terms of prices, pricing policies (including policies relating to the level or structure of prices for services) and standard of regulated services;
- standards of quality, reliability and safety of the regulated services;
- the need for greater efficiency in the provision of regulated services to reduce costs to consumers and taxpayers;
- an appropriate rate of return on any investment in the regulated industry;
- the cost of providing the regulated services;
- the principles of ecologically sustainable development;
- the social impacts of the decision;
- considerations of demand management and least cost planning;
- the borrowing, capital and cash flow requirements of people providing regulated services and the need to renew or increase relevant assets in the regulated industry;
- the effect on general price inflation over the medium term; and
- any arrangements that a person providing regulated services has entered into for the exercise of its functions by some other person.

In regard to the principles of ecologically sustainable development, section 20(5) of the ICRC Act states:

*ecologically sustainable development* requires the effective integration of economic and environmental considerations in decision-making processes through the implementation of the following principles:

- (a) the precautionary principle—that if there is a threat of serious or irreversible environmental damage, a lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
- (b) the inter-generational equity principle—that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;
- (c) conservation of biological diversity and ecological integrity;
- (d) improved valuation and pricing of environmental resources.

### 1.3 Terms of reference

The Commission is to undertake the investigation of ACTEW's water and sewerage services in accordance with the terms of reference (TOR) received from the ACT Government. The complete TOR can be found at Appendix 2.

In February 2007, pursuant to subsection 15(1) of the ICRC Act, the ACT Attorney-General referred to the Commission the matter of an investigation into, and the making of a price direction for, regulated water and sewerage services provided by ACTEW. Pursuant to subsection 16(1) of the ICRC Act, the Commission must take the following into consideration when conducting the investigation:

- The territory intends to continue to impose the Water Abstraction Charge (WAC) on ACTEW and all other water takers to reflect the value of water as a scarce resource.
- The charge may be set for the period 2008–09 to 2013–14 to support the policies of the ACT Government as set out in the document *Think Water, Act Water—Strategy for sustainable water resource management in the ACT*, which has as its target a 'reduction in per capita consumption of mains water by 12% by 2013 and 25% by 2023'. The charge should support such further reductions in water consumption as are necessary, having regard to the impact of drought or other factors affecting the availability of water for supply in the territory.
- In making the price direction, the Commission is required to have regard to the charge and the possibility that the territory will change the level of the charge, as well as to ecologically sustainable development.

The TOR also contain a number of provisions which the Commission is required to address, including to:

- examine all regulatory models available to it under subsection 20A(1) of the ICRC Act;
- have regard to the optimised depreciated replacement cost valuation of past investment undertaken by ACTEW or predecessor bodies;
- have regard to all investment in the water network, including the reinstatement of assets returned to service during the current regulatory period;
- have regard to National Water Initiative (NWI) policies agreed to by the ACT Government;

- have regard to ACTEW’s incentives to undertake commercial investment in research and development; and
- have regard to the achieved efficiencies in service delivery and appropriate incentives for both ACTEW and the operator, currently ActewAGL, to ensure ongoing efficiencies.

### **1.3.1 Regulatory models under subsection 20(A)1 of the Act**

Section 4 of the TOR states that the Commission should:

examine all regulatory models available to it under subsection 20A(1) of the Act, and report on the various costs and benefits to ACTEW, the territory and the community under each approach.

Subsection 20A(1) of the ICRC Act provides that a price direction must include a direction about pricing in the form of either or both of:

- a price, a maximum price or both a minimum price and a maximum price;
- or
- a maximum total amount of revenue (a revenue cap) that may be earned.

These matters, which are aspects of the form of price control, are discussed further in Chapter 10 of this draft decision.

## **1.4 Outline of this report**

This draft decision outlines the Commission’s process for conducting this review, and explains the context of the review and the key issues the Commission has considered in making its price direction. The issues covered by each chapter in this draft decision are as follows.

Chapter 2 provides an outline of the current regulatory environment for water and wastewater services in the ACT, including a review of the outcomes of the 2003–04 to 2007–08 regulatory period.

Chapter 3 sets out the Commission’s methodology for determining ACTEW’s regulated revenue.

Chapter 4 discusses service quality issues including mechanisms for ensuring that service standards continue to improve and that ACTEW has incentives to reduce costs.

Chapter 5 discusses forecasts of customer numbers and demand and supply of water.

Chapter 6 sets out the Commission’s decision regarding the operating expenditure necessary to operate and maintain ACTEW’s network over the next regulatory period.

Chapter 7 sets out the Commission’s decision regarding the level of investment in new capital expenditure that needs to be undertaken over the next regulatory period.

Chapter 8 discusses ACTEW’s regulatory asset base (RAB). This is the value of assets upon which ACTEW may earn a return on capital.

Chapter 9 sets out the weighted average cost of capital to be applied to ACTEW’s RAB to determine the rate of return on network investment

Chapter 10 brings together Chapters 4 to 9 and calculates ACTEW's total regulated revenue requirement. It also discusses how price changes during the next regulatory period will be made.

Chapter 11 outlines the Commission's views on issues relating to the tariff structure for water and wastewater services.

Chapter 12 sets out the likely impact of this draft decision on consumers and ACTEW.

Chapter 13 discusses the impact of the final price direction on the environment and environmentally sustainable development.

## 1.5 The price determination process so far

The Commission commenced this price determination with the release of a discussion paper on technical regulatory issues in November 2006. A second discussion paper was released in March 2007 which addressed issues related to the calculation of an appropriate return on capital. The third and final paper, released in August 2007, considered the issue of water and wastewater pricing structures.

The Commission also released a Working Conclusions paper on 26 September 2007. The Working Conclusions paper detailed the Commission's proposed approach to a number of key elements of the price determination. The Working Conclusions paper reflected the Commission's further consideration of issues identified in the discussion papers, as well as other (but not all) issues relevant to the price inquiry. It also reflected stakeholder input made in response to the discussion papers and at the pricing roundtable, and drew upon ACTEW's initial submission (received on 31 July 2007) and response to the discussion papers. Several submissions were received in response to the Working Conclusions paper, including from ACTEW. Where relevant these submissions are reflected in this draft decision.

## 1.6 Next steps

In undertaking its review the Commission has adopted the timetable set out below. The Commission intends to hold a public hearing on 14 February 2008 and is also seeking public comment from interested parties on this draft decision by 8 February 2008. The Commission expects to release its final decision by 11 April 2008.

Release of information paper	August 2006
Release of discussion paper 1	November 2006
Release of discussion paper 2	March 2007
Release of discussion paper 3	August 2007
Release of working conclusions paper	26 September 2007
Release of draft decision	14 December 2007
Close of submissions on draft decision	8 February 2008
Public hearing	14 February 2008
Release of final report and price direction	11 April 2008

## 1.7 How to provide comment on this draft decision

As with all reviews, the Commission encourages submissions and input from interested parties. As summarised in Appendix 3, a number of submissions have already been received. These may be viewed on the Commission's website.<sup>3</sup>

Submissions can be made on any aspect of the draft decision and the terms of reference. Parties may also present their views at a public hearing and hear the comments and arguments advanced by other parties with an interest in the inquiry.

Those intending to make submissions should be aware that the Commission publishes all submissions made to its inquiries, except where 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 office.

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

The Independent Competition and Regulatory Commission

GPO Box 296  
CANBERRA CITY ACT 2601

Level 2  
12 Moore Street  
CANBERRA CITY ACT

The Commission prefers that submissions also be provided electronically to its email address [icrc@act.gov.au](mailto:icrc@act.gov.au).

For further information about making a submission or about the review in general please contact Mr Krish Goundar by phone on 6205 0779 or by fax on 6207 5887.

Submissions in response to this draft decision are due with the Commission by 8 February 2008.

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<sup>3</sup> [www.icrc.act.gov.au](http://www.icrc.act.gov.au)



## 2 Regulatory environment

### 2.1 The drought

In recent years there has been much debate in the media, politics and within the general public about water management and water pricing. The current drought has focused attention on the scarcity of water and the importance of effective resource management regimes and pricing methodologies. A common theme, which appears to be emerging, is that water is under-priced, so water prices need to increase to reflect the true value of water being consumed. Related to this issue are suggestions that water pricing can be used as a demand management tool during times of water shortage.

It is important to understand these arguments in the context of a regulated utility such as ACTEW. As highlighted in the Commission's discussion papers, the Commission regulates ACTEW on a cost recovery basis. Under such an approach, ACTEW earns enough revenue to recover the cost of operating and maintaining the water and wastewater network while receiving a market return on capital invested. Similar approaches towards the pricing of urban water are adopted in states such as New South Wales, Victoria and Western Australia. In this context, water prices, as determined by regulators such as the Commission, are set at a level that ensures full cost recovery. The issue of whether the price charged for water reflects its scarcity value is a separate matter.

The use of price as a demand management tool has also been mentioned in the current public debate. The use of this tool in times of scarcity must be considered carefully in the context of a cost recovery regulatory regime, given the possibility that an increased volumetric price, without a corresponding adjustment to the fixed charge or an offsetting reduction in demand, may lead to increased revenues beyond those required by the service utility to meet its efficient costs.

As discussed above, there are numerous factors the Commission must take into account when determining water and wastewater prices. These include:

- the TOR, which set the context for the particular price inquiry;
- the legislative framework;
- ACT Government and Australian Government policies; and
- the issues raised in the current public debate.

In its assessment of these potentially conflicting factors, the Commission must always be mindful that its role is to regulate the revenues of ACTEW such that ACTEW does not over-recover revenue relative to its efficient costs. Determining and charging for these services to account for the scarcity value of water is a separate issue undertaken by government, although an issue that must be addressed by the Commission when considering the impact of prices on consumers, the service provider itself, and the wider environmental and social welfare issues identified in the ICRC Act.

## 2.2 National water developments

Clause 3 of the TOR requires the Commission to have regard to the NWI policies agreed to by the ACT Government.

The NWI was signed in June 2004 by the Australian Government and the governments of the states and territories. It builds on the strategic framework and pricing principles for the water sector established by the Council of Australian Governments (COAG) in 1994. In addition to dealing with many aspects of water management, the NWI includes clauses that establish commitments in relation to urban water and wastewater pricing (particularly paragraphs 64 to 77 inclusive). Actions required include:

- consumption-based pricing (paragraph 65(i));
- full cost recovery (including recovery of environmental externalities where feasible and practical) (paragraph 65(ii));
- continued movement towards upper bound pricing by 2008 (where upper bound pricing is defined as recovering no more than operating costs, externalities, taxes, and the cost of asset consumption and the cost of capital) (paragraph 66(i));
- development of pricing policies for recycled water and stormwater that are congruent with pricing policies for potable water and stimulate efficient water use by 2006 (paragraph 66(ii));
- development of pricing policies for trade waste that encourage the most cost-effective methods of treating industrial wastes by 2006 (paragraph 66(iii));
- identification of costs associated with water planning and management and the identification of the proportion that can be attributed to water access entitlement holders, with such charges excluding activities undertaken for the government (such as policy development) (paragraph 67);
- public reporting on cost recovery for water planning and management (paragraph 68);
- institutional separation of the roles of water resource management, standard setting and regulatory enforcement, and service provision (paragraph 74);
- participation in a nationally consistent framework for benchmarking (paragraph 75); and
- use of independent regulatory bodies to set or review prices or price setting processes, and to review and report on whether paragraphs 65 to 68 are being met (paragraph 77).

All of the above are consistent with and directly relevant to the Commission's price determination. The Commission has taken these requirements into consideration in arriving at this draft decisions.

In 2005 the Australian Government released the National Competition Policy Assessment of Water Reform Progress. The assessment was conducted by the National Water Commission (NWC) and was the sixth and last National Competition Policy assessment of governments' progress in implementing water-related reforms. In relation to urban water and wastewater pricing in the ACT, the NWC noted that:

- the ACT had met its COAG commitments with regard to full cost recovery of metropolitan water and wastewater operations, dividend policies for metropolitan water authorities, the use of an independent price regulator and participation in benchmarking processes

- However, a report by the Centre for International Economics had found that there was the possibility that the non-residential sector was subsidising the recovery of costs from the residential wastewater sector in the ACT.<sup>4</sup>

The issue of cross-subsidisation in the wastewater sector is discussed in Chapter 11.

In addition, further work on water charging has commenced under the NWI agreement. Much of this is being undertaken by the NWI Steering Group on Water Charging, of which the Commission is a member. In February 2007, the steering group released its Stock take on Urban Water Charges, which summarised approaches to pricing across the country. One of the findings of the stock take was that differences in approaches to water charging and cost recovery between jurisdictions and between the urban and rural water sectors are most marked in the areas of:

- recovery of capital expenditure
- tariff structures in the urban water sector
- approaches to identifying and recovering the costs of water planning and management.

To better understand the implications of differences between jurisdictions and sectors in each of these areas, the Steering Group on Water Charging is developing issues papers which are intended to assist governments to achieve consistency in water charging and cost recovery practices. None have yet been released. However, to the extent that the issues papers become publicly available during the course of this review, the Commission will have regard to them in its deliberations.

## 2.3 Australian Government programs and agencies

The Commission must be mindful of all Australian Government water programs and agencies involved in water and wastewater management. These include the NWI and NWC, the Murray–Darling Basin Commission, the Australian Government Water Fund and the Office of Water Resources.

The Murray–Darling Basin Commission (MDBC) was formed to give effect to the Murray–Darling Basin Agreement that was signed by Australian Government and the governments of New South Wales, Victoria and South Australia in 1987. The Queensland Government signed the agreement in 1996, and the ACT signed on through an MOU in 1998. The purpose of the agreement is ‘to promote and co-ordinate effective planning and management for the equitable, efficient and sustainable use of the water, land and other environmental resources of the Murray–Darling Basin’.<sup>5</sup>

In February 1994, in response to concerns about the condition of many of Australia’s river systems, COAG developed a national policy for the efficient and sustainable reform of Australia’s rural and urban water industries. The COAG Water Reform Framework proposed an integrated approach to address environmental degradation of river systems, including strategies such as:

- allocation of water to the environment;
- ecological sustainability of new developments;
- institutional reform;

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<sup>4</sup> National Water Commission, *2005 National Competition Policy assessment of water reform progress*, April 2006, pp. 8.16–8.22.

<sup>5</sup> [www.mdbc.gov.au/about/murraydarling\\_basin\\_initiative\\_\\_overview](http://www.mdbc.gov.au/about/murraydarling_basin_initiative__overview)

- protection of groundwater;
- adoption of the integrated catchment management approach; and
- microeconomic reform.

In June 2004, COAG extended the framework through the NWI.

The NWC was established as an independent statutory agency within the Prime Minister's portfolio in 2004. Its mission is to assess and help with implementation of the NWI, which is aimed at increasing the efficiency of Australia's water use and ensuring the health of river and groundwater systems. The NWC also administers two programs under the Australian Government Water Fund—the Water Smart Australia and Raising National Standards programs.<sup>6</sup>

In September 2006, the Prime Minister announced the establishment of the Office of Water Resources as part of the Department of the Prime Minister and Cabinet. The task of the office is to oversee all of the water-related initiatives being undertaken by Australian Government agencies, and to assist the NWC. The Office of Water Resources was subsequently transferred to the Department of the Environment and Heritage and the department was renamed the Department of the Environment and Water Resources.

In January 2007, the Prime Minister announced the National Plan for Water Security, a 10-point plan to improve water efficiency and address over-allocation of water in rural Australia. The National Plan for Water Security builds on the COAG Water Reform Framework and accelerates the implementation of the NWI. Designed to ensure rural water use is placed on a sustainable footing over the next decade, the plan is intended to significantly improve water management across Australia, with a special focus on the Murray–Darling Basin, where the bulk of agricultural water use takes place.

The National Plan for Water Security includes:

- a nationwide investment in Australia's irrigation infrastructure to line and pipe major delivery channels
- a nationwide program to improve on-farm irrigation technology and metering
- the sharing of water savings on a 50:50 basis between irrigators and the Australian Government, leading to greater water security and increased environmental flows
- a strategy for addressing, once and for all, water over-allocation in the Murray–Darling Basin
- a new set of governance arrangements for the Murray–Darling Basin
- a sustainable cap on surface and groundwater use in the Murray–Darling Basin
- a commitment to major engineering works at key sites in the Murray–Darling Basin, such as the Barmah Choke and Menindee Lakes
- expansion of the Bureau of Meteorology's role to provide the water data necessary for good decision making by governments and industry
- the establishment of a taskforce to explore future land and water development possibilities in northern Australia
- the completion of the restoration of the Great Artesian Basin.

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<sup>6</sup> [www.nwc.gov.au/nwi/index.cfm](http://www.nwc.gov.au/nwi/index.cfm)

The change in government following the Federal election in late November 2007 may result in some administrative and policy changes in the management of water resources in Australia. The Commission will be mindful of any announced policy changes at a national level in the preparation of its final report.

## 2.4 ACT Government policy

In addition, the Commission must take into account any ACT Government policy which affects the supply and demand for water and wastewater services or the operation of ACTEW. ACT Government policy that potentially influences the decisions of the Commission includes the *Think Water, Act Water* (TAW) strategy document released in April 2004.<sup>7</sup>

The aims of the TAW strategy are to:

- increase the efficiency of water usage in the ACT
- provide a long-term, reliable source of water for the ACT and region
- develop a cross-border (ACT–New South Wales) water supply agreement
- protect the water quality of the ACT and surrounds
- incorporate water-sensitive urban design principles into urban, commercial and industrial development
- promote and provide for community involvement in the management of ACT water resources.

Targets to reduce per capita consumption of mains water by 12% by 2013 and 25% by 2023 are included under the goal of increasing water use efficiency. A target of increasing reclaimed water use from 5% to 20% by 2013 is also included.

The TAW strategy foreshadowed the introduction of Permanent Water Conservation Measures, which were introduced on 31 March 2006. The measures included restrictions on the types of hose fittings that could be used and the manner in which houses, cars, and lawns could be watered. The aim of the measures is to reduce water consumption by 8% per year.<sup>8</sup> It is necessary that the Commission consider the impact of these policies in its decisions on the pricing of water and wastewater services provided by ACTEW.

Another ACT Government policy that impacts on the Commission's decisions on the pricing of water is the WAC, a charge levied by the ACT Government on ACTEW, which is currently, passed on to customers on a per kilolitre basis. The WAC is discussed further in chapters 6 and 11.

The ACT has also recently entered into a memorandum of understanding (MOU) with the New South Wales Government and the Australian Government regarding cross-border water supply.<sup>9</sup> The MOU is aimed at establishing a framework under which the region will have access to ACT-controlled water and at assisting the New South Wales Government when making

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<sup>7</sup> *Think Water, Act Water* and related documents are available from Environment ACT or from the TAW website, at [www.thinkwater.act.gov.au](http://www.thinkwater.act.gov.au).

<sup>8</sup> J Stanhope MLA, *New water saving measures for Canberra*, media release, ACT Government, Canberra, 22 March 2006; ACT Department of Territory and Municipal Services, 'Permanent water conservation measures in the ACT', pamphlet, ACT Government, Canberra, March 2006.

<sup>9</sup> Memorandum of Understanding between the Australian Capital Territory and the State of New South Wales and the Commonwealth of Australia on Australian Capital Territory and New South Wales Cross Border Water Resources 2006, effective 17 August 2006.

decisions regarding new developments in the region. The Commission must consider how its pricing determination will deal with water supplied under the MOU.

On 23 October 2007 the Chief Minister announced a range of water security measures for the ACT with the goal of securing Canberra's water for the future. Included among the projects proposed are an increase in the size of the Cotter Dam, installation of infrastructure to transfer water from the Murrumbidgee River to the Googong Dam, and the possible purchase of long-term secure water to be stored in the Tantangara Dam.<sup>10</sup>

## 2.5 Environmental water

Any examination of water supply, demand, costs and prices in the ACT needs to take into account the ACT environmental flow regime.

The Territory Plan explicitly requires that environmental flows be maintained to ensure that the stream flow and quality of discharges from all catchments protect the environmental values of downstream waters. Provision of environmental flows and protection of aquatic ecosystems and endangered species is also a requirement under national legislation and is an obligation under national agreements to which ACT is a party.

The *Water Resources Act 1998* requires environmental flows to be defined for all water bodies in the ACT and these flows are set out in environmental flow guidelines released by the Department of Territory and Municipal Services. The environmental flow guidelines set out the volumes and timings of environmental flows, and abstraction limits in streams, rivers, lakes and aquifers. New environmental flow guidelines were issued in 2006 replacing the guidelines that were previously in place.

The concept of environmental flow is based on the recognition that aquatic ecosystems are adapted to natural flow conditions and modifications of the flow regime will impact on the ecosystem. Also the geomorphological structure of streams is largely determined by the flow regime, with flow-on effects on stream biota through changes to substrate type and available habitat. Flow regime refers not only to the quantity of water but also to the variability of flow and incidence of flood and low flow events. For long term viability of some ecosystems there may be a need for periods of low flow. The environmental flow guidelines have been determined by relating the Territory Plan requirements to protect specific aquatic ecosystems to the scientific basis for sustaining significant ecosystems or species.

Under ACTEW's licence to take water under the Water Resources Act it is required to release a certain level of environmental flows.

The 2006 revised guidelines require significantly less water to maintain aquatic ecosystems than previous guidelines. This has social and economic benefits by reducing the time that would be spent in water restrictions during periods of drought, and by delaying the need for augmentation of infrastructure to increase the security of supply. However, the revised guidelines acknowledge that environmental flows cannot be stopped completely during drought because this would cause long term or permanent damage to aquatic ecosystems.

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<sup>10</sup> Chief Minister Media Release Number 481/07, 23 October 2007.

The Commission received submission from Dr Terry Dwyer, which claimed that the ACT Government emptied the dams with ‘very large and unnecessary environmental flow releases.’ Mrs Jo Forestier expressed similar sentiments in a submission to the inquiry.

The Commission sought advice from the Department of Territory and Municipal Services regarding environmental releases. The Department advised that that water released by ACTEW was consistent with the minimum required by the environmental flow guidelines. While actual releases were in excess of the required environmental flows, this was purely due to physical infrastructure constraints associated with the configuration of the ACT’s storages and outside the control of ACTEW. For example, when the Cotter Dam is full any additional inflows spill over the top of the dam and thus the amount of water released will exceed the prescribed minimum environmental flows. Given the small size of the current Cotter Dam and the requirement to maintain the level of water in that dam at near capacity there will inevitably be flows beyond the minimum environmental flows as water will spill over the dam during periods of heavy rainfall.

It is also important to note that the purpose of environmental flows in the ACT is to protect ACT aquatic ecosystems. Flows are based on the environmental needs of streams in the ACT and do not take into account irrigation requirements downstream. However, the ACT Government along with other jurisdictions who are members of the MDBC has agreed to a climate-adjusted cap on the net diversion of water from the valley systems supplying the ACT its water requirements. The actual quantum of the cap has yet to be agreed, but will be part of a wider program to protect the long-term viability and functioning of the water resources of the Murray Darling Basin.

## **2.6 Outcomes from the current regulatory period**

Before addressing pricing and expenditure issues in the next regulatory period it is useful to consider outcomes in the current regulatory period.

### **2.6.1 Operating and maintenance expenditure**

Operating expenditure for the period 2004–05 to 2006–07 and a forecast for 2007–08 is reported in table 2.1. Over the period total operating expenditure incurred by ACTEW for the provision of water and wastewater services was approximately \$332.6 million.

ACTEW’s actual operating expenditure has been higher in every year than that forecast by the Commission, for both water and wastewater activities. Over the course of the period actual water expenditure has diverged from that originally forecast by between 12 and 18% per annum. Actual expenditure related to wastewater services has diverged from that forecast by between 3 and 8% per annum.

ACTEW has identified the reason for actual expenditure exceeding forecast expenditure for the period as the increase in resources required to strategically plan, research, develop and implement initiatives such as Future Water Options, Water Security Program and drought contingency plans. According to ACTEW the cost increases relate mainly to:

- the retention of existing and employment of additional staff in times of a tight labour market plus the requirement for additional external consultant and legal expertise

- additional costs incurred by the Water Conservation Office including costs associated with the ongoing management and implementation of water restrictions and Permanent Water Conservation Measures (PWCM);
- increased costs associated with the management of the Cotter catchment and its remediation; and
- increased emphasis on planning and modelling in response to the ongoing drought and climate change.<sup>11</sup>

Table 2.1 Operating and maintenance expenditure 2004–05 to 2007–08 (\$000s, 2006–07 dollars)

	2004–05	2005–06	2006–07	2007–08
Water				
Operations and maintenance	28,727	28,756	28,910	29,107
Major maintenance	767	922	1,597	1,418
Directions	4,439	2,783	3,231	3,902
Contractor management and strategic direction	8,249	6,752	10,365	15,239
Total Water	42,181	39,213	44,103	49,666
Wastewater				
Operations and maintenance	33,546	32,775	33,316	33,821
Major maintenance	1,363	2,576	612	1,801
Directions	0	45	160	146
Contractor management and strategic direction	4,053	4,206	4,150	4,881
Total Wastewater	38,962	39,601	38,238	40,650
Total	81,143	78,815	82,341	90,316
Divergence from 2004 Price Determination				
Water	14%	12%	13%	18%
Wastewater	3%	8%	3%	8%

A number of these operating costs increases were ‘unforeseen events’ and passed through to customers via increased tariffs during the current regulatory period under the pass-through provisions established in the Commission’s 2004 price determination.

## 2.6.2 Capital expenditure

Over the course of the current regulatory period ACTEW anticipates delivering \$177.1 million in actual capital works. As with operating expenditure, this is higher than the \$110.4 million forecast at the time of the last price review plus the \$48 million in pass-throughs approved during the period. Actual capital expenditure has been higher than forecast expenditure in every year except 2004–05.

ACTEW has identified the primary drivers for this unanticipated expenditure as being the ongoing drought conditions and the impact of the January 2003 bushfires. Specifically these costs related to the following major additional projects:

<sup>11</sup> ACTEW Corporation, *Submission: Investigation into Prices for Water and Wastewater Services in the ACT*, 31 July 2007, p. 134.

- Stromlo water treatment plant—\$20 million to accelerate the project as a direct response to poor water quality in the Cotter Catchment following the bushfires;
- Googong water treatment plant augmentation—\$5.9 million to accelerate an upgrade to the Googong Plant in response to ongoing drought;
- Cotter–Googong bulk transfer phase 1—\$12.1 million to provide an additional 12 GL of water and address water supply issues;
- Cotter Stromlo augmentation—\$24.8 million to increase water supply;
- Secondary clarifiers and de-nitrification tanks upgrade at the Lower Molonglo Water Quality Control Centre (LMWQCC)—\$22.9 million related to a significant increase in the proposed scope of the project; and
- Working at heights safety modifications—\$8.8 million relating to an increase in the scope of the work and contract pricing.

Table 2.2 Capital expenditure 2004–05 to 2007–08 (\$000, 2006–07 dollars)

	2004–05	2005–06	2006–07	2007–08	Total
Actual capex					
Water	34,689	26,072	20,687	41,460	122,908
Wastewater	9,707	6,343	10,896	27,267	54,213
Total	44,396	32,415	31,583	68,727	177,121
Forecast capex					
Water	35,434	7,928	3,638	5,172	52,172
Wastewater	19,344	14,411	12,344	12,149	58,248
Total	54,777	22,340	15,982	17,321	110,420
Variance	-10,381	10,075	15,601	51,406	66,701

Source: ACTEW submission.

## 2.7 ACTEW and ActewAGL

ACTEW Corporation Limited (ACTEW) was established as a corporation on 1 July 1995 and is the largest government business operation in the ACT. When corporatised, ACTEW’s primary function was to provide electricity, water and wastewater services in the ACT.

In October 2000, ACTEW formed a joint venture with the Australian Gas Light Company (AGL). The joint venture, known as ActewAGL, combined ACTEW’s electricity network and retail operations with AGL’s ACT and Queanbeyan gas network and retail operations in an equal partnership.

ActewAGL operates and maintains ACTEW’s water and wastewater operations under an alliance service contract arrangement. ACTEW retains ownership and strategic control of the water and wastewater assets. The water business consists of two separate operations, water and wastewater services:

- Water—retailing and distribution of water including billing, sales, planning, design and maintenance of the network which reticulates water from water treatment plants to customers and the collection and treatment of bulk water supplies.

- Wastewater—management of billing, sales, planning, design and maintenance of the network which reticulates sewage from customer installations to sewage treatment plants and treatment of sewage, grease and oil disposals, to the required environmental standards.

These arrangements are governed through the Utilities Management Agreement (UMA) which took effect on 1 July 2004 and is the successor to the October 2000 Water and Sewerage Managing Contractor Alliance Agreement (MCAA) between ACTEW and ActewAGL. The principles of the MCAA were used to develop the UMA, with the addition that the UMA specifically deals with risk allocation. The UMA takes account of regulatory requirements including the Commission's 2004 price determinations.

Amongst other things the UMA sets out the roles and obligations of each party, the manner in which payments are made between ACTEW and ActewAGL, and provides a framework for the settling of disputes between the parties.

Outlined within the UMA are a number of planning instruments that facilitate the management of the relationship between the two parties. These plans include:

- Water Resource Management Plans—this plan defines the procedures of the development, approval, implementation and management of water catchment and water resources to meet consumptive requirements, environmental flow requirements and other requirements of the Water Resources Act.
- Risk Management Plan—this plan ensures processes are developed and implemented to assist with the identification, quantification and management (where ever possible) of risks which pose, or may be likely to pose a threat to the efficient management of the Water Business
- Asset Management Plan—this plan defines the asset management process for planning, development, operation and maintenance of the major infrastructure.

The UMA also sets out the manner in which the capital expenditure program is agreed upon, implemented and paid for. Under the UMA ActewAGL must submit annually to ACTEW a capital program for endorsement. ActewAGL must provide ACTEW with a full listing of all proposed capital projects being undertaken during the financial year, a comparison of the proposed program with that submitted previously to the ICRC, and the amounts invested in the endorsed capital projects from the previous year. Capital works are submitted for consideration via a Capital Works Authorisation request (CWA).

Once endorsed ACTEW must pay ActewAGL for all expenses incurred in relation to undertaking endorsed projects.

The Commission acknowledges that there are a number of potential benefits that may accrue from the current organisational and governance arrangements. These include the exploitation of potential economies of scale and scope associated with ActewAGL.

However, the benefits of the separation of activities between ACTEW and ActewAGL must be weighed against any potential costs. These costs include those associated with the negotiation of the initial contracts (such as the UMA) and the ongoing transactional costs associated with negotiations between ACTEW and ActewAGL—for example in relation to capital programming and the approval of projects. ACTEW has also proposed to pay ActewAGL a specific margin for managing the operating and capital program for ACTEW during the next regulatory period. This is a cost that would not be incurred if all activities were undertaken in-house by ACTEW.

The costs associated with the ACTEW/ActewAGL interaction have been increasing in recent years and costs proposed by ACTEW for the next regulatory period are shown in the table below. They average approximately \$8 million per annum. Costs incurred by ActewAGL in managing the relationship are additional and, assuming they are similar in size to those incurred by ACTEW, are likely to an average \$10 million per annum. These costs are discussed further in chapters 6 and 7.

**Table 2.3 ACTEW's costs associated with the ACTEW/ActewAGL relationship (\$000s, 2006–07 dollars)**

	2008–09	2009–10	2010–11	2011–12	2012–13
ACTEW's contractor management costs	2,023	2,027	2,085	2,175	2,270
5% operating expenditure margin	3,597	3,674	3,721	3,841	3,873
4% capital expenditure margin	3,544	2,745	1,131	2,190	882
Total payment	9,164	8,445	6,936	8,206	7,026



## 3 Regulatory methodology

### 3.1 Services to be regulated

The Commission needs to make a decision on which of the services provided by ACTEW will be regulated.

At present, prices for urban water, wastewater and miscellaneous services<sup>12</sup> are directly regulated by the Commission and included in the maximum average annual revenue (MAAR) cap. The provisions of reuse water and trade waste services are not directly regulated.

Noting that there have been no significant changes in the market for provision these services and noting support from ACTEW, the Commission intends to continue with existing arrangements.

In its 2004 determination the Commission noted that until such time as an agreement is entered into between the two relevant governments the Commission was unable to directly determine the price paid by Queanbeyan City Council (QCC).<sup>13</sup> The Commission therefore elected to regulate the provision of bulk water to Queanbeyan by requiring ACTEW to demonstrate to the Commission on an annual basis that prices for Queanbeyan are consistent with a set of pricing principles. The Commission also indicated its willingness, if both parties agreed, to act as a mediator to ensure that QCC's concerns regarding the transparency of the bulk water pricing process were resolved.

However, the QCC remains concerned with the manner in which bulk water is regulated. In its submission QCC noted that:

It is interesting to note that 'the Commission does not regulate the price of bulk water', Queanbeyan City Council has been told by ACTEW in the past that the price of bulk water is regulated by the Commission and has used the Commission's report to substantiate their argument in negotiating the bulk water supply agreement. Obviously the figure submitted by ACTEW to the Commission is a predetermined amount of revenue that ACTEW wishes to recoup from Queanbeyan. As such the validity of this figure has never been tested and as this figure is then used in the calculations for determining the water prices in the ACT the question that needs to be asked is 'Are the ACT residents paying the correct amount for their water or is there cross subsidisation between the ACT and Queanbeyan?'

At the time of this draft decision, no agreement has been entered into between the ACT and NSW governments. The Commission remains unable to directly regulate the price paid by QCC. However, the Commission wishes to emphasise that the estimate of revenue from Queanbeyan used in the building block build up is just that—an estimate—and should not be considered as setting a precedent for the price charged by ACTEW to QCC.

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<sup>12</sup> Miscellaneous services include special meter readings, testing of water meters, provision of rate certificates, and installation of fire hydrants

<sup>13</sup> ICRC < 2004 decision p. 15.

## 3.2 Building block method

In Discussion Paper 1 the Commission indicated its intention to adopt the ‘building block’ methodology to regulating ACTEW. Under this approach ACTEW’s total efficient cost is calculated as follows:

$$\begin{aligned} \text{Total efficient cost} &= \text{return on capital } plus \\ &\quad \text{return of capital (depreciation) } plus \\ &\quad \text{operating and maintenance costs} \\ \text{where the return on capital} &= \text{weighted average cost of capital (WACC) } multiplied \text{ by} \\ &\quad \text{regulated asset base.} \end{aligned}$$

The Commission has adopted this approach in its draft decision.

## 3.3 Working capital

Working capital represents liquid funds a business keeps on hand to meet obligations as they arise. A consequence of maintaining a working capital account, rather than investing in physical capital, is that the business is denied a return on that capital. An argument is often made that, in the calculation of the total efficient cost, a separate line item should be included to allow the regulated business to receive a return on working capital equal to that received on invested capital.

The Commission considers it legitimate that the regulated business receives a return on working capital. However, the regulatory model adopted by the Commission allows a return on working capital, through the manner in which cash flows are modelled. The Commission has therefore not included a specific allowance for working capital in this draft decision, and notes that ACTEW agrees that a specific allowance is not required.<sup>14</sup>

## 3.4 Length of the regulatory period

As noted in Discussion Paper 1, a key decision to be made by the Commission is in relation to the length of the regulatory period.

The length of the regulatory period affects the incentive for the regulated business to seek and achieve efficiency gains: longer regulatory periods create greater incentives. Aside from the implications for incentives, shorter regulatory periods (for example, two or three years) mean that there is a relatively greater likelihood that forecasts of expenditure and revenue will approximate actual expenditure and revenue, thus reducing risks for both regulated businesses and customers that expenditure and revenue will diverge. They also allow the opportunity for more regular customer input on service standards, prices and other relevant issues. However, more frequent regulatory reviews impose significant additional costs on both the regulator and the regulated business. Longer regulatory periods (up to 10 years) can provide greater long-term stability for customers and the regulated business, but rely on relatively confident forecasts or the application of trigger events or similar mechanisms which enable a review of regulatory arrangements should certain events occur, or should outcomes vary in a defined way from the original forecasts.

In its Working Conclusions paper the Commission expressed a view that a five-year regulatory period was appropriate. This view was supported by ACTEW in its response to the Working

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<sup>14</sup> ACTEW main submission p. 203

Conclusions paper, consistent with views expressed earlier in its submission. The ESCC also supported a five-year regulatory period.

The Commission's draft decision is therefore that a five year regulatory period will be adopted. However, in recognition that a five-year regulatory period means that certain unforeseen events may occur, the Commission has designed a number of arrangements to deal with these events. These are discussed in Chapter 10.



## 4 Service standards

### 4.1 Establishing service standards

Under section 20(2)(b) of the ICRC Act the Commission is to have regard to standards of quality, reliability and safety of regulated services in making a decision under section 20(1) of the ICRC Act. In addition, in order to calculate the efficient cost of providing services to customers, it is important to define precisely the level or standard at which the services will be provided.

Service standards can be grouped into the following two categories:

- customer-oriented service standards such as disruptions to supply and
- ‘technical’, environmental and health-related service standards such as those relating to drinking water quality, wastewater discharge quality and compliance with occupational health and safety legislation.

Two separate sets of arrangements currently provide a framework for ACTEW’s service standards. Firstly, there are a number of external obligations on ACTEW to meet defined service standards. In relation to customer-oriented service standards, these external requirements include the Consumer Protection Code and Water Supply and Sewerage Service Standards Code both of which set minimum service standards below which service is considered unacceptable. (However, these minimum standards do not necessarily represent optimal service levels, nor do they provide a regulated business with an incentive to provide services of a higher standard.) ACTEW is also required to meet obligations in relation to the performance of network operations and the provision of notices to landowners regarding any such work under the *Utilities Act 2000* (Part 7, Division 7.3). Technical, environmental and health related service standards that ACTEW is required to meet are set out in ACTEW’s licence conditions and in various industry codes such as the Drinking Water Quality Code, Dam Safety Code and Water and Sewerage Network (Design and Maintenance) Code.

Secondly, there are a number of ‘internal’ performance obligations and standards established under the UMA. These obligations and standards in part reflect the external obligations but also include a number of additional targets and standards.

ACTEW has not proposed any significant changes to standards of service over the forthcoming regulatory period, nor has it proposed to introduce a formal mechanism for rewards or penalties if service standards are higher or lower than required levels.

In its submission, ACTEW has noted that the UMA with ActewAGL incorporates some 147 services and associated KPIs, and that ActewAGL has achieved nearly all of the KPIs during the current regulatory period, with the exception of some capital works requirements. According to ACTEW, the requirements of all licences and authorisations and the *Utilities Act 2000* have been met.

ACTEW’s submission also cites a number of service standards that materially improved over the current regulatory period, including:

- the average response time for priority 1 water events is down from 77 minutes to 39 minutes;

- the average water interruption time for priority 1 water events is down from 98 minutes to 75 minutes;
- compliance with sewer blockage remediation times is 98%, and there has been a decline in customer complaints; and
- the recurring sewer blockage rate is down from 5% to 2%.

Key issues that the Commission needs to consider when assessing ACTEW's proposal and determining service standard arrangements for the next regulatory period are:

- whether ACTEW's current service standards are improving or declining;
- whether ACTEW's current and proposed service standards are 'appropriate' and consistent with customers' needs and willingness to pay; and
- whether a service standard mechanism needs to be introduced to provide additional incentives for ACTEW to improve or maintain its service standards.

The Commission's assessment of these matters has regard to information from a number of sources, including its ongoing performance monitoring regime as well as observations made by the Commission's consultants as part of their role in reviewing ACTEW's operating and maintenance expenditure. The Commission has also been informed by a submission from the ACT Planning and Land Authority as Technical Regulator of the ACT water industry under the Utilities Act.

## 4.2 ACTEW's current service standards

### 4.2.1 The Commission's performance monitoring regime

One of the Commission's objectives under the *Utilities Act (2000)* (the Act) is to encourage the provision of safe, reliable, efficient and high-quality utility services at reasonable prices. Consistent with this objective utilities licensed to supply water and sewerage services in the ACT are required to comply with a number of statutory and regulatory obligations under the *Utilities Act 2000*, licence conditions and technical and industry codes of practice. One such requirement is to report annually to the Commission on the utility's compliance with obligations and performance of functions under the Act.

Each year the Commission prepares two separate reports on licensees' performance and compliance.

The annual **compliance report** addresses licensees' compliance with the Act, licences and relevant codes of practice. It is the principal means by which the Commission monitors utility service providers' compliance. In addition, the report provides information to utilities and other interested parties on the nature and extent of licensees' compliance and, more generally, their performance. Thirdly, by identifying under-performance or non-compliance the reports provide utilities with a means of addressing and improving their performance.

The annual **performance report** focuses on utilities performance including financial performance as well as in relation to customer service, safety net arrangements and the environment.

#### ***Compliance report***

The Commission's most recent compliance report covers 2005–06. There were no material breaches of licences or other requirements by ACTEW in 2005–06.

In terms of compliance with the Utilities Act, in 2005–06 the overall number of network complaints more than doubled for water and sewerage combined compared to 2004–05. These were predominantly complaints regarding inconvenience, detriment or damage to landholder’s property as a consequence of some action taken by ACTEW. However, in aggregate terms less than 200 complaints in relation to Utilities Act matters were received, and the Commission reached the overall conclusion that no material breaches of the license had occurred.

ACTEW’s water and wastewater compliance with the Consumer Protection Code was generally high during 2005–06, although the Commission’s compliance report noted that:

- Standard 5: Planned interruptions to utility services. Although ACTEW’s performance for the restoration of water supply declined compared with the previous year; the number of instances where inadequate notice was provided was still small and limited to 13 occasions. Moreover, ACTEW’s failure was more apparent than real as it provided 48 hours notice of interruptions, rather than the two days technically required by the Code. However ACTEW reported that it restored supply within 12 hours of the initial interruption in all instances
- Standard 6: Unplanned interruptions to utility services Whereas ACTEW met this standard in all instances for water and sewerage services in 2004–05, it failed to meet the standard on three occasions for sewerage services in 2005–06. ACTEW advised that in two instances the delay was caused by the need to return to the customer’s premises to dig up and repair a broken sewer tie, and in the third the blockage could not be cleared at the time (i.e. evening) so the customer agreed to it being attended to the following morning. The Commission did not conclude that there had been a material decline in meeting the Consumer Protection Code requirements.

### ***Performance report***

The Commission’s most recent performance report is for 2004–05. The report covers a number of indicators, and for most customer service standard indicators ACTEW’s performance is comparable with its peers. However, ACTEW performs substantially worse than its peers in relation to sewer chokes and breaks and sewer spills.

The report also identified that more than half (339 of a total 663) complaints received by ACTEW in 2004–05 related to water quality.

### **4.2.2 Service standards under the UMA**

Under the UMA, ActewAGL is required to monitor and report on its performance against 47 key performance indicators (KPIs) set out in Schedule 9 of the UMA. A number of these KPIs have more than one target or requirement. These KPIs reflect both requirements set out in external licences and Codes as well as other standards agreed between ACTEW and ActewAGL. Each KPI has a target level and performance points (PPs) are awarded depending upon the standard achieved. Payments between ACTEW and ActewAGL are adjusted accordingly.

A summary of the KPIs incorporated in the UMA is set out in Appendix 4.

As part of their brief to review operating and capital expenditure, McLennan Magasanik Associates (MMA) and WorleyParsons noted that the UMA formed the core operational document to provide water and wastewater services in the ACT. The consultants were in general agreement the comprehensive set of KPIs will drive efficiency within the business and that ActewAGL is meeting the KPIs. However they also had concerns that qualitative measures for assessing

efficiency improvements achieved within the business were not available. The consultants also noted that the measures and processes within the business to establish network operations efficiency with regard to reactive maintenance, planned maintenance and renewals have not been evident. This has also been a matter of concern to the Technical Regulator, as discussed below.

### 4.2.3 Submission from the Technical Regulator

The Commission received a comprehensive submission from the ACT Planning and Land Authority (ACTPLA) in its capacity as Technical Regulator under the *Utilities Act*. The Technical Regulator also provided a copy of a report entitled *Asset Renewal—ACT Water Mains Reticulation Infrastructure* it had commissioned from Atech Group. This report is referred to as the ‘Leane Report’ in this draft decision. Both documents can be found on the Commission’s website.

ACTPLA is responsible under Part 5 of the *Utilities Act*, for the technical regulation of utility network infrastructure, including water and sewerage. In particular, the Technical Regulator is responsible for ensuring compliance with technical codes and standards under the *Utilities Act*.

ACTPLA suggested that a significant omission in ACTEW’s submission to the ICRC is the lack of a strategic overview section addressing the trends and direction in asset performance. ACTPLA argued that this means that stakeholders are uninformed as to the detailed status of asset performance, and thus are unable to develop an appropriate renewals policy, measure outcomes against target performance parameters, compare performance against benchmark data, consider progress of data collection across the networks, conduct comprehensive strategic analysis, make trend comparisons over time, and consider trend comparisons against other utilities.

ACTPLA suggested the possibility of declining asset performance that has been undetected by the current performance reporting and compliance standards. ACTPLA suggested the focus on efficiency within the accepted existing analysis framework, and the lack of a mechanism to focus on asset performance has potentially blinkered parties to the possibility that aggregate performance measures may mask an emerging major renewals problem.

ACTPLA noted that the ICRC must have regard for ‘standards of quality, reliability and safety of the regulated services’. ACTPLA provided data which purported to show that the performance of the water supply network, in terms of mains failures, has been worsening for some years. ACTPLA suggested that the ongoing acceptance of declining water mains service performance without investigation may, arguably, be seen as giving inadequate regard to system reliability. ACTPLA also pointed to ACTEW’s poor performance in relation to sewer main breaks and chokes, particularly when expressed on a per km basis.

ACTPLA concluded that the price determination should enable ACTEW to provide sufficient funding to:

- maintain network serviceability at least at a stable level;
- achieve compliance with any regulatory requirements *introduced* or *tightened* since the previous price determination; and
- provide the least cost option, on an all-of-life costing basis, for any necessary capital works, including new works, capacity augmentations and infrastructure renewals.

Finally, the ACTPLA recommended that the ICRC's determined price should consider the need to:

- undertake water main renewals to arrest the declining serviceability level when measured in terms of network size (rather than according to the number of properties affected) and possibly to return it to the level at the time of the granting of the utility licence (although this may need to occur over more than a single regulatory period); and
- undertake proactive sewer maintenance to at least produce a measurable downturn in the number of unplanned sewer interruptions when measured in terms of network size (rather than according to the number of properties affected).

The Commission has noted the concerns expressed by the Technical Regulator, particularly in terms of declining water mains performance and continuing high levels of sewer main chokes. The Commission will examine this issue in greater detail after the release of the Draft Report. This will allow ACTEW the opportunity to comment on the Technical Regulator's report. The Commission's final decision will provide a full response and make appropriate recommendations in response to the submission.

### **4.3 Service standard mechanism**

A service standard incentive scheme aims to create a link between service quality and revenues by creating a situation in which revenues adjust in response to changes in service quality, thereby providing the business with an incentive to improve service levels.

In the Working Conclusions paper the Commission indicated that it did not believe a service standard mechanism was necessary given that existing arrangements were ensuring that appropriate customer service standards were being achieved. A 2005 report by the Commission noted the generally high level of satisfaction with the services received.<sup>15</sup>

However, pending the Commission's further consideration of ACTPLA's submission, the Commission will reconsider its decision on this matter in the final decision.

### **4.4 Efficiency carryover mechanism**

The TOR require the Commission to have regard to achieved efficiencies in service delivery and appropriate incentives for both ACTEW and the operator, currently ActewAGL, to ensure ongoing efficiencies.

ACTEW has proposed that the Commission adopt an efficiency carryover mechanism in order to provide additional incentives for ongoing cost efficiency improvements throughout the regulatory period.

An efficiency carryover mechanism creates a situation in which the regulated business has a constant incentive to achieve efficiency gains throughout the regulatory period, as any efficiency gains are maintained by the business for a predetermined length of time. Under the current regulatory approach, the regulated business may have a greater incentive to achieve efficiency gains in earlier rather than later years of the regulatory period, because the regulated business can maintain these gains for the remaining length of the regulatory period.

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<sup>15</sup> ICRC, Final Decision on Review of Efficiency and Service Standard Incentive Mechanisms, Report 16 of 2005, December 2005.

In its Working Conclusions paper the Commission indicated its intention not to adopt an efficiency carryover mechanism on the basis that:

- there were a number of shortcomings of efficiency carryover mechanisms adopted in other jurisdictions and that ACTEW had not proposed a scheme that addressed these shortcomings;
- increased incentives for efficiency will be created by the establishment of a 5 year regulatory period; and
- ACTEW has indicated that significant efficiencies had been achieved under the existing regime.

However, the Commission indicated it would consider any scheme that ACTEW was able to propose that was able to satisfy the desirable attributes of an efficiency mechanism in a better manner than existing schemes.

In response to the Working Conclusions paper ACTEW agreed that it has adequate incentives to achieve efficiencies in the early years of the regulatory period but noted that these incentives progressively diminish over the course of the regulatory period. ACTEW continued to advocate the introduction of a five-year rolling efficiency carryover mechanism on operating costs to be applied at the 2013 price review and proposed that the Commission detail in the draft decision its intentions for a certain and predictable mechanism. ACTEW also claimed that it has acted on the reasonable expectation, 'given confirming statements by the Commission since its 2004 determination that an appropriate mechanism would be adopted at some time during the period'.

The Commission has further considered ACTEW's proposal for a mechanistic and automatic carryover arrangement but remains of the view that efficiency mechanisms that have been developed to date have are sufficiently flawed that the benefits of the mechanisms are unlikely to exceed the costs. Given that ACTEW has not offered an alternative proposal with a specified approach to efficiency carryovers, the Commission's draft decision is that it does not intend to introduce an efficiency mechanism in the next regulatory period.

# 5 Demand forecasts

## 5.1 Demand forecasts

Forecasts of demand (including customer numbers, the volume of water abstracted and sold, and the volume of wastewater treated) are important because they influence both ACTEW's costs as well as the volumetric and fixed charges that can be set.

Under section 20(2)(h) of the ICRC Act the Commission is to have regard to considerations of demand managements and least-cost planning in making a decision under section 20(1) of the ICRC Act.

The Commission's TOR also requires it to have regard to:

- the ACT Government's policy of reducing per capita consumption of mains water by 12% by 2013 and 25% by 2023; and
- supporting further reductions in water consumption as may be necessary or appropriate from time to time.

In more 'normal' circumstances forecasting water usage is a relatively straightforward process. Historical data on usage can be combined with customer growth and expected weather to produce a forecast of usage that, on average, will be close to actual usage. However, forecasting demand in the present circumstances of relative supply scarcity due to drought and temporary restrictions is a considerably more complex task because:

- the current level of restrictions has not previously been experienced in the ACT and hence there is limited historical data upon which to base forecasts;
- there is considerable uncertainty regarding future restriction levels. If heavy rains were to replenish storages then existing restrictions could be eased with consequent increases in usage;
- the impact of recent relatively large price increases on 'unrestricted' demand is uncertain;
- the impact of climate change on future rainfall outcomes is unknown;
- there is a greater public awareness of environmental issues including water supply as a result of education programs and publicity and thus a possible paradigm shift in future water use patterns; and
- the impact of a greater penetration of water savings devices and measures such as rainwater tanks and recycling is unknown.

The Commission understands that ACTEW has been refining its demand forecasting modelling capability, particularly in terms of its ability to forecast usage over a 12-month period. ACTEW has engaged Dr Rebecca Letcher and Professor Trevor Breusch from ANU to assist it with this work. However, the Commission understands that, as with any demand forecast model, the model is heavily dependent upon the future weather assumption to be adopted. This matter is discussed further in Chapter 10.

The Commission engaged consultants McLennan Magasanik Associates in conjunction with WorleyParsons to assist it to review ACTEW's forecasts of demand and customer numbers, as well as ACTEW's capital and operating forecasts. The consultants undertook this task in a two

phase process with the first phase focusing on aspects of the demand forecast relevant to deriving capital and operating costs, and the second phase concentrating on the parameters that are important for pricing purposes, and in particular the volume of water sold by tariff band. The consultants were requested to undertake this phase two work in the context of the Commission’s deliberations regarding whether to set prices for the entire regulatory period, as well as the tariff ‘steps’ that should be adopted. Further details are set out in Chapter 10.

## 5.2 Customer numbers

### 5.2.1 ACTEW proposal

ACTEW has forecast that water customer numbers will increase by around 2,200 properties each year to 2008–09, but then growth fall below 2000 customers for the remainder of the regulatory period. This reflects an average growth rate of around 1.4% per annum. A similar level of growth (on a slightly lower customer base) was forecast for wastewater customer numbers

Table 5.1 ACTEW’s forecast customer numbers 2006–07 to 2012–13

	2006–07 (actual)	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
<b>Water</b>							
Customer numbers	137,809	140,071	142,254	144,217	146,181	148,144	150,108
Increase		2,261	2,183	1,964	1,964	1,963	1,964
Percentage increase		1.64%	1.56%	1.38%	1.36%	1.34%	1.33%
<b>Wastewater</b>							
Customer numbers	134,147	136,289	138,364	140,209	142,099	144,023	145,947
Increase		2,142	2,075	1,845	1,890	1,924	1,924
Percentage increase		1.60%	1.52%	1.33%	1.35%	1.35%	1.34%

Source: ACTEW template. Includes all residential and non-residential properties for which a fixed charge applies, including unmetered properties and standpipes.

### 5.2.2 Consultants’ review

The consultants concluded that ACTEW’s forecasts seemed low in light of recent increases in customer numbers and projected population growth.

In its draft report the consultants recommended that a linear trend based on growth from 2002 to 2006 provided a sound basis for forecasting customer growth in the forthcoming regulatory period. In response to the consultants’ draft recommendation ACTEW noted that this approach would result in forecast customer numbers that were too high because:

- the impact of the 2003 bushfires might have had an anomalous impact on growth in customer numbers over recent years
- there is evidence that the recent housing boom in the ACT may be winding down
- ACTEW’s forecast was based on ABS projections allowing factors other than just historic population growth to be considered.

However, the consultants reaffirmed their views in the final phase one report, and in particular noted that the slowdown in growth in 2008–09 forecast by ACTEW was inconsistent with growth forecast by the Housing Industry Association.

The consultants recommended that a customer growth rate of approximately 1.62% should be adopted for the regulatory period. The recommended forecasts (from its phase 2 report) are set out below.

**Table 5.2 MMA recommended customer numbers**

	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
Water	139,567	141,921	144,304	146,552	148,868	151,183
Wastewater	135,659	137,948	140,264	142,449	144,700	146,950

Source: MMA Phase 2 report on demand forecast for the ACTEW water networks. Note that the 2007–08 customer numbers are different from those forecast by ACTEW primarily because the MMA numbers are average for the year, while the ACTEW numbers are at the end of the year.

### 5.2.3 Draft decision

The Commission concurs with the consultants that ACTEW’s customer number forecasts appear low, particularly in the latter years of the regulatory period. A forecast increase in water customer numbers of 1,964 per year is inconsistent with recent customer growth, which has averaged 2,330 or 1.7% over the past three years.

The Commission’s draft decision is therefore to accept MMA’s forecast of customer numbers.

MMA did not review ACTEW’s forecast of billable wastewater fixtures and the Commission has accepted ACTEW’s forecast.

## 5.3 Volume forecasts

There are two purposes for reviewing the forecast volume of water and wastewater treated.

Firstly, forecasts of the volume of water abstracted and treated, and the volume of wastewater treated will influence operating expenditure, and may also have implications for capital expenditure.

Secondly, the volume of water sold is a key charging parameter and determines the level at which tariffs are set. All other things being equal, the greater the volume of water sold the lower the unit price.

In its original submission, ACTEW made the following forecasts of the volume of water to be released from storages across the regulatory period. Note that ACTEW’s forecasts include sales to Queanbeyan and standpipe sales.

**Table 5.3 ACTEW forecast of water volumes released ML, 2007–08 to 2012–13**

	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
Total	56,370	62,685	64,551	65,322	65,501	65,726

Source: ACTEW template. Includes sales to Queanbeyan, standpipe sales and other cross-border sales.

### 5.3.1 Consultants’ view

MMA expressed a view that the forecasts of water sales provided by ACTEW appeared to be overstated. MMA’s forecast of the volume of water to be sold across the regulatory period, as set

out in its phase 2 report, is shown in table 5.4. This forecast excludes cross-border sales, which MMA viewed as speculative.

**Table 5.4 MMA forecast volume of water sold by customer band, ML, 2007–08 to 2012–13**

	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
Direct sales to customers	43,625	46,267	49,954	51,318	51,723	51,579
Standpipe sales	250	250	250	250	250	250
Sales to Queanbeyan	3,979	4,255	4,634	4,822	4,918	4,951
<b>Total</b>	<b>47,854</b>	<b>50,772</b>	<b>54,838</b>	<b>56,390</b>	<b>56,891</b>	<b>56,780</b>

Source: MMA phase 2 report pp. 28, 29 and 35.

In undertaking its work MMA noted that ACTEW’s forecasts were likely to be overstated with the result that operating costs were overstated by approximately \$0.3 million per annum.

In preparing its forecast MMA also estimated the volume of water falling in the 0–200kl and 200kl plus tariff bands, and assuming that daily pricing was in place. See Chapter 10 for further details.

### **5.3.2 Draft decision**

The Commission has accepted the forecasts of sales volumes across the regulatory period provided by MMA for the purposes of this draft decision.

In order to recognise that there is some uncertainty associated with the forecasts, the Commission has opted not to adjust ACTEW’s operating and maintenance forecasts downwards as suggested by MMA.

# 6 Operating expenditure

## 6.1 Introduction

In developing the cost build-up used in the calculation of the total revenue requirement, operating costs are a significant factor. Operating costs are incurred by the business immediately and, therefore the business requires an offsetting amount of revenue to ensure continued operation of the water and wastewater network. In determining the operating costs that are to be built into the regulatory model, the Commission must balance the needs of the business to fund operational activities with the needs of consumers, by ensuring that operating expenditure is both prudent and efficient.

In the context of this review, prudence is interpreted as determining whether the proposed expenditure is necessary. Where expenditure is determined to be prudent it is then assessed to verify that it is efficient.

In a competitive environment, industry-wide efficiencies in operating costs are passed through to consumers at broadly the same time as they occur, driving prices down in the short term. In a monopoly situation there is usually a lag, often related to the length of a regulatory control period, between when operating efficiencies are made and when they are passed through to consumers. This lag creates an incentive to the business, as any cost savings made represent increased profits which can be retained by the business. In determining the efficient level of operating expenditures, the Commission must consider the commercial incentives to achieve operating efficiencies relevant to water and wastewater services and the interest of consumers in benefiting from cost savings over the regulatory period.

Operating and maintenance expenditure covers a wide range of ACTEW's activities, including:

- operating and maintaining the bulk water storage and transfer system;
- operating and maintaining water treatment facilities and the water reticulation network;
- operating and maintaining the sewage collection and treatment facilities;
- handling fault calls from customers, repairing assets, restoring water supply, and containing sewer spills;
- handling complaints about the quality and reliability of supply, and communicating with customers on distribution matters;
- reading meters and recording customers' consumption (treated as an excluded service for the purposes of this part of the review);
- undertaking customer billing activities;
- managing the company and its relations with external stakeholders; and
- providing information technology systems to support corporate planning, financial management and human resource management functions.

The Commission must establish an efficient level of operating expenditure for ACTEW for the next regulatory period that can be incorporated into the regulatory model for determining cost-reflective revenue requirements.

## 6.2 Regulatory method

Regulators have a number of options open to them when determining efficient levels of operating expenditure. Under one option, the regulator can build a detailed ‘ground-up’ forecast of efficient expenditure by the business on an ‘expenditure category by expenditure category’ basis. For example, the regulator may make an estimate of an efficient level of finance costs, customer billing costs, information technology costs, asset planning costs, and so on. These categories would be aggregated to determine the total efficient level of expenditure. Benchmarking information is typically used to assist in defining efficient expenditure levels for each category.

The difficulty with this approach is that it tends to be very information intensive, time consuming and expensive for both the regulator and the regulated business. Much effort can be wasted in simply ensuring that category definitions are such that benchmarking techniques can be appropriately applied.

Under a second approach, the regulator takes a broader view of operating expenditure and selects a benchmark year for which it believes base-level expenditure is both efficient and representative (typically, the most recent year for which actual data are available), then focuses on the level of future changes to this base-level expenditure that may be considered efficient.

The approach historically adopted by the Commission, and that which it proposes to adopt here, is to assess operating cost forecasts using a combination of the approaches described above. In doing so, the Commission is mindful that it is generally not its role to mandate ACTEW to undertake certain projects, or to direct it not to undertake others. Operational decisions are best left to ACTEW to make, bearing in mind its responsibilities to customers and the environment under its licence, relevant industry legislation and codes, as well as customer preferences for service quality and price trade-offs. The Commission is not in a position, and nor should it be, to dictate how ACTEW should run its business from day to day.

At the same time, in some cases the Commission has focused on individual cost categories in more detail, particularly where there are significant changes in these items or where the consultant in its review highlighted them.

## 6.3 Historic expenditure

ACTEW’s actual operating expenditure for the period 2004–05 to 2006–07 and forecasts for 2007–08 are reported in table 6.1. Note that the 2007–08 forecast expenditure excludes expenditure associated with water security measures announced by the ACT Government on 23 October 2007.<sup>16</sup> Expenditure is reported against the following categories:

- Operations and maintenance—general operating and maintenance costs incurred by ActewAGL under the UMA.
- Major maintenance—maintenance which is material in terms of expenditure, cyclical in nature and generally incurred under a periodic maintenance plan.
- Directions—services provided by ActewAGL at the direction of ACTEW which are additional to those services covered by the UMA.

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<sup>16</sup> See section 6.5 for further discussion of the water security measures.

- Contractor management and strategic direction—costs associated with project management and strategic planning, such as the Drought Taskforce, water2WATER and Future Water Options. This category includes ACTEW’s own corporate costs as well as the costs of managing its relationship with ActewAGL.

Operations and maintenance expenditure for both water and wastewater has steadily increased over the course of the current regulatory period. Other expenses have been more variable over the period, generally experiencing a fall in 2005–06 and increases thereafter.

ACTEW’s actual operating expenditure has been higher than that forecast by the Commission, for both water and wastewater activities. ACTEW has identified the reason for this as the increase in resources required to strategically plan, research, develop and implement initiatives such as Future Water Options, Water Security Program and drought contingency plans. According to ACTEW the cost increases relate mainly to:

- the retention of existing and employment of additional staff in times of a tight labour market plus the requirement for additional external consultant and legal expertise;
- additional costs incurred by the Water Conservation Office including costs associated with the ongoing management and implementation of water restrictions and Permanent Water Conservation Measures (PWCM);
- increased costs associated with the Cotter catchment and remediation and catchment management; and
- increased emphasis on planning and modelling in response to the ongoing drought and climate change.<sup>17</sup>

Table 6.1 Operating and maintenance expenditure 2004–08 (\$000s, 2006–07 dollars)

	2004–05	2005–06	2006–07	2007–08
Water				
Operations and maintenance	28,727	28,756	28,910	29,107
Major maintenance	767	922	1,597	1,418
Directions	4,439	2,783	3,231	3,902
Contractor management and strategic direction	8,249	6,752	10,365	15,239
Total Water	42,181	39,213	44,103	49,666
Wastewater				
Operations and maintenance	33,546	32,775	33,316	33,821
Major maintenance	1,363	2,576	612	1,801
Directions	0	45	160	146
Contractor management and strategic direction	4,053	4,206	4,150	4,881
Total Wastewater	38,962	39,601	38,238	40,650
Total	81,143	78,815	82,341	90,316
Divergence from 2004 Price Determination				
Water	14%	12%	13%	18%
Wastewater	3%	8%	3%	8%

<sup>17</sup> ACTEW Corporation, *Submission: Investigation into Prices for Water and Wastewater Services in the ACT*, 31 July 2007, p. 134.

## 6.4 ACTEW and ActewAGL

A number of issues in the operating cost forecasts concern the relationship between ActewAGL and ACTEW and the nature of the agreement between the parties as defined under their contractual arrangements. As noted in Chapter 2, the Utilities Management Agreement governs the relationship between ACTEW and ActewAGL and sets out the service obligations between ACTEW and ActewAGL. Under the UMA, ActewAGL provides many core services on behalf of ACTEW. These include:

- water harvesting and treatment services
- water distribution services
- sewerage services
- sewage treatment and water reclamation services.

As a consequence, the price paid by ACTEW for the provision of these services is not directly market tested, although ActewAGL does contract out a proportion of its direct operating and capital expenditure to third parties. The payment arrangements as set out in the UMA for each category of operating expenditure are outlined in table 6.2.

Table 6.2 ACTEW payments to ActewAGL

Expenditure class	Underlying principles
Operations and maintenance	The payment amounts are set out in the section 11.2 of the UMA (in nominal dollars). The amount paid by ACTEW is based on the Commission's 2004 decision, and includes a contractor margin of around 1.4%
Major maintenance	Schedule 13 of the UMA provides that ACTEW reimburses ActewAGL for actual costs incurred
Directions	Part 5 of the UMA deals with directions (referred to in the UMA as 'Changes'). The UMA provides that in respect of directions ACTEW will pay ActewAGL: <ul style="list-style-type: none"> <li>• the cost of internal resources used in complying with the changes, which includes salaries, on-costs, overheads, plus a 10% margin</li> <li>• the cost of any new employees for the purpose of undertaking a change</li> <li>• any external costs incurred. Where the external costs exceed \$3 million a year the parties will also agree a margin. (Directions costs have exceeded \$3 million in 3 of the past 4 years but it is not clear what proportion of these are external costs)</li> </ul>

The actual operations and maintenance expenditure reported by ACTEW represents contractual payments by ACTEW to ActewAGL. It does not represent the amount of expenditure actually incurred by ActewAGL in providing services. Under the UMA ActewAGL gets to keep the difference between the ACTEW payments and actual expenditure incurred. These payments are based on the Commission's 2004 decision, and include a contractor margin of around 1.4%. These payments are set out in table 6.3.

Table 6.3 UMA fixed payment amounts (\$000s, 2006–07 dollars)

	2004–05	2005–06	2006–07	2007–08
Operating costs	61,486	59,927	60,548	61,591
Contractor margin	833	821	819	822
Opex CPI adjustment	453	1,282	1,490	1,016
Total payment	62,772	62,030	62,857	63,429

The Commission requested ACTEW to provide information on ‘actual costs’ incurred and these are shown in table 6.4.

**Table 6.4 ActewAGL actual cost incurred (\$000s, 2006–07 dollars)**

	2004–05	2005–06	2006–07	2007–08 forecast
Water	19,009	19,763	19,949	20,648
Wastewater	23,295	22,970	21,974	24,274
Corporate charge	20,349	17,962	18,965	19,182
Total cost	62,653	60,695	60,888	64,104
Difference between ACTEW payment and ActewAGL actual cost	119	1,336	1,969	–674

Note: Corporate charges include insurance and fixed price service contracts. Difference is calculated as the ACTEW payment less actual ActewAGL cost.

From 2004–05 to 2006–07 ActewAGL was able to provide the operating cost services under the UMA at a total cost of \$3.4 million less than what was paid to it by ACTEW. The Commission notes that actual expenditure is forecast by ACTEW to be above the payment amount in 2007–08.

For major maintenance the UMA provides that ACTEW reimburses ActewAGL for actual costs incurred. Therefore reported expenditure equates with ‘actual’ expenditure.

In relation to directions, many of the historic direction payments relate to items for which pass-throughs were ultimately sought by ACTEW—for example extra water treatment costs (there are no ‘directions’ payments in the forecasts as these costs are included under the standard operations and maintenance category in the forecasts). For most directions ACTEW pays ActewAGL the cost of the resources plus a 10% margin.

Special arrangements apply in relation to certain expenditure items. For example, if insurance costs are less than \$9.3 million then ActewAGL must pay to ACTEW the difference between actual costs and \$9.3 million. If costs are more than \$13.3 million, ACTEW must pay the difference between \$13.3 million and actual costs to ActewAGL. Special arrangements also apply to the cost of operating the Googong and Stromlo water treatment plants.

## 6.5 ACTEW proposal

### 6.5.1 Original submission and water security measures

ACTEW has provided two separate expenditure submissions to the Commission. In its submission on 31 July 2007 (the ‘original submission’) ACTEW provided forecasts which excluded the impact of potential water security projects that were under consideration by the Government at the time. However, on 23 October 2007 the ACT Government announced the outcomes of its deliberations, being a range of water security measures for Canberra. Details of these projects, including projections of operating and capital expenditure, were provided to the Commission on 14 November 2007.

The water security measures incorporate two separate project types. Firstly, there are a number of ‘phase 1’ projects which the Government has indicated will be implemented immediately. These include enlargement of the Cotter Dam, the Murrumbidgee to Googong water transfer, design of a demonstration water purification plant and a smart metering project. Secondly there are two

‘contingent’ projects which are to be subject to further investigation. These are the purchase and transfer of water from the Tantangara Reservoir, and the construction of the demonstration water purification plant.

None of the phase 1 or contingent projects have been reviewed in any detail by the Commission or its consultants. However, to ensure that a full picture of potential tariffs is provided, the Commission has included ACTEW’s forecast operating (and capital) expenditure associated with the phase 1 projects in this draft decision. The Commission will examine the proposed projects in more detail, including timing and costs, prior to the release of its final decision.

### **6.5.2 Forecast expenditure**

ACTEW’s original submission forecast total operating expenditure over the forthcoming regulatory period of \$484 million in 2006–07 dollars (see table 6.5). ACTEW has stated that the operating expenditure forecasts are based on:

- Annual growth in wages and salary costs of 5.45% as a result of a tightening of the labour market;
- Increased water treatment and energy costs, in particular for the Googong, Lower Cotter Dam and Murrumbidgee water sources;
- Increased costs associated with new assets including LMWQCC secondary treatment upgrade, Fyshwick Sewerage Treatment Plant Inlet works, and augmentation of the Fyshwick Effluent Recycling Facilities;
- An ageing workforce requiring succession planning to retain expert competencies and corporate knowledge;
- An increase in the use of strategic planning and expert resources to accommodate emerging policy and operational issues; and
- Additional costs incurred as a result of water supply initiatives undertaken during the current regulatory period including the Cotter Googong Bulk Transfer System.

The forecast operations and maintenance costs also include a 5% mark up on estimated actual payments. That is, ACTEW proposes to pay ActewAGL the full amount of costs incurred, plus a 5% margin, and that this margin will be included in customer prices. According to ActewAGL this mark up is necessary to ensure that its returns reflect the scale and complexity of its responsibilities which have increased since the time of the 2004 determination. A similar 4% margin has been proposed for capital works.

Operating expenditure associated with the water security projects is forecast to reach \$3.0 million per annum by 2012–13.

**Table 6.5 Forecast operating expenditure 2008–09 to 2012–13 (\$000s, 2006–07 dollars)**

Original forecast	2008–09	2009–10	2010–11	2011–12	2012–13
Water					
Operations and maintenance	36,486	36,511	37,173	38,163	38,590
Major maintenance	3,565	2,243	2,507	1,138	849
Directions	–	–	–	–	–
Contractor management and strategic direction	9,393	8,569	8,242	8,623	10,575
Total Water	49,444	47,322	47,922	47,923	50,014
Wastewater					
Operations and maintenance	38,558	40,128	40,455	42,010	42,248
Major maintenance	1,606	2,595	2,136	2,016	3,215
Directions	–	–	–	–	–
Contractor management and strategic direction	5,045	5,184	5,189	5,452	5,820
Total Wastewater	45,208	47,908	47,781	49,477	51,283
Total original forecast	94,652	95,231	95,703	97,401	101,297
Phase 1 water security measures					
Cotter Dam enlargement	–	–	1,000	1,000	1,000
Murrumbidgee to Googong Transfer	–	2,000	2,000	2,000	2,000
Demonstration water purification plant	–	–	–	–	–
Smart metering pilot	2,300	300	–	–	–
Total phase 1	2,300	2,300	3,001	3,000	3,000
Total expenditure	96,952	97,531	98,703	100,401	104,297

## 6.6 Consultants assessment

The Commission engaged consultants MMA in conjunction with WorleyParsons to assist it to review ACTEW’s original operating cost forecasts. The Commission requested MMA and WorleyParsons *inter alia* to:

- review ACTEW’s functions and costs of operations;
- review the efficiency of functions against industry standards;
- identify reasons for any costs higher than normal commercial levels; and
- identify and analyse the transfer of costs between all areas within ActewAGL and ACTEW and the contractual agreements between the two organisations.

The consultant’s review of ACTEW’s expenditure over the current regulatory period noted the significant level of additional actual and forecast expenditures compared with the 2004 price direction. The consultants attributed this additional expenditure to additional costs for labour, the cost in management and implementation of water restrictions, and an increased emphasis on planning and modelling in recognition of the need to ensure long-term water security.

The Consultants focused their review on forecast operating expenditure on the following areas:

- major treatment plant operations;
- water business planning; and
- water business overheads.

Major treatment operations encompassed Mt Stromlo and Googong water treatment plants and the LMWQCC sewerage treatment plant. The consultants found that expenses related to both Mt Stromlo and LMWQCC were based on overstated estimates of unit costs for energy and chemicals. The Consultants also noted that the expected efficiency gains from the recent augmentation of LMWQCC were not evident in the forecasts.

The review of water business planning focused on finance and administrative costs, business support and asset management, planning and project delivery. The consultants found that available information did not support acceptance of the full forecast costs. In particular, they noted forecast finance and administration are overstated in light of historical expenditures.

In relation to major maintenance expenditure the consultants were satisfied with the expenditures forecast by ACTEW and did not propose any amendments.

MMA and WorleyParsons also considered expenditures related to contract management and strategic directions. They advised the Commission that they are satisfied that contract management and corporate area forecasts are appropriate. However, in the case of strategic directions, the consultants found that costs may be overstated. The consultants' expenditure recommendations are outlined in table 6.6 and are discussed in more detail in the following sections.

**Table 6.6 Summary of consultant's findings (\$000s, 2006–07 prices)**

	2008–09	2009–10	2010–11	2011–12	2012–13
ACTEW proposal	94,652	95,231	95,703	97,401	101,297
Recommended adjustment					
Operating and maintenance expenditure	3,603	3,661	4,240	4,329	4,374
Contractor management and strategic direction	2,380	1,300	1,087	1,061	2,932
Justifiable expenditure	88,670	90,269	90,376	92,011	93,990

Source: MMA final report pp. 15 and 16, converted into real 2006–07 dollars by the Commission.

## 6.7 Commission's assessment

The regulatory arrangements provide ACTEW with an opportunity to earn a stream of revenue that recovers the efficient costs of delivering regulated services. As mentioned earlier, many of the costs incurred by ACTEW in delivering such services are incurred by way of contractual arrangements with other parties, and in particular with ActewAGL.

The outsourcing of various functions to an external provider of services that has specialist skills is consistent with accepted and good industry practice. For example, ACTEW may realise efficiencies and cost savings by engaging a specialist provider to undertake call centre activities, meter reading or specific capital projects.

As mentioned earlier ACTEW has effectively outsourced nearly all operations and maintenance activities to ActewAGL. The result is that the reported costs submitted in support of ACTEW's proposal, reflect contractual payments made under the UMA.

In order to satisfy itself that ACTEW's proposal complies with the regulatory requirements, the Commission is required to assess forecast operating expenditure to ensure that it is prudent and efficient so as to achieve the lowest sustainable cost of delivering the services. As ACTEW's historical costs are based in large part on contractual payments the Commission has considered

whether the circumstances surrounding these reported payments and allocated costs provide a reasonable basis on which to establish prudent and efficient capital and operating expenditure benchmarks for the next regulatory period. The Commission needs to be satisfied that:

- the reported costs represent actual costs incurred in providing the services and not costs or payments for other matters; and
- ACTEW has acted prudently in contracting on the basis of paying for an efficient level of costs, so as to achieve the lowest sustainable cost of providing the services.

Where the Commission is not satisfied that such reported payments provide a reasonable basis on which to approve the expenditure forecasts for the next regulatory period, it has set out the adjustments that it would require to those forecasts in order to be approved under this draft decision.

### 6.7.1 Benchmarking

ACTEW’s proposed operating and maintenance expenditure has been benchmarked against Brisbane Water, Hunter Water, Gold Coast Water and SA Water. Overall comparative performance is shown in table 6.7. Performance is ranked from 1 (best) to 5 (worst).

Table 6.7 Comparative benchmark performances

Focus area	Composite unit cost	Composite service level
Overall composite	3rd	5th
Water operations composite	2nd	3rd
Wastewater operations composite	4th	4th

The consultants also undertook financial benchmarking of ACTEW. For consistency the benchmark utilities chosen were those identified by ACTEW and ActewAGL in the UMA. The data for the exercise was sourced from the National Performance Report 2005–06.

Based on the benchmarking it would appear that ACTEW in general incurred more operational expenditure than other comparable utilities, in some cases significantly so.

This trend is of concern to the Commission. The major cost drivers of increased wages and the increased operating costs due to system augmentation in relation to the ongoing drought are relatively common across all utilities and as such are not adequate explanation for the cost divergence.

**Table 6.8 Comparative benchmark performances, (\$ per property)**

Utility	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
Water						
ACTEW	265	300	294	308	308	235
Hunter Water Corporation						147
Brisbane Water	293	282	228	229	246	238
SA Water	185	172	194	176	178	179
Gold Coast Water	135	129	176	188	176	230
Sewerage						
ACTEW	285	295	291	294	280	256
Hunter Water Corporation						164
Brisbane Water	228	236	209	187	108	173
SA Water	122	132	134	140	148	148
Gold Coast Water	186	179	189	206	235	251

Source: National Water Commission and Water Services Association of Australia (2007), National Performance Report 2005-06.

The consultants' findings from their benchmark review included:

- an identified need to develop process to optimise and maintain the balance between reactive maintenance, planned maintenance, and renewals;
- the observation that ACTEW's total operating expenditure in terms of cost per property is the highest or near the highest of the utilities included in the benchmark comparison; and
- a recommendation for the introduction of further specific efficiency measures into the business to drive and measure efficiency improvements.

The Commission appreciates that there are many factors which impact on such comparisons, However, ACTEW's consistently high costs per property are of concern to the Commission and have been taken into account by the Commission when reviewing ACTEW's costs.

### 6.7.2 Cost allocation

ActewAGL undertakes a number of activities which are shared across the water, wastewater, gas and electricity activities. These activities occur both in competitive arenas (such as gas and electricity retail) and in non-competitive arenas (such as water and wastewater, and gas and electricity distribution). This enables economies of scale and/or scope to be obtained, with associated cost savings available to be passed on to customers. However, it also requires that appropriate cost allocation arrangements be in place for the purposes of regulation.

The consultants found no major concerns with the cost allocation methodology for most of the costs allocated to the water and wastewater functions over the regulatory period. The only exception was a recommendation by the consultants that the corporate finance allocation be reduced by \$650,000 from that sought in each of the final two years of the regulatory period.

MMA and WorleyParsons argued that while the basis for the allocation to corporate finance appeared sound, when compared to benchmarks it found that the allocation is outside the boundaries of be the benchmark metric. In 2000 the Victorian Office of the Regulator General engaged KPMG to undertake a review of the methods of cost allocation in relation to Victorian electricity businesses. The KPMG review set a range of 0.8% to 1.3% of revenue for corporate finance costs for a similar sized business.

The consultants noted that over the course of the forthcoming regulatory period proposed allocated costs exceeded the KPMG range in 2007–08, 2011–12 and 2012–13. Assuming ActewAGL was allocating costs based on the upper level of the range at 1.3% the allocation should be around \$2.2 million, which is \$700,000.00 less than that proposed. In response, ActewAGL attribute this increase to costs associated with the price review.

For the purposes of this draft decision, the Commission has noted ACTEW’s view and made no adjustments to relevant expenditure in this area.

### 6.7.3 Wage levels

In its submission, ACTEW stated that one of the primary drivers of increased operating expenditure was an annual forecast growth in wages of 5.45%. ACTEW’s assumed growth rate appears to be the mean of an engineering and professional sector growth rate of 6.4% and a water utilities forecast of 4.5%.

The Commission notes that the assumed growth rate for wages is not based on forecasts of future growth rates but rather reflect estimates based on survey results for the year 2005–06. The assumed growth rate is based on a July 2006 Market Issues Survey undertaken by Mercer.

The Commission has a number of concerns regarding the method underlying the assumed growth rate for wages. Firstly, any measure of the mean that gives equal weighting to the engineering growth rate and the sectoral growth rate may not be reflective of the true growth rate. If estimated correctly the industry sector water utilities wage growth trend (at 4.5%) should already account for wages growth in regard to engineers. Taking a mean of both rates would only be plausible if ACTEW employed significantly more engineers as a proportion of its workforce than other utilities.

In addition, the approach proposed by ACTEW is backward looking and does not allow it to take into consideration possible future conditions or events expected to impact on wages. While historical data are helpful in identifying underlying trends, these trends must be balanced against future industry conditions expected to impact on wages. For example, if the current mining boom were expected to come to an end some time during the forthcoming regulatory period, it would have a material impact on wages growth for engineers.

The Commission also notes that in April 2007 ActewAGL engaged Currie and Brown to prepare market-based estimates for eleven capital projects in the 2007–08 Capital expenditure program for comparison with the estimates prepared by ActewAGL. One of Currie and Brown’s more material findings was that ActewAGL labour rates were approximately 5% higher than industry related market rates. Currie and Brown’s finding of wages exceeding the market rate was also acknowledged by ActewAGL during this review.

Table 6.9 Annual wage movements—Electricity, Gas and Water Supply (full time adult male ordinary time earnings)

	2000	2001	2002	2003	2004	2005	2006	2007
Annual growth rate	9.98%	6.97%	5.59%	5.96%	5.60%	3.05%	1.77%	3.01%

Note Growth rates are based on ABS data—6302.0 Average Weekly Earnings, Australia, Table 10A. Average Weekly Earnings, Industry, Australia (Dollars)—Original—Males, Full Time Adult Ordinary Time Earnings. Reported growth rates are yearly growth based on May.

In light of the above concerns the Commission has decided to approve ACTEW’s proposed wage movements with the amendment that the rate be based on the unadjusted water utilities wage growth rate. The Commission notes that the water utilities wage growth trend (at 4.5%) should already account for wages growth in regard to engineers.

Given these observations the Commission believes that the lower rate of 4.5% is more likely to bring ACTEW’s wage costs inline with current market rates. The Commission also notes that 4.5% per annum is higher than the increases outlined in the current ActewAGL Enterprise agreement (2005) which allows for a 12.5% increase over three years.

The Commission also believes a 4.5% increase is reasonable given that the Commission does not, for the purposes of this draft decision, intend to specify an efficiency adjustment on operating expenditure as it has in previous decisions.

The Commission has therefore adjusted ACTEW’s forecast costs downwards to use a 4.5% annual increase in wages and an assumption that wages represent 60% of operating costs.

#### 6.7.4 General operating and maintenance costs

ACTEW has proposed \$390.3 million in general operating and maintenance related expenditure over the course of the regulatory period. Both water and wastewater expenditures are proposed to grow steadily over the period, with wastewater related expenditure growing at a slightly faster rate than water (see table 6.10).

Table 6.10 General operating and maintenance expenditure 2006–07 to 2012–13 (\$000s, 2006–07 dollars)

	2006–07 actual	2007–08 forecast	2008–09	2009–10	2010–11	2011–12	2012–13
Water	28,910	29,107	36,486	36,511	37,173	38,163	38,590
Wastewater	33,316	33,821	38,558	40,128	40,455	42,010	42,248
Total	62,226	62,929	75,044	76,639	77,628	80,173	80,838

In their assessment of general operating and maintenance costs MMA and WorleyParsons evaluated the operating expenditure of three major treatment facilities—Mount Stromlo Water Treatment Plant, Googong Water Treatment Plant and Lower Molonglo Water Quality Control Centre (LMWQCC). The consultants noted that for both the Mt Stromlo and LMWQCC plants operating costs per ML of output appeared to be overstated. In particular they noted that both unit energy costs and chemical costs were overstated.

In the case of Mt Stromlo chemicals appear to be overstated by \$0.65 per ML and for LMWQCC proposed chemical unit costs increased significantly between 2007–08 and 2009–10 from \$49 per ML to \$67 per ML, an increase of 37%.

The consultants also noted that in the case of LMWQCC a major treatment augmentation is currently under way to meet future demand and to increase treatment efficiency with regard to nitrogen and ammonia removal (expected completion 2008–09). These expected treatment efficiency gains were not evidenced in the forecasts proposed by ACTEW.

In addition to these operating costs the consultants advised that there is consistent expenditure throughout the period of approximately \$1 million per annum for UMA administration. Based on

historical trends this expenditure may be overstated. In particular they noted that from 2005–06 to 2007–08 expenditures were \$440,000, \$977,000 and \$535,000 respectively, which is lower than the proposed approximate annual expense of \$1 million.

After consideration of ACTEW’s proposal and the advice from MMA and WorleyParsons the Commission has decided to broadly accept the consultants’ advice regarding both the Mt Stromlo Treatment Plant and LMWQCC. The Commission has also decided to adjust proposed finance and administrative expenditure downwards by half the difference between the average 2005–06 to 2007–08 expenditure and ACTEW’s proposal.

### 6.7.5 Major maintenance

ACTEW has proposed \$21.8 million in major periodic maintenance related expenditure over the course of the regulatory period. Water related expenditure is proposed to decrease significantly over the regulatory period. Wastewater expenditure is proposed to grow materially over the period, with an average annual growth rate of approximately 18% per annum (see table 6.11).<sup>18</sup>

Major periodic maintenance identified by ACTEW includes:

- the overhaul of valves, pipes and steelwork on dam towers
- service reservoir inspections, painting and roof, concrete and liner repairs
- trunk sewer repairs
- major maintenance on LMWQCC plant and equipment.

Table 6.11 Major maintenance expenditure 2008–09 to 2012–13 (\$000s, 2006–07 dollars)

	2006–07 actual	2007–08 forecast	2008–09	2009–10	2010–11	2011–12	2012–13
Water	1,597	1,418	3,565	2,243	2,507	1,138	849
Wastewater	612	1,801	1,606	2,595	2,136	2,016	3,215
Total	2,209	3,219	5,171	4,838	4,643	3,154	4,064

After review of the proposed expenditures the consultants have advised the Commission that they are satisfied that major maintenance expenditure is efficient. In light of this advice the Commission has decided to approve the expenditure as proposed.

### 6.7.6 ACTEW own cost—contractor management and strategic direction

Contractor management and strategic direction expenditure covers three separate areas of expenditure. These are:

- contractor management—primarily the costs incurred by ACTEW of managing the relationship with ActewAGL
- strategic direction costs. These include the costs of water security planning including undertaking a number of projects investigating future water options for the ACT, as well as the costs associated with administering and communicating details of permanent and temporary water restrictions (which are incurred by the water conservation office (WCO))

<sup>18</sup> The average annual growth rate is calculated as the compounding growth rate over the five year period.

- ACTEW's own corporate costs.

### *ACTEW proposal*

With the onset of the drought and restrictions, strategic directions and contractor management expenditure has increased substantially since 2004–05. Considerable costs have been incurred in relation to once-off projects including the Future Water Options, drought taskforce and Water2Water programs.

ACTEW has forecast that this expenditure will reduce from around \$20 million in 2007–08 to \$14.4 million in 2008–09 and remain at around this level across the next regulatory period.

Table 6.12 Contractor management and strategic direction expenditure 2008–09 to 2012–13 (\$000s, 2006–07 dollars)

	2006–07 actual	2007–08 forecast	2008–09	2009–10	2010–11	2011–12	2012–13
Contractor management	1,794	2,073	2,118	2,129	2,194	2,331	2,478
Strategic direction	8,334	12,910	7,672	6,898	6,367	6,771	8,706
Corporate	4,387	5,137	4,648	4,727	4,871	4,972	5,211
Total	14,515	20,120	14,437	13,753	13,432	14,074	16,395

### *Consultants' review*

The Commission's consultants did not review contractor management and strategic direction expenditure in any detail. However, they indicated that approximately \$9.7 million of forecast strategic direction costs had not been appropriately justified by ACTEW.

### *Discussion*

The Commission has undertaken a further review of the strategic direction and contractor management costs proposed by ACTEW. It has a number of concerns with ACTEW's proposal.

#### *Water Conservation Office costs*

ACTEW has proposed expenditure associated with its water conservation office (WCO) of some \$9.7 million across the next period. These costs assume permanent water restrictions will be in place across the entire regulatory period, and that temporary water restrictions will be in place or two years. As with many of the strategic directions and contractor management costs forecast by ACTEW, much of the projected expenditure is based on forecast 2007–08 expenditure, increased by an indexation factor. The Commission has a number of concerns with this.

Firstly, 2007–08 expenditure is just an estimate and, noting the increase in forecast expenditure in 2007–08 compared to 2006–07 for many of the strategic direction and contractor management costs, the Commission is concerned that the 2007–08 base expenditure may be overstated.

Secondly, the indexation of these costs assumes no efficiency gains will be made and does not allow for the fact that as the general public becomes more attuned to water restrictions, less communications effort will be necessary to ensure that the conservation message is heeded.

The Commission therefore considers that the forecast costs of the WCO are overstated and has reduced the forecasts as follows:

- in years when permanent restrictions only are forecast to be in place, it has provided for costs of \$1.2 million in nominal terms, approximately equal to the costs incurred in 2005–06
- in years when both temporary restrictions are also in place, it has provided for costs of \$2.0 million in nominal terms, equal to the costs incurred in 2006–07.

#### *UMA costs*

As noted earlier in this chapter, the Commission is concerned about the level and forecast increase in the costs incurred associated with managing the relationship between ACTEW and ActewAGL. ACTEW has forecast that the direct cost associated with managing the UMA Agreement will increase steadily from \$160,000 in 2006–07 to \$485,000 in 2012–13 (in nominal terms). Aside from additional costs in 2012–13 associated with a review of the UMA, the reasons for the increase are not clear to the Commission. The Commission considers a more reasonable forecast is to provide for an allowance of \$160,000 (increasing by 4%) in each year, with an additional allowance of \$125,000 for a review of the UMA in 2012–13.

#### *Employment costs*

ACTEW’s strategic directions and contractor management costs assume an increase in employment costs of 7.9% in 2007–08 followed by 6.3% thereafter. As discussed above, the Commission believes an increase of 4.5% is more appropriate.

Finally, as discussed further below, the Commission has removed proposed R&D expenditure totalling some \$8.3 million over the regulatory period on the grounds of insufficient supporting information, but allowed expenditure for the design of a proposed water purification plant.

Table 6.13 Draft decision—contractor management and strategic direction expenditure 2008–09 to 2012–13 (\$000s, nominal)

	2008–09	2009–10	2010–11	2011–12	2012–13
ACTEW proposal	14,437	13,753	13,432	14,074	16,395
Reductions					
Water conservation	700	503	303	335	972
UMA costs	96	110	126	182	136
Employment costs	151	209	272	337	407
Research and development	1,266	1,393	1,631	1,856	2,156
<b>Draft decision</b>	<b>12,225</b>	<b>11,539</b>	<b>11,100</b>	<b>11,363</b>	<b>12,725</b>

### **6.7.7 Payments between ACTEW and ActewAGL**

ACTEW and ActewAGL believe that the existing maximum payments based on the expenditure approved by the Commission in its 2004 price decision no longer offer sufficient return relative to the increased scale and complexity of operations. They have proposed to increase ActewAGL margins for both operating expenditure and capital expenditure. ACTEW believe the proposed new arrangements remain approximately in line with the implied maximum level of return of the current arrangements relative to the historical size of the program.

ACTEW has proposed to replace the current arrangements of a \$500,000 per annum maximum margin for capital expenditure and the margin currently enjoyed by ActewAGL on operating expenditure of approximately \$820,000 per annum (in real terms for the period 2004–05 to 2007–08) with a 4% and 5% margin respectively. This equates with replacing the current annual margin of approximately \$1.32 million per annum with an annual margin of between \$4.8 million and \$7.1 million per annum. These margins are intended to represent that earned by a subcontractor providing services to a client in a competitive market.

Table 6.14 Proposed payments between ACTEW and ActewAGL (\$000s, 2006–07 dollars)

	2008–09	2009–10	2010–11	2011–12	2012–13
Proposed 5% operating expenditure margin	3,597	3,674	3,721	3,841	3,873
Proposed 4% capital expenditure margin	3,544	2,745	1,131	2,190	882
Total proposed margin	7,141	6,418	4,851	6,031	4,756

While the Commission has no in principle objections to the application of margins on expenditure, and in particular a margin which provide incentives for cost reductions and improved service quality, it has a number of concerns with ACTEW’s proposal.

Firstly, ACTEW has provided no information on the how the margins will be applied. While ACTEW has advised the Commission that the margins will contain performance-based elements, no details of these arrangements have been provided.

Secondly, the margins represent a significant increase in the costs of managing the relationship between ACTEW and ActewAGL. As set out in Chapter 2, the proposed cost of the relationship is likely to be around \$10 million per annum. ACTEW has pointed out a number of benefits of the contractual relationship between the parties and the fact that ActewAGL is a multi-utility business, including:

- the use of common services across all aspects of the business including corporate, finance, regulatory affairs, meter reading, human resources and customer management
- sharing of knowledge and skills relating to customer management and asset maintenance
- providing sufficient scale to retain technical skills relating to the operation of the business within ACTEW
- enabling a tighter focus by ACTEW on the core functions of asset ownership and funding, resource policy and strategic direction
- better governance and accountability
- a more concentrated focus by ActewAGL on service provision, acquisition of asset management skills and exposure to market development
- greater capital market efficiency due to more effective allocation and transfer of operational risk.

However, ACTEW has not attempted to quantify these benefits and hence Commission is not able to assess whether they are likely to be \$10 million per annum. Certainly no evidence has been provided by ACTEW to demonstrate that costs decreased by \$10 million with the advent of the ACTEW/ActewAGL relationship. Equally importantly, the Commission does not consider that a higher margin will necessarily increase these benefits.

For the purposes of this draft decision the Commission will not approve the new margins proposed by ACTEW. In response to this decision ACTEW may wish to consider providing the Commission with a more comprehensive submission regarding its proposed arrangements.

### 6.7.8 Research and development expenditure

In its original submission ACTEW noted that as a result of the current drought, ‘the investigation of alternative sources of water, treatment methods and related matters is imperative. In many cases, R&D and specific projects to demonstrate technologies might best be funded by water users.’ ACTEW went on to note that:<sup>19</sup>

ACTEW’s current *Applied R&D* program is delivering both technical and commercial outcomes and is expected to result in improved operations and new commercial projects in the range of two to three times the investment value. It is also a significant contributor to the successful attraction, motivation and retention of dynamic and talented staff to the group.

The Commission supports ACTEW undertaking appropriate, well-targeted and cost-effective R&D that will ultimately result in lower tariffs and/or higher service levels for ACT water and wastewater customers. As ACTEW has pointed out in its submission, in a competitive business environment a business will invest appropriately in R&D.

The Commission notes that in a competitive business environment R&D expenditure will only occur up to the point where the business believes it will ultimately earn a commercial return from the project. In a regulated environment no such constraint exists, and businesses are able to include the entire cost of R&D expenditure in the building block revenue and recover it through tariffs. This raises the risk that regulated businesses:

- may seek funding for a level of R&D expenditure above that which is likely to be associated with the lowest long term cost of providing services
- may seek to have projects funded which are not directly related to the provision of regulated services to customers
- may elect to undertake R&D activities in-house rather than, for example, working collaboratively with other organisations in order to reduce costs and spread risk.

For these reasons the Commission indicated in its working conclusions paper it is incumbent upon a regulator to scrutinise proposed R&D expenditure relatively closely during the price determination process in order to ensure that customers’ interests are being safeguarded.

In its response to the Working Conclusions paper ACTEW contended that there are insufficient incentives within the existing regulatory framework for efficient investment in R&D. ACTEW argued that the incentive for R&D expenditure problem arises in two ways:

- benefits from innovations such as increased efficiency and cost reduction are not captured by ACTEW but are passed through to customers at the next review
- the long lead time on realising benefits from R&D leaves ACTEW open to the risk of the regulator deeming the investment to be imprudent before any return can be realised.

After consideration of ACTEW’s submission and subsequent response to the Working Conclusions paper the Commission believes that the current regulatory arrangements do not

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<sup>19</sup> ACTEW Corporation, *Submission: Investigation into Prices for Water and Wastewater Services in the ACT*, 31 July 2007, p. 16.

provide any disincentives to undertake R&D. Where R&D proposals are ‘approved’ as part of a price determinations, associated costs will be reflected in tariffs and recovered from customers.

R&D projects that are not included in prices are treated similarly under the current arrangements as any project undertaken that did not form part of the price determination. As with all such projects, operating and maintenance expenditure is not recoverable during the period (unless sought by way of a pass-through, or obtained through the reprioritisation of projects by ACTEW). However, prudent capital expenditure will be included in the RAB at the end of the regulatory period and ACTEW will earn a return on and off this expenditure during the next regulatory period.

In early discussions with the Commission ACTEW did not indicate that it intended to undertake any R&D expenditure. However, subsequent information provided to the Commission by ACTEW shows that ACTEW has forecast operating expenditure of \$8.3 million (in real terms) on research and development associated with water supply planning.

For the purposes of this draft decision the Commission has decided not to approve the proposed research and development expenditure included in ACTEW’s original submission on the basis that:

- as noted above, it is necessary for a regulator to scrutinise proposed R&D expenditure relatively closely during the price determination process in order to ensure that customers’ interests are being safeguarded
- ACTEW has provided no details of the proposed expenditure to the Commission.

However, the Commission has included design expenditure on a demonstration water purification plant as part of the phase 1 water security measures for the purposes of this draft decision. In effect this represents a research and development project which the Commission has approved for the purposes of the setting of prices. Should ACTEW be able to provide details of their proposed research and development projects, the Commission would consider the proposals as part of its final report.

## **6.8 Pass-throughs**

### **6.8.1 Historic pass-throughs**

In the 2004 water price decision, the Commission established a pass-through mechanism that allowed ACTEW to apply to ‘re-open’ the price path during the current regulatory period if certain defined events occurred.

The pass-through mechanism shields ACTEW from the impact of any ‘uncontrollable’ cost items by allowing ACTEW to increase its prices to customers and fully recover these costs. The Commission noted that its rationale for introducing the pass-through mechanism was:

- to reduce the risk faced by the regulated business and thus reduce the cost of capital required by the ACTEW, and
- that it was likely that in a competitive market, ‘uncontrollable’ costs would be passed through to customers in the short term.

However, the Commission also noted that it was in the interests of regulated businesses and their customers that pass-through items be limited to material and clearly defined events so that:

- regulated businesses have an incentive to minimise the long-term impact of changes in costs—hence pass-throughs should be limited to ‘uncontrollable’ items
- administrative costs for businesses and the regulator (for example, in determining whether a pass-through event has occurred and the magnitude of any pass-through event) are not unreasonable, and
- customers have as much certainty as possible regarding future prices.

During the regulatory period the imposition of restrictions has meant that the volume of water supplied by ACTEW has been substantially less than that forecast in the Commission’s 2004 determination. In order to address this outcome and reflect the fact that the annual price reset methodology involves volume forecasts based on normal supply conditions, the Commission has agreed to permit pass-throughs to reflect the impact of water restrictions on revenue.

### 6.8.2 Proposed pass-throughs

ACTEW has sought to pass through a total of \$34.0 million (in real 2006–07 dollars) in the next regulatory period. This includes \$11.6 million in foregone revenue. The pass-throughs relate both to costs which have been incurred in the period up to and including 2006–07, as well as forecast costs in 2007–08. These costs are summarised in table 6.15.

Table 6.15 Additional pass-through costs—ACTEW proposal (\$000s, 2006–07 dollars)

Pass-through item	2008–09
Temporary Water Restrictions (TWR)/Drought taskforce	3,143
Drought contingency/Cotter Pumping Costs	1,742
Future Water Options	2,646
Future Water Options 2	4,470
CGBT Pumping (Opex)	1,163
Water2WATER/Water Security Program	5,594
Foregone revenue	11,637
CGBT and ECGBT Capex	2,800
Accelerated catchment remediation	837
<b>Total</b>	<b>34,034</b>

Subject to the comments below, the Commission has decided to accept the proposed additional pass-throughs for the purposes of this draft decision. However, given the magnitude of these pass-through amounts and the fact that several amounts are based on forecasts, it has decided to engage a consultant to examine the pass-through amounts. The Commission will consider the consultant’s report in preparing its final decision.

ACTEW’s pass-through proposal is based on being compensated for the time value of money at the nominal weighted average cost of capital. In the past the Commission has used the CPI when allowing for the time value of money. The Commission has accepted ACTEW’s pass-through claim for the draft decision but will require justification of the use of the nominal weighted average cost of capital for inflating past expenditure to current dollars.

## 6.9 Water abstraction charge

The ACT Government currently applies a water abstraction charge (WAC) of 55 cents per kilolitre of water delivered to customers and the revenue received is passed by ACTEW to the ACT Government. The first 25 cents per kilolitre are used to offset costs incurred by the ACT Government related to catchment management, the scarcity value of water and environmental costs such as environmental flows. The revenue received from the remaining 30 cents per kilolitre ‘provides a return on a valuable resource and assists in managing demand’.<sup>20</sup>

The WAC is currently an additional charge levied on customers in addition to their ACTEW charges.

Several submissions have addressed the issue of the WAC, including from the Essential Services Consumer Council (ESCC), the Queanbeyan City Council and Dr Terry Dwyer. The ESCC noted the regressive nature of the WAC including the fact that current arrangements do not permit a rebate for low income consumers. The Queanbeyan City Council expressed general opposition to the WAC and noted that it considers the WAC to be ‘merely an illegal excise tax’.<sup>21</sup>

It is important to understand that the Commission has no role in determining the level of the WAC, although it has previously advised the ACT Government on a methodology for calculating the WAC.<sup>22</sup>

The Commission has held discussions with the ACT government regarding the WAC and the Government in its submission to the Commission has indicated it intends to change the basis upon which the WAC is charged to ACTEW from a per kilolitre consumed basis, to a per kilolitre of water abstracted from the ACT catchments and water off take points basis. According to the Government this will better reflect the intention of the WAC as a measure to promote water conservation.<sup>23</sup>

Under this approach the WAC becomes a separate operating cost which ACTEW needs to recover in its regulated price determination. It will not be separately identified on customers’ bills. While this reduces the transparency of the WAC it does give the Commission greater flexibility when considering tariff structures, particularly when considering the need for tariffs to address social welfare issues.

Based on advice from MMA and WorleyParsons regarding the volume of water to be abstracted, the Commission has estimated the following payment amounts:

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<sup>20</sup> ACT Treasurer’s response to Question on Notice number 60 during the 2006 Select Committee on Estimates. The response can be located at: <http://www.parliament.act.gov.au/downloads/issues-papers/Stanhope%20Treasurer%202006.pdf>

<sup>21</sup> Queanbeyan City Council, *Water Pricing Water Abstraction Charge & Utilities Network Facilities Tax*, submission to the Commission 21 September 2007 p. 1.

<sup>22</sup> ICRC, *Final report: water abstraction charge*, ICRC, Canberra, Oct 2003.

<sup>23</sup> ACT Government, *Submission to the Independent Competition and Regulatory Commission inquiry into water and wastewater pricing, 2008–09 to 2012–13*, 30 November 2007.

**Table 6.16** Forecast WAC payment amounts (\$000s, 2006–07 dollars)

Year	Forecast WAC
2008–09	26,451
2009–10	27,741
2010–11	27,975
2011–12	27,534
2012–13	26,812

As set out in Chapter 10, should the amount of WAC paid by ACTEW to the government vary from these forecasts (either upwards or downwards) a pass-through will occur.

## 6.10 Network facilities tax

In 2007 the ACT Government implemented a network facilities tax (NFT), which is a charge on owners of utility network facilities, including water and sewerage, electricity, natural gas and telecommunications. It is charged at a rate per kilometre of infrastructure set by the ACT Government and is payable by ACTEW as owner of the water and sewerage infrastructure, as well as other owners of energy and telecommunications facilities.

As with the WAC, the Commission understands that from 2007–08 the network facilities charge will no longer be identified separately. The Commission’s approach to determining the level of the network facilities tax over the regulatory period is to start with the 2007–08 NFT and grow this amount in nominal terms by 5% per year. The Commission also assumes that 55% of the NFT is applied to the water business and 45% is applied to wastewater. The 2007–08 NFT is \$5.115 million. The growth factor of 5% represents an assumed 4% increase in the growth of NFT charge per kilolitre of infrastructure and a 1% increase in the length of the network. The total NFT forecast for the regulatory period is presented in Table 6.17.

**Table 6.17** Forecast network facilities tax payment amounts (\$000s, 2006–07 dollars)

Year	Assumed NFT payment
2008–09	5,114
2009–10	5,241
2010–11	5,371
2011–12	5,504
2012–13	5,641

## 6.11 Conclusion and draft decision

The building-block approach requires the Commission to establish an efficient level of operating expenditure for ACTEW’s regulated activities for the period 2008–09 to 2012–13. In doing so, it is not the Commission’s role to mandate ACTEW to undertake certain projects or to direct it not to undertake others. Operational decisions are best left to ACTEW to make, bearing in mind its responsibilities to customers and the environment under its licence and relevant industry legislation and codes, as well as customer preferences for service quality and price trade-offs. The

Commission is not in a position, and nor should it be, to dictate how ACTEW should run its business on a day-to-day basis.

Having analysed ACTEW's proposal and the advice provided by MMA and WorleyParsons, the Commission believes that the forecast of operating expenditure proposed in its original submission is overstated. It has decided to approve the expenditure set out in table 6.18. Reasons for the Commission's adjustments are discussed above.

The Commission has included in approved expenditure ACTEW's forecast of expenditure associated with the phase 1 water security measures announced on 23 October 2007. However, the Commission will engage consultants to assist it to review this expenditure, along with the 'contingent project' expenditure prior to making its final decision. This review will examine matters including:

- whether the forecast cost of the program are appropriate, including whether forecasts include any margins or other payments;
- whether all the projects should be classified as water (rather than wastewater) expenditure, as proposed by ACTEW, noting that recycled water projects at Southwell Park and Fyshwick currently form part of the wastewater cost base;
- whether the forecasts of water sales are likely to change with additional water becoming available; and
- whether the advent of the water security measures are likely to impact upon any other expenditure areas, such as the water conservation office.

As noted above the Commission will also engage consultants to assist it to review the pass-through amounts proposed by ACTEW.

The Commission's draft decision on ACTEW's forecast operating expenditure is set out in table 6.18.

**Table 6.18 Draft decision—operating and maintenance expenditure (\$000s, 2006–07 dollars)**

	Draft decision				
	2008–09	2009–10	2010–11	2011–12	2012–13
<b>ACTEW original proposal—Water</b>	49,445	47,322	47,923	47,924	50,014
Less amendments					
Mt Stromlo	190	186	181	177	172
Finance and administration	83	81	79	77	75
Strategic directions	1,386	1,262	1,194	1,346	2,001
Wages adjustment	216	417	638	838	1,047
Sub-total	47,569	45,376	45,831	45,485	46,718
Margin adjustment	1,808	1,750	1,782	1,794	1,786
Draft decision original program	45,761	43,626	44,050	43,691	44,932
Water security measures phase 1	2,300	2,300	3,001	3,000	3,000
<b>Draft decision</b>	<b>48,060</b>	<b>45,926</b>	<b>47,050</b>	<b>46,691</b>	<b>47,932</b>
<b>ACTEW proposal—Wastewater</b>	45,208	47,909	47,780	49,478	51,282
Less amendments					
LMWQCC	381	836	815	795	776
Finance and administration	83	81	79	77	75
Strategic directions	720	795	919	1,050	1,163
Wages adjustment	217	460	684	939	1,207
Sub-total	43,807	45,737	45,283	46,616	48,060
Margin adjustment	1,665	1,764	1,760	1,839	1,838
<b>Draft decision</b>	<b>42,142</b>	<b>43,973</b>	<b>43,522</b>	<b>44,777</b>	<b>46,223</b>



# 7 Capital expenditure

## 7.1 Introduction

Under the building-block approach the Commission seeks to provide an appropriate return on efficient investment in the network. This is achieved by including proposed capital expenditure in the projection of the RAB over the next regulatory period. At the same time it is incumbent on the Commission to ensure that capital expenditure forecasts are reasonable and efficient.

This typically involves a review by an expert consultant who provides advice to the Commission on the prudent and efficient amount of capital expenditure required to achieve the service outcomes desired by customers. The prudence test involves determining whether the project proposed by the regulated business is necessary. If the project is prudent, the expected cost of the project will be examined to verify that it is efficient. When ascertaining the prudence of capital works the consultants are required to consider:

- the existing infrastructure and renewals requirements
- the demographic circumstances
- service standards
- asset utilisation, and
- the potential for demand management to defer or reduce capital expenditure.

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.

As discussed in Chapter 6, ACTEW's original July 2007 submission did not include expenditure on a number of water security measures that were announced in October 2007. Capital expenditure on these projects is anticipated to commence in 2007–08 and continue to 2010–11. The Commission has not had the opportunity to review these projects in any detail but will do so prior to its final decision. In the interim, and in order to provide a full picture of potential expenditure and tariffs in the next regulatory period, the Commission has included in this draft decision proposed capital expenditure on the proposed phase 1 (but not the contingent) projects.

The Commission engaged MMA and WorleyParsons to review the efficiency and prudence of ACTEW's original capital expenditure program. This includes expenditure in the current period as well as the proposed capital expenditure program from 2008–09 to 2012–13. As part of this process the Commission provided ACTEW with an opportunity to comment on the consultants' draft findings.

Having reviewed the consultants' report and ACTEW's responses, the Commission has made comments, as set out below, on particular aspects of ACTEW's proposed capital program. While the Commission has considered both the findings of the consultants' review and the comments

made by ACTEW, any adjustments made to ACTEW’s proposed capital expenditure program in the following sections have been made by the Commission alone.

## 7.2 Expenditure in current period

### 7.2.1 Actual and forecast expenditure

Consistent with standard regulatory practice, the Commission will roll into the RAB all of the prudent capital expenditure from the current regulatory control period, irrespective of whether it is above or below the efficient allowance made in the 2004 price determination.

Leaving aside the water security measures, actual capital expenditure is anticipated to be \$177.1 million during the period 2004–05 to 2007–08. This compares to total approved forecasts over the period of \$110.4 million, a difference of \$66.7 million, although the bulk of this excess is attributable to 2007–08, which at this stage remains a forecast. The Commission also understands that the 2006–07 figures are not final.

During the period the Commission approved pass-through expenditure amounting to an additional \$48.1 million (see table 7.1), which accounts for the majority of the difference between forecast and actual expenditures. The pass-throughs relate primarily to projects undertaken in response to the drought and the Canberra 2003 bushfires.

Major capital projects undertaken in response to the drought include:

- a new Stromlo Water Treatment Plant;
- Googong Water Treatment Plant Augmentation;
- Cotter–Googong Bulk Transfer Phase 1;
- Cotter Stromlo Augmentation; and
- working at heights safety modifications.

Table 7.1 Actual and forecast capital expenditure 2004–05 to 2007–08 (excluding water security measures) (\$000s, 2006–07 dollars)

	2004–05	2005–06	2006–07	2007–08	Total
Actual capital expenditure					
Water	34,689	26,072	20,687	41,460	122,908
Wastewater	9,707	6,343	10,896	27,267	54,213
Total	44,396	32,415	31,583	68,727	177,121
Forecast capex					
Water	35,434	7,928	3,638	5,172	52,172
Wastewater	19,344	14,411	12,344	12,149	58,248
Total	54,777	22,340	15,982	17,321	110,420
Variance	-10,381	10,075	15,601	51,406	66,701

Source: ACTEW original submission.

The Commission engaged MMA and Worley Parsons to assess the prudence and efficiency of ACTEW’s capital expenditure over the current regulatory period. In undertaking this task the consultants reviewed a range of ACTEW’s capital projects.

It should be noted that the assessment 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. Rather, it is a test against the entire capital expenditure program over the regulatory period. This allows a business to adapt its capital expenditure program during a regulatory period in response to the changes in available information or circumstances that inevitably occur during the regulatory period. 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 consultants were generally supportive of the capital expenditure projects undertaken by ACTEW over the current period. The consultants identified no material issues regarding the selection and or justification of projects. They noted that there has been a high degree of change from the original approved capital program, but that the process adopted to incorporate additional expenditure in the capital expenditure plan seemed appropriate. However, the consultants did express concern at the cost overrun of the working at heights safety modifications at water service reservoirs, which exceeded budget by more than \$900,000.

### **7.2.2 Payments between ACTEW and ActewAGL**

As with operating expenditure there are a number of issues the Commission needs to consider regarding the relationship between ActewAGL and ACTEW and the nature of the agreement between the parties as defined under the UMA.

ACTEW's reported capital expenditure comprises:

- expenditure incurred directly by ACTEW;
- expenditure incurred by ActewAGL and/or third parties;
- a payment or receipt under a painshare/gainshare arrangement with ActewAGL; and
- a flat margin payable to ActewAGL by ACTEW.

Under the painshare/gainshare arrangement, where the sum of expenditure over a particular year is less than the amount agreed between ACTEW and ActewAGL savings are shared equally between ACTEW and ActewAGL up to a maximum 5% of that year's total agreed expenditure, for each party. For example, if the agreed program is \$1 million and actual costs are \$800,000 then ACTEW will pay ActewAGL \$800,000 plus a \$50,000 (5% of \$1 million) gainshare. The capital expenditure ACTEW proposes to roll into the RAB includes the gainshare.

If the actual costs are above the agreed amount then the additional amounts are borne equally by the parties up to 5% of the total expenditure. Thus, if actual costs are \$1.2 million then ACTEW seeks to add \$1.15 million to the RAB and pays ActewAGL \$1.15 million.

Painshare/gainshare provisions do not apply to capital projects delivered or managed by third parties. In addition, ACTEW and ActewAGL may agree that particular projects are not to be subject to the arrangement. Over the current regulatory period the painshare/gainshare amounts have been quite low—around 0.2% of the total capital program.

In relation to the capital margin, Clause 6.1 of the UMA provides for a margin of \$500,000 per annum (adjusted year on year by CPI) to be paid by ACTEW to ActewAGL. The

margin is tied to a number of agreed key performance indicators. The margin will be less than \$500,000 where these indicators are not met and this was the case in 2004–05 and 2005–06.

Table 7.2 provides a break up of ACTEW’s expenditure.

**Table 7.2 ACTEW capital expenditure—ActewAGL and other, 2003–04 to 2007–08 (\$’000s, 2006–07 dollars)**

	2003–04	2004–05	2005–06	2006–07	2007–08
<b>Water</b>					
ActewAGL					
Base charge	38,568	34,119	22,571	17,017	36,329
Painshare/gainshare	–	41	84	–	–
Margin	544	263	199	300	300
Planning capitalised by ACTEW	250	251	250	250	250
Total ActewAGL	39,362	34,674	23,104	17,567	36,879
ACTEW					
Non-system assets	4	1	6	–	44
Other	239	14	2,961	3,120	4,537
Total ACTEW	244	15	2,968	3,120	4,580
Total water	39,606	34,689	26,072	20,687	41,460
<b>Wastewater</b>					
ActewAGL					
Base charge	7,962	9,315	5,792	10,326	26,634
Painshare/gainshare	–	42	205	–	–
Margin	–	70	49	300	300
Planning capitalised by ACTEW	250	251	250	250	250
Total ActewAGL	8,212	9,678	6,296	10,876	27,184
ACTEW					
Non-system assets	4	1	6	–	44
Other	15	28	39	20	39
Total ACTEW	20	29	45	20	83
Total wastewater	8,231	9,707	6,342	10,896	27,267
<b>TOTAL</b>	<b>47,837</b>	<b>44,396</b>	<b>32,414</b>	<b>31,583</b>	<b>68,727</b>

Source: MMA Draft Report p. 143. Note that 2007–08 figures exclude water security measures.

### 7.2.3 2007–08 and 2003–04 expenditure

Actual capital expenditure for 2007–08 will not be known prior to the Commission’s final decision for the next regulatory period. Accordingly, an estimate of capital expenditure for 2007–08 must be used when rolling forward the RAB to 1 July 2008.

In calculating the RAB the Commission will use the actual prudent expenditure in 2003–04 of \$47.8 million, rather than the estimate adopted in the 2004 decision of \$66.1 million (in 2006–07 dollars).

### 7.2.4 Conclusion on current period expenditure

Having considered ACTEW's submission, the consultant's views and undertaken its own analysis the Commission considers that it is appropriate to roll all capital expenditure undertaken by ACTEW during the period July 2003 to June 2007, into the opening RAB for the regulatory period commencing 1 July 2008. Consistent with previous practice, the Commission will base capital expenditure in 2007–08 on the most recent forecast. The Commission will also seek final 2006–07 expenditure figures from ACTEW and these will be included in the final decision.

The roll in amount includes both the capital margin of \$2.3 million and the painshare/gainshare amount of \$372,000. The Commission indicated in its 2004 decision that it would approve the capital margin, but reserved its position in relation to the painshare/gainshare amount.

Having reviewed the operation and effect of the painshare/gainshare arrangement in the current regulatory period, the Commission is satisfied that it has had the effect of improving both the on-time delivery of capital projects, as well as providing strong incentives for cost-containment. While the Commission has some concerns that the arrangement provides an incentive for ActewAGL to over-estimate the cost of individual projects, the Commission believes that these concerns have been outweighed by a demonstrable improvement in the capital planning process. The Commission also believes that the quantum of the painshare/gainshare amount is not inappropriate given these gains.

Table 7.3 Draft decision, capital expenditure 2003–04 to 2007–08 (\$000s, \$2006–07)

	2003–04	2004–05	2005–06	2006–07	2007–08	Total
Original submission						
Water	39,606	34,689	26,072	20,687	41,460	162,514
Wastewater	8,233	9,707	6,343	10,896	27,267	62,445
Water security measures					9,300	9,300
<b>Total</b>	<b>47,838</b>	<b>44,396</b>	<b>32,415</b>	<b>31,583</b>	<b>78,027</b>	<b>234,260</b>

### 7.3 Proposed capital expenditure

ACTEW has forecast total capital expenditure over the forthcoming regulatory period of \$277.6 million (in 2006–07 dollars), excluding the water security measures. Proposed water related capital expenditure is \$165.4 million and wastewater related expenditure is \$112.2 million.

Capital expenditure on the phase 1 water security measures is forecast by ACTEW to be \$213 million. In total, and excluding the contingent projects (which could add another \$50 million), ACTEW proposes to spend almost half a billion dollars on capital works over the next five years. Two-thirds of this amount will be spent in 2008–09 and 2009–10.

**Table 7.4 Forecast capital expenditure 2008–09 to 2012–13 (\$000 2006–07)**

	2008–09	2009–10	2010–11	2011–12	2012–13
Water					
System assets					
Asset management plan works	33,356	59,200	17,222	43,787	10,292
Other	158	170	183	196	210
Non system assets	420	42	41	40	39
Total water	33,934	59,412	17,446	44,023	10,541
Wastewater					
System assets					
Asset management plan works	59,266	12,674	12,669	13,648	13,137
Other	42	46	49	52	56
Non system assets	420	42	41	40	39
Total wastewater	59,727	12,762	12,759	13,740	13,232
Phase 1 water security measures					
Cotter Dam enlargement	30,000	70,000	40,000	0	0
Murrumbidgee to Googong Transfer	42,000	27,000	0	0	0
Demonstration water purification plant	3,000	0	0	0	0
Smart metering pilot	1,200	200	0	0	0
Total phase 1 water security measures	76,200	97,199	40,000	0	0
<b>Total capital expenditure</b>	<b>169,862</b>	<b>169,373</b>	<b>70,205</b>	<b>57,763</b>	<b>23,773</b>

According to ACTEW the majority of non-water security measures capital works scheduled for the forthcoming regulatory period are to meet growth in demand for water and sewerage services and the renewal of water and sewer network assets.

As noted in Chapter 6, ACTEW's original capital expenditure forecast costs include a capital margin of 4% (it is not clear whether the forecast water security program works include such a margin). ACTEW has also proposed a painshare/gainshare mechanism apply, although it has provided no details of the proposed mechanism.

## 7.4 Consultants' assessment

MMA and WorleyParsons undertook a review of ACTEW's proposed original capital program, including a technical analysis of a sample of projects. Based on this analysis the consultants advised the Commission that:

- no material issues regarding the selection of projects for the upcoming regulatory period have been found. The selection process is in the most part backed up by significant studies including studies by external consultants;
- the capital margin and painshare/gainshare payments were not found to be excessive (noting that the value that the painshare/gainshare arrangements add to the projects delivered was not assessed in detail);
- cost estimates of proposed projects have generally been found to be reasonable and have varying degrees of rigour behind them, including in some cases estimates by an experienced consultant with the provision of confidence levels;

- there are concerns regarding the level of scope change in projects such as the Working at Heights and LMWQCC Secondary Clarifier and De-nitrification projects as well as the consistency of the budgeted capital expenditure being expended; and
- the overall level of capitalisation of planning costs for capital projects do not cause concern, however the accuracy of cost capture and apportionment to projects is of concern.

One particularly significant finding was in regard to the probable maximum flow (PMF) upgrades to Corin and Bendora Dams with a proposed expenditure of \$65 million in real terms. The consultants advised the Commission that the estimated costs should be re-assessed based on the outcomes of recent studies and that there was significant risk that the scope and cost of this project will change with further project development. The consultants quoted correspondence from ActewAGL stating:

Studies for PMF have been completed. The studies have found that unless the TWL (top water level) is increased the dams do not require upgrade work for PMF. Other rectification work in the order of \$3 to \$5 million is expected to proceed.

Although they did not comment directly on the findings, the consultants also noted that in 2007 Currie & Brown, on behalf of ActewAGL, conducted a review into the 2007–08 capital expenditure program. Currie & Brown found that:

- many estimates lack the appropriate build up and substantiation of the construction elements of the projects
- in some cases quotes for materials were outdated and unreasonable assumptions had been made with respect to price increases for 2007–08
- ACTEW labour rates were approximately 5% higher than industry related market rates but were closer to market related trends than recent years.

Despite the issues noted above, the consultants made no recommended adjustments to the forward capital programs submitted by ACTEW.

## 7.5 Commission's assessment

The following sections discuss the Commission's views on various elements of ACTEW's proposed original capital program. In general, while the Commission has accepted comments from the consultants that the selection of projects for the next regulatory period is appropriate, it has a number of concerns about the forecast cost of the projects.

### 7.5.1 Major projects

MMA and WorleyParsons were asked by the Commission to provide advice on the proposed timing and related expenditure for key major projects, including projects including the Googong Dam spillway project, the water supply network program, sewer main replacements, LMWQCC projects and the upgrades to spillways at Corin and Bendora Dams.

The Googong Dam spillway rock protection project is estimated to cost ACTEW approximately \$22.5 million (in real terms). This project includes renewal of the Googong Dam Spillway. The consultants noted that the timing of this project was appropriate and that the estimated costs are considered reasonable.

The water supply network-trunk mains program accounts for approximately \$12.5 million of capital expenditure over the period. This program includes the replacement of the Cotter main and new bulk water main connections to Elmgrove 1 Reservoir. The consultants advised the Commission that projects included in the program were adequately justified and that the proposed timing of the works were appropriate. However, they did note that there was uncertainty regarding costs for some elements of the program.

The sewer mains rehabilitation program is expected to cost approximately \$120.2 million over the period 2008–09 to 2027–28. ACTEW has indicated it expects the need for rehabilitation work to increase steadily throughout the period of the plan as the sewerage network ages and deterioration accelerates. The consultants noted that they lacked the information required to provide an opinion on efficiency or imprudence. However, the Commission notes that an increase in expenditure in this area should help address concerns raised by the Technical Regulator regarding expenditure on renewals and ACTEW's poor performance in relation to sewer blockages.

The consultants were also satisfied that expenditure on projects at LMWQCC projects was appropriate.

The Commission has considered ACTEW and the consultants' comments and is broadly satisfied that the forecast expenditure associated with the major projects is appropriate, with the exception of expenditure on Probable Maximum Flow Upgrades to Corin and Bendora Dams. This project was expected to cost approximately \$65.7 million. The consultants have expressed concerns that there is a significant risk that the scope and cost of the project will change, and the Commission notes advice from ActewAGL, quoted above.

Given this high degree of uncertainty surrounding this project the Commission has removed \$65.7 million from the forecasts. In making this adjustment the Commission has assumed that this expenditure is spread evenly (in nominal terms) over the first 4 years of the regulatory period.<sup>24</sup>

## 7.5.2 Payments between ACTEW and ActewAGL

ACTEW does not propose to extend the current capital margin and painshare/gainshare arrangements into the forthcoming regulatory period. Instead ACTEW and ActewAGL propose to substitute the current arrangements with a 4% flat margin on all capital expenditure, which will be subject to performance arrangements, plus a painshare/gainshare mechanism. As discussed in Chapter 6, ActewAGL believe the current arrangements are not satisfactory in that the margin plus potential gainshare/painshare is being more than outweighed by the administrative costs (such as negotiations and reporting) of the existing arrangements.

Over the course of the regulatory period ACTEW forecasts it will pay ActewAGL \$10.5 million, assuming all key performance indicators are met.

On the basis of an annual margin of \$500,000 and projected gainshare/painshare payments (based on the relative proportion of such payments during the current period) if ACTEW were to extend the current arrangements into the next regulatory period it would only incur a cost of approximately \$3 million.

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<sup>24</sup> The Commission will clarify the exact amount and timing of the project with ACTEW, to ensure the correct amount has been removed, prior to the final decision, or if the project is to go ahead the amount to include in the allowed capital expenditure in the final decision.

As discussed in Chapter 6, and despite the views of the consultants, the Commission does not propose to approve the capital expenditure margin unless more detailed information justifying the margin, including the KPIs to be used, are provided.

As no gainshare/painshare forecasts are included in the forecast expenditure, and gainshare only occurs if projects are delivered at less than forecast cost, the Commission does not need to directly address the gainshare/painshare mechanism at this time. In the absence of any information from ACTEW about how the gainshare/painshare arrangement will operate, the Commission will address this matter at the conclusion of the next regulatory period.

### 7.5.3 Capital expenditure escalation

Construction cost escalation is recognised nationally as a significant issue facing the delivery of infrastructure, including in the water sector. In its submission ACTEW stated that construction cost increases in the ACT have been significantly above the cost escalation assumed in the Commission's 2004 water and wastewater decision. ACTEW noted that the Reserve Bank of Australia (RBA) and the Australian Institute of Quantity Surveyors both reported annual building cost index increases of 5% or higher for each of the past three years.

Escalations in construction costs are widely attributed to:

- significant growth in engineering construction activity (particularly in the mining sector)
- skills shortages impacting labour costs
- a general rise in the costs of materials.

These cost pressures are expected to increase into the forthcoming regulatory period. ACTEW's proposed forecasts are based on the assumption that engineering cost indices will grow relative to general prices increases as measured by CPI (see table 7.5). These assumptions are based on a forecast prepared by BIS Shrapnel.

Underlying the BIS Shrapnel forecasts is an assumption the construction activity will peak in 2006–07 and remain at this peak for 2007–08. Initially the peak is driven by the mining and heavy industry sector. BIS assume that peak activity will be sustained through public sector investment in social infrastructure such as water and sewers.<sup>25</sup>

The Construction Forecasting Council (CFC) and Pacific Economics Group (PEG) have adopted alternative assumptions. The CFC forecasts are significantly lower for 2007–08 and 2008–09, resulting in material differences in the escalation factors in later years. The CFC forecast reflects an expectation that the rate of growth will decrease as the main driver switches from mining to water, road and electricity projects.

The PEG forecasts were produced for capital cost increases in the gas industry for the purposes of the ESC's recent review of Victorian gas access arrangements. PEG criticised the BIS Shrapnel forecasts adopted by the Victorian gas distributors, on the basis that they failed to comply with several reasonable criteria for robust forecasting. In particular, according to PEG:

- the BIS Shrapnel forecast is not consistent with long-run behaviour
- the forecasts exaggerate the importance of cherry-picked observations

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<sup>25</sup> op. cit.

- the forecasts do not satisfy the criteria of accuracy—in particular the forecasts do not accurately convey the engineering cost information available from the ABS
- the forecasts do not represent a best estimate because they are based on input price indices only and do not include any adjustment for productivity

Table 7.5 Forecast percentage changes in engineering and construction costs, 2007–08 to 2012–13

	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
BIS Shrapnel forecast (%)	7.9	5.5	4.0	3.2	3.6	3.8
PEG forecast (%)	5.15	5.156	4.78	4.4	2.9	2.5
CFC forecast (%)	3.3	4.2	3.5	3.1	3.5	3.8

Note PEG forecasts have been converted to real terms using an assumed CPI of 2.5%.

The Commission notes that the BIS Shrapnel forecast appears to be particularly inconsistent with other forecasts in relation to the escalation factor for 2007–08. This is of a particular concern, as any overstatement in the first year of the regulatory period will be compounded over the remainder of the period. The Commission also notes that the Currie and Brown review suggested that ‘unreasonable assumptions’ had been made with respect to capital cost increases for the 2007–08 period.

However, the Commission notes that the growth rates for the subsequent years (2008–09 to 2012–13) are broadly consistent with other alternative forecasts. The Commission has therefore elected to accept the escalation factors proposed by ACTEW for all years except 2007–08 where the Commission has used 5.5%—this is the rate proposed by ACTEW for 2008–09, and is approximately equal to the average of the three factors shown. Although this adjustment is made only for 2007–08 there is a roll-forward impact such that capital expenditure has been amended downwards in each year by the Commission by a factor of 0.978.

## 7.6 Draft decision

The Commission has broadly accepted the scope of ACTEW’s proposed capital works program, with the exception of the proposed spillway upgrades at Bendora and Corin Dams. The Commission has removed the proposed capital expenditure on the spillway upgrades from ACTEW’s capital expenditure program but will reconsider this decision as part of the final decision subject to confirmation from ACTEW of the intention to undertake the work. However, the Commission has some concerns about the forecast cost of the capital works program. The Commission has noted concerns expressed by Currie and Brown in April 2007 that:

- ActewAGL’s wages (some of which will be capitalised) are higher than industry norms;
- that ActewAGL’s forecast project costs were higher than the Currie and Brown estimates; and
- unreasonable price assumptions had been used for 2007–08.

As set out earlier in this draft decision the Commission is also extremely concerned about the cost of the ACTEW/ActewAGL relationship and the lack of justification for proposed increases in the charges paid to ActewAGL. The Commission has therefore:

- removed the proposed 4% margin payment from ACTEW to ActewAGL, and
- adjusted the capital cost escalation factor for 2007–08 (which has flow on implications for other years).

As noted earlier, the Commission has not reviewed ACTEW's proposed phase 1 water security measures expenditure but has accepted the forecasts for the purposes of this draft decision. These projects will be further reviewed prior to the presentation of the final report.

The Commission's draft decision on ACTEW's expenditure is set out in table 7.6.

**Table 7.6 Draft decision summary table—capital expenditure (\$000s, 2006–07 dollars)**

	Draft Decision				
	2008–09	2009–10	2010–11	2011–12	2012–13
ACTEW original proposal—Water	33,934	59,412	17,446	44,024	10,541
Less amendments					
Max flow upgrades, Corin and Bendora Dams	15,634	15,252	14,880	14,517	–
Capital margin payable to ActewAGL	704	1,698	99	1,135	405
Total original proposal with amendments	17,597	42,462	2,467	28,371	10,136
Capital adjustment factor	0.978	0.978	0.978	0.978	0.978
Draft Decision—original program	17,205	41,517	2,412	27,740	9,910
Phase 1 water security measures	76,200	97,199	40,000	–	–
<b>Draft Decision—Water</b>	<b>93,406</b>	<b>138,716</b>	<b>42,412</b>	<b>27,740</b>	<b>9,910</b>
ACTEW proposal—Wastewater	59,351 <sup>1</sup>	12,762	12,758	13,741	13,232
Less amendments					
Capital margin payable to ActewAGL	2,283	491	491	529	509
Total proposal with amendments	57,068	12,271	12,268	13,213	12,723
Capital adjustment factor	0.978	0.978	0.978	0.978	0.978
<b>Draft decision—wastewater</b>	<b>55,799</b>	<b>11,998</b>	<b>11,995</b>	<b>12,919</b>	<b>12,440</b>

1. This figure is \$376,000 different to that shown in Table 7.4 due to differences between ACTEW's original submission and its submitted template. The Commission will resolve this difference for its final decision.



## 8 Regulatory asset base

### 8.1 Introduction

The regulatory regime is designed to allow ACTEW to recover both a return on the regulatory value of ACTEW's investments (through the WACC) and a return of this value over time (through regulatory depreciation).

The regulatory value of ACTEW's assets is known as the regulatory asset base (RAB). The value of the RAB has significant implications for the prices that ACTEW can charge over the course of the regulatory period and beyond. It also has implications for the level of returns that will be received by ACTEW's owner, the ACT Government.

It is important to note that the value of the RAB used for regulatory *price setting* purposes is different from the value that ACTEW adopts for accounting purposes. This arises for a number of reasons, including the way the initial RAB is determined. However there are a number of other causes—including, for example, that gifted assets are not included in the RAB but are reflected in the accounting value of assets.

Once the initial RAB is determined, for all subsequent years, the opening value is usually calculated as the closing value from the previous year. The formula for calculating the closing value is:

$$\begin{aligned} \text{Closing value of RAB} = & \text{opening value } \textit{plus} \\ & \text{capital expenditure } \textit{less} \\ & \text{disposals } \textit{less} \\ & \text{depreciation } \textit{plus} \\ & \text{indexation.} \end{aligned}$$

Thus, in rolling forward the RAB for the forthcoming regulatory period, the standard approach would be for the Commission to take the opening value of the RAB in 2004–05 as the starting point.<sup>26</sup> The Commission would then assess the actual value of new capital expenditure that took place during the current regulatory period, and estimated capital expenditure in 2007–08. Based on the actual value of disposals, depreciation and indexation the Commission would recalculate the value of the RAB to arrive at the closing value of the RAB in 2007–08. This figure represents the opening value for the RAB in 2008–09.

However, in considering the RAB the Commission is required by its TOR to have regard to:

the commercial value of past investment by ACTEW or its predecessor bodies in infrastructure that continues to deliver services and is needed to sustain a high standard of service to all residents of the territory, giving particular consideration to an optimised depreciated replacement cost valuation as applies in relation to other utilities.

and

an assessment of the commercial value of ACTEW's regulatory asset base that gives particular consideration to all investment in the water network (including water and sewerage assets

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<sup>26</sup> An adjustment also needs to be made for the difference between estimated and actual expenditure in 2003–04.

purchased or transferred from the Commonwealth in 1988 at the time of the creation of the ACT Electricity and Water Authority or otherwise gifted to it) and appropriately reflects the reinstatement of assets returned to service as the result of changes to operating procedures during the current period

In its submission ACTEW has proposed that the opening RAB (i.e. as at 1 July 2008) should not be calculated using the roll forward approach described above and instead should be completely revalued on the basis of Optimised Depreciated Replacement Cost (ODRC). ACTEW has also proposed that the Commission should increase the RAB to reflect the reinstatement of Cotter Dam.

## 8.2 Revaluing the RAB

### 8.2.1 ACTEW's proposal

In its proposal, ACTEW argued that the RAB should be revalued on an ODRC basis. The ODRC approach seeks to value an asset based on the most efficient method of providing the same level of service. ACTEW contends that such a valuation is a good proxy for a commercial value of the assets in a competitive market place. ACTEW has stated:<sup>27</sup>

the ODRC is the highest value of the assets that can be set, without creating incentives for a new entrant to bypass the existing assets. In this way, the resultant prices are the highest that the asset owner could charge, without providing incentives to duplicate the system.

ACTEW has indicated that an ODRC valuation would increase its RAB from approximately \$1.04 billion (in nominal terms) to \$2.3 billion.

ACTEW cited three key reasons why a revaluation is necessary. These are:<sup>28</sup>

- there is a need for water prices to reflect the true economic value of water provision to ensure that appropriate investment occurs, both by ACTEW and potential competitors. The original case for keeping water prices low no longer applies in the current circumstances of a growing need to send appropriate price signals to customers about the true cost of water. According to ACTEW the inefficiencies associated with the current RAB valuation outweigh concerns about any price shocks that may arise from a revaluation.
- the water and wastewater assets were purchased from the Commonwealth government. It is therefore appropriate for ACTEW's owners to earn an appropriate rate of return on the value of the assets that it purchased.
- the ODRC valuation approach has been widely applied by regulators when determining asset values for regulated businesses.

ACTEW has also indicated that if the Commission decided to accept ACTEW's proposal, it would support a transitioning mechanism to manage the price increases over a period of up to 10 years.

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<sup>27</sup> ACTEW Corporation, *Submission: Investigation into Prices for Water and Wastewater Services in the ACT*, 31 July 2007, pp. 164.

<sup>28</sup> ACTEW Corporation, *Submission: Investigation into Prices for Water and Wastewater Services in the ACT*, 31 July 2007, pp. 161–165.

## 8.2.2 Working Conclusions paper

In its Working Conclusions paper, the Commission indicated that it did not accept ACTEW's proposal to revalue the RAB on an ODRC basis. The Commission noted the substantial impact on customers (a price rise of approximately \$800—although ACTEW offered to phase this in over time) the Commission rejected ACTEW's proposal for reasons summarised below.

### *Need to ensure appropriate investment*

The Commission did not agree with ACTEW that an ODRC valuation would assist in ensuring better future investment decisions by ACTEW because these existing assets in the RAB are effectively sunk assets that typically have no alternative uses. Furthermore, the Commission noted that its approach of ensuring that only prudent and efficient new investments valued at cost at the time of purchase are allowed to enter the RAB ensured that appropriate future investment decisions were made by ACTEW regardless of how the opening RAB was set. The Commission concluded that an ODRC valuation of existing assets would not have any influence on ACTEW's ability to sustain a high standard of service to customers or on new investment in the industry.

Similarly, the Commission was not persuaded by ACTEW's argument regarding the benefits that an ODRC valuation will provide in terms of more appropriate signals for new entrants into the sector. The Commission also noted the uncertainties and disadvantages associated with actually calculating an ODRC value.

### *Return on assets purchased*

Although ACTEW argued that the opening RAB did not appropriately compensate it for the purchase of water and wastewater assets from the Commonwealth government in 1988 the Working Conclusions paper demonstrated that this was not the case.

### *Regulatory precedents*

In its proposal ACTEW claimed there were regulatory precedents to support the adoption of an ODRC valuation. However, the Working Conclusions paper noted that, with the exception of certain special circumstances primarily in sectors other than water, there were no Australian examples where the entire asset base has been revalued on a wholesale basis. The Commission pointed to a number of reasons why it was not desirable to revalue the asset base subsequent to the initial RAB being set.

## 8.2.3 Response to Working Conclusions paper

In response to the Working Conclusions paper, ACTEW maintained that the Commission should revalue the RAB in line with an ODRC valuation.

... Upward revaluation of ACTEW's RAB is required to provide appropriate recognition of past investments as an element of economic efficiency. ACTEW believes that applying a replacement cost methodology, such as ODRC, ensures that users are paying the full economic costs of providing water ... Where the cost base has been discounted, prices fail to align to the economic costs of providing services and inefficient use results ... ACTEW remains of the view that the value of assets purchased from the Commonwealth Government has not been appropriately included in the asset base valuation and that an adjustment should be made.<sup>29</sup>

ACTEW also argued for an increase in the RAB for reasons of financial viability:

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<sup>29</sup> ACTEW 2007 Response to the Working Conclusions paper, p. 4.

... credible future climate and hydrology predictions for the ACT imply a significant future infrastructure requirement and a commensurate increased recourse to debt funding.<sup>30</sup>

A number of other submitters made comment on ACTEW's proposal to revalue the RAB. All expressed strong opposition, including the O'Malley Park Executive Committee, and Water Our Garden City Inc. The latter argued that:

As for ACTEW's costs we reject replacement cost accounting. This is simply an excuse to ramp up the value of assets and claim inflated depreciation. Cost recovery should only be based on costs actually incurred net of all user contributions and recoupments.... in truth most of ACTEW's costs have already been met by users and ratepayers.

If ACTEW wishes to play a game of creative accounting to pretend its costs are higher by claiming depreciation on revalued assets ICRC, to be consistent should order that revaluation gains be treated as part of ACTEW's revenue stream and credited against any target revenue for cost recovery, thereby reducing the cost charges it is permitted to levy.

In response to Discussion Paper 3 Dr Terry Dwyer suggested that ACTEW's asset valuation should be zero as the assets were never funded by ACTEW or by the ACT Treasury.

#### **8.2.4 The Commission's draft decision on revaluing the RAB**

As noted in the Working Conclusions paper, the Commission does not agree that the RAB was incorrectly valued. ACTEW's response to the Working Conclusions paper introduces no new evidence on this matter. Commission remains unpersuaded by ACTEW's argument that an ODRC valuation will provide net benefits to the community for the reasons set out in the Working Conclusions paper.

Similarly, the Commission does not intend to adopt Dr Terry Dwyer's suggestion that the RAB should be valued at zero. As set out in the Working Conclusions paper, ACTEW paid \$91 million for the assets in 1988. Amongst other things, reducing the RAB to zero would threaten ACTEW's financial viability in the context of borrowings it made against this investment and would be inconsistent with Government targets to reduce water consumption.

In relation to ACTEW's claim that the RAB should be revalued in order to ensure that appropriate debt/equity levels can be maintained, the Commission does not believe that raising prices through a higher RAB is an appropriate response to addressing this concern. If this is a genuine issue then ACTEW's owners should take action to preserve more equity in the business. This might occur, for example, through reducing the proportion of dividends that are paid out to ensure internal funding is available to meet high investment requirements over the next few years. There is a perception within the community, supported by a number of reports on the pricing of water across Australia, that the various State and Territory governments have been using their ownership of water businesses as a means of extracting extra revenue from residents in the jurisdictions concerned. To blatantly increase the asset value to resolve a perceived debt/equity imbalance when in normal competitive commercial situations this would be addressed through an equity injection, would only serve to reinforce the perception that governments are using their water businesses as 'cash cows'. It is just this form of practice that the COAG Agreement on Competition sought to abolish.

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<sup>30</sup> ACTEW 2007 Response to the Working Conclusions paper, p. 4.

Finally, the Commission notes that the financial ratios shown in Chapter 12 demonstrate that ACTEW's financial position will more than satisfactorily meet financial market requirements across the next regulatory period.

The TOR require the Commission to have regard to the commercial value of past investment made by ACTEW. In the Working Conclusion paper the Commission discussed the purchase of the assets by the fledgling ACT Government in 1988 from the Federal Government. The Commission's conclusion was that the initial valuation of the RAB was sufficient to recover the costs incurred when the assets were purchased in 1988. Since 1999 the Commission has been rolling into the RAB all of ACTEW's prudent capital expenditure for water and wastewater assets and indexing to maintain the real value of the investment over time. The Commission is also committed to continuing this practice in the future. This certainty that ACTEW will earn a fair rate of return on capital expenditure and a return of capital expenditure through depreciation of the RAB over time provides the business with the correct incentives for making capital expenditure.

The Commission's draft decision is therefore not to revalue the RAB using an ORDC methodology. Instead, it will roll forward the existing value of the RAB to reflect the capital expenditure that ACTEW has undertaken in the current period along with the disposals and depreciation it has incurred.

## **8.3 Inclusion of Cotter Dam**

### **8.3.1 ACTEW proposal**

In its proposal, ACTEW suggested that the Commission amend the RAB to reflect the reinstatement of Cotter Dam into the asset base following its recommissioning in the current regulatory period. ACTEW proposed that the RAB be adjusted to incorporate \$14.9 million for the depreciated value of the Cotter Dam and associated pumping infrastructure.

ACTEW noted that a 2003 valuation by consultants Meritec optimised the Cotter Dam out of the ODRC. ACTEW also pointed to a number of situations where regulators have permitted assets to be re-optimised into the asset base.

### **8.3.2 Working Conclusions Paper**

In its Working Conclusions paper, the Commission noted that the initial valuation of the RAB valued all of ACTEW's assets regardless of whether they were in service or not. No assets were 'optimised' or excluded from the RAB and assets did not have individual values ascribed to them.

As a result, the Commission's working conclusion was not to include an additional value in the RAB at 1 July 2008 to reflect the value of the Cotter Dam and pumping station as these assets were never excluded from the RAB. The Commission commented that, while Meritec may have optimised the Cotter Dam out of its 2003 ODRC valuation for ACTEW, this was of no relevance to the regulatory value of the RAB which not based on an ODRC approach.

In response to the Working Conclusions paper, ACTEW commented that:

The initial valuation of the RAB was an economic valuation, representing the value implied by revenue generated from providing services through the use of the physical assets at the time of the valuation. ACTEW contends that it is inconsistent with the principle of excluding inactive assets

from the RAB to claim that the economic valuation applies to assets not being used to supply services at the time.

... If ACTEW had instead sold or written off the Cotter Dam prior to the initial valuation (rather than mothballing it) and then repurchased it later when once again needed, ACTEW would be able to include the purchase cost in the RAB.<sup>31</sup>

In its response to the Working Conclusions paper the ESCC supported the Commission's position in relation to Cotter Dam.

### 8.3.3 Discussion

The Commission's valuation of the RAB in 1999 reflected an economic value of ACTEW's assets based on the cash flows generated by the assets at the time. This valuation also incorporated an allowance for the 'substantial growth to be accommodated by the existing infrastructure without significant further augmentation'—implicitly reflecting the excess capacity contained in assets which, at the time, were under-utilised or not used at all.

Therefore, in theory, any asset with capacity to accommodate growth that had been sold immediately prior to the valuation would have resulted in a reduction in the initial valuation.

ACTEW's argument that its RAB might ultimately be higher had Cotter Dam been sold before the initial valuation and then repurchased is therefore not correct.

In any case, in a practical sense the RAB can only be determined at a point in time based on the circumstances at the time. Hypothesising about potential asset sales some eight years after the valuation was made is not useful. Most importantly, as with its proposal to revalue the RAB ACTEW has failed to convince the Commission that there are sound economic arguments to support the case for an increase in the RAB.

### 8.3.4 The Commission's draft decision on Cotter Dam

The Commission's draft decision is that no adjustment should be made to the RAB to reflect the reinstatement of Cotter Dam.

## 8.4 Gifted assets

Gifted assets occur in new suburbs where property developers put in place the necessary water and wastewater infrastructure required to provide these services to new developments. These assets are then transferred to ACTEW to provide services to the new residential customers. As ACTEW's shareholders have not invested capital to put these assets in place they are not included in the RAB.

In its proposal, ACTEW noted that current tax arrangements require gifted assets to be shown as income and thus tax must be paid on it with a deduction only granted for depreciation over the full life of the asset. As a result, ACTEW indicated that it incurred a significant up front tax payment associated with gifted assets. ACTEW proposed that the operating costs should also include the net present value of the tax payments and deductions received. In this way, ACTEW would receive an appropriate cash flow to manage these transactions.

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<sup>31</sup> ACTEW 2007 Response to the Working Conclusions paper, p. 5.

In the Working Conclusions paper, the Commission rejected ACTEW's proposal noting that it did not consider that its role, particularly under a pre-tax WACC approach, was to compensate ACTEW for perceived shortcomings in the taxation system. It considered that it would be inconsistent to selectively allow ACTEW compensation for NPV losses associated with gifted assets while at the same time ignoring the myriad of other differences between the actual operation of the taxation system and the broad regulatory assumptions about the cost of tax adopted in the building blocks approach.

In response to the Working Conclusions Paper ACTEW agreed that shortcomings in the tax system are not a matter for the Commission. However ACTEW expressed concern that current arrangements mean that it is in ACTEW's interest to refuse to accept gifted assets or, alternatively to undertake capital investment itself.

The Commission notes ACTEW's concerns but again emphasises that it has adopted, with ACTEW's support, a pre-tax approach to calculating ACTEW's regulated revenues. The pre-tax approach, which assumes a full tax rate of 30% regardless of any tax benefits ACTEW might achieve, makes a number of broad assumptions about taxation payments and in this way avoids a significant level of regulatory intrusion and cost, both for the Commission and ACTEW. However, it would be inconsistent for the Commission to permit ACTEW to 'cherry pick' and amend the elements of the pre-tax approach which do not work in its favour, and retain those which do. ACTEW's suggestion that it may discourage asset gifting, even where the practice may have broader economic benefit<sup>32</sup>, is of concern to the Commission.

#### **8.4.1 The Commission's draft decision on gifted assets**

The Commission has not included any allowance for the net present value losses associated with gifted assets in the regulatory building blocks.

### **8.5 Regulatory depreciation**

The value of the RAB is rolled forward deducting an amount for 'regulatory depreciation'. The depreciation used is 'regulatory' rather than actual and thus the depreciation rate used may be higher or lower than the actual rate at which assets are written down by the regulated entity for either accounting or tax purposes.

Using regulatory depreciation allows the regulator to rely on assumptions about the rate at which capital is consumed rather than undertake ongoing and intrusive reviews of the regulated entity's actual depreciation. Relying on assumptions about the rate that assets are depreciated only affects the timing of when capital is returned to investors rather than the amount that is returned.

The value of the capital written down each year is returned to the asset owners by adding an increment for regulatory depreciation into the building blocks revenue. This increment represents one component of the capital financing costs to investors (the other component being the return on capital).

In its proposal, ACTEW proposed to continue calculating depreciation on a straight-line basis using an average asset life of 44 years for existing assets and 66 years for new assets. The

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<sup>32</sup> ACTEW submission to working conclusions paper p. 19

Commission supported this decision in its Working Conclusions paper and confirms this approach in this draft decision.

## 8.6 Rolled forward value of the RAB

To calculate the value of the RAB for water and wastewater assets in each year of the 2008–2013 regulatory period, the Commission must:

- first, update the value of the RAB for the outcomes of the 2004–08 regulatory period and establish an opening value for the RAB at 1 July 2008
- second, roll the opening value of the RAB at 1 July 2008 forward to forecast the value of the RAB in each year of the 2008–2013.

The value of the RAB proposed by ACTEW for water and wastewater is set out in tables 8.1 and 8.2 for the years from 2003–04 through 2012–2013.

**Table 8.1a** Rolled forward value of the RAB ACTEW proposal—Water, (\$000s, nominal)

	2003–04	2004–05	2005–06	2006–07	2007–08
Opening RAB	377,438	414,494	446,930	475,744	498,304
Capital expenditure (net of capital contributions)	36,409	32,667	25,337	20,687	52,029
Disposals/assets written off					
Depreciation	8,630	10,179	10,825	11,210	11,560
Indexation	9,277	9,948	14,302	13,083	12,458
Closing value of RAB	414,494	446,930	475,744	498,304	551,231

Source: ACTEW, p. xv original submission and November 2007 submission. Excludes proposed inclusion of Cotter Dam.

**Table 8.1b** Rolled forward value of the RAB ACTEW proposal—Water, (\$000s, nominal)

	2008–09	2009–10	2010–11	2011–12	2012–13
Opening RAB	551,231	667,008	836,918	902,870	955,413
Capital expenditure (net of capital contributions)	115,710	168,603	63,410	49,809	12,225
Disposals/assets written off					
Depreciation	14,086	15,368	18,383	19,838	21,109
Indexation	14,153	16,675	20,925	22,572	23,886
Closing value of RAB	667,008	836,918	902,870	955,413	970,415

Source: ACTEW, p. xv original submission and November 2007 submission. Excludes proposed inclusion of Cotter Dam.

**Table 8.2a** Rolled forward value of the RAB ACTEW proposal—Wastewater, (\$000s, nominal)

	2003–04	2004–05	2005–06	2006–07	2007–08
Opening RAB	428,712	435,165	444,408	453,871	465,820
Capital expenditure (net of capital contributions)	7,568	9,141	6,164	10,896	27,949
Disposals/assets written off					
Depreciation	11,404	10,342	10,922	11,428	11,907
Indexation	10,289	10,444	14,221	12,481	11,646
Closing value of RAB	435,165	444,408	453,871	465,820	493,508

Table 8.2b Rolled forward value of the RAB ACTEW proposal—Wastewater, (\$000s, nominal)

	2008–09	2009–10	2010–11	2011–12	2012–13
Opening RAB	493,508	557,089	571,986	587,060	603,421
Capital expenditure (net of capital contributions)	62,751	13,743	14,083	15,547	15,345
Disposals/assets written off					
Depreciation	11,508	12,773	13,309	13,863	14,454
Indexation	12,338	13,927	14,300	14,677	15,086
Closing value of RAB	557,089	571,986	587,060	603,421	619,398

The Commission’s approach and draft decision on the opening value and rolled forward value of the RAB are set out in the following sections.

### 8.6.1 Opening value of the RAB (1 July 2008)

To calculate the opening value of the RAB at 1 July 2008, the Commission has used the following approach:

$$\text{Opening RAB}_{2008-09} = \text{Opening RAB}_{2003-04} + \text{Capital Expenditure}_{2004-05 \text{ to } 2007-2008} - \text{Regulatory Depreciation}_{2004-05 \text{ to } 2007-2008} - \text{Disposals}_{2004-05 \text{ to } 2007-2008} + \text{Indexation}$$

When determining the rolled forward value of the RAB in the 2003–04 to 2007–08 price review, the Commission did not have all the information that it required to update the opening value of the RAB to 1 July 2004 because information on capital expenditure (and disposals) for 2003–04 was not yet available. Instead, the Commission used the most recent forecasts provided by ACTEW for 2003–04—\$49 million for water and \$11.8 million for wastewater.<sup>33</sup>

Actual data on capital expenditure for 2003–04 is now available—\$36.4 million for water and \$7.6 million for wastewater. Thus, the opening value of the RAB for 1 July 2004 has been recalculated using these actual values producing a revised value for the RAB at 1 July 2004 of \$414.5 million for water and \$435.2 million for wastewater.

The Commission has then rolled forward the 1 July 2004 value of the RAB to 1 July 2008 using the actual capital expenditure amounts set out in Chapter 7. These capital expenditure amounts and ACTEW’s reported disposals have been used to roll forward the value of the RAB to 1 July 2007.

Data on actual capital expenditure for 2007–08 is not yet available. As a result, as set out tables 8.4 and 8.5, the Commission has used ACTEW’s most recent forecasts of capital expenditure to roll the 1 July 2007 value of the RAB forward to 1 July 2008. This includes the forecast cost of the water security measures that will be undertaken in 2007–08. An adjustment will be made for any difference between the assumed and actual net capital expenditure for 2007–08 when the opening value of the RAB is calculated for the 2014 regulator period.

The values of regulatory depreciation used are the same as those estimated at the previous price review, although they have been adjusted for actual inflation.

In response to Discussion Paper No 3, DrTerry Dwyer argued that the perpetual writing up of assets through indexation is incorrect:

<sup>33</sup> ICRC 2004 p. 30

Future generations of users are the ones to pay the costs of future asset renewals, not today's generation who should be charged the net unrecovered cost of the assets servicing them here and now.<sup>34</sup>

As noted previously, prescribing the RAB with a value ensures that ACTEW's shareholders earn a return for the risks that they have undertaken in developing those assets. Indexing the value of those assets ensures that the real value of those assets is maintained (after allowances for depreciation) and thus encourages an efficient level of investment in those assets in the future. Indexing the value of the RAB and applying a real rate of return means that the current generation is paying its fair share of the assets servicing them. Future asset renewals are not rolled into the RAB until actual investment occurs in those assets.

In determining the opening value of the RAB at 1 July 2008, the Commission has not made any adjustment for the Cotter Dam or for ACTEW's claims that the opening RAB did not appropriately compensate it for the purchase of water and wastewater assets from the Commonwealth government in 1988. Differences between the Commission's and ACTEW's calculation, as set out below are predominantly due to rounding issues in the calculation of inflation.

As shown in tables 8.3 and 8.4, the Commission has determined an opening value of the RAB at 1 July 2008 of \$553.8 million for water and \$494.8 million for wastewater.

**Table 8.3** Commission's draft decision on the opening value of the RAB at 1 July 2008—Water (\$000s, nominal)

	2003–04	2004–05	2005–06	2006–07	2007–08
Opening RAB	377,438	414,511	447,481	476,679	500,237
Capital expenditure (net of capital contributions)	36,409	32,667	25,337	20,687	52,029
Disposals/assets written off	–	–	–	–	–
Depreciation	8,649	10,205	10,852	11,255	11,606
Indexation	9,313	10,508	14,712	14,126	13,156
Closing value of RAB	414,511	447,481	476,679	500,237	553,816

**Table 8.4** Commission's draft decision on the opening value of the RAB at 1 July 2008—Wastewater (\$000s, nominal)

	2003–04	2004–05	2005–06	2006–07	2007–08
Opening RAB	428,712	435,031	444,526	454,052	466,801
Capital expenditure (net of capital contributions)	7,568	9,141	6,164	10,896	27,949
Disposals/assets written off	–	–	–	–	–
Depreciation	11,429	10,368	10,950	11,474	11,954
Indexation	10,180	10,722	14,311	13,328	12,019
Closing value of RAB	435,031	444,526	454,052	466,801	494,816

<sup>34</sup> Terry Dwyer, Crawford School of Economics and Government, Australian National University, p. 1.

### 8.6.2 Rolled forward value of the RAB (2008–09 to 2012–13)

Having determined an opening value for both RAB at 1 July 2008, the Commission must then forecast a value for the RAB in each year of the 2008–09 to 2012–13 regulatory period. These values are then used to calculate a forecast return on capital for ACTEW in each year of the next regulatory period.

To calculate the opening value of the RAB in each year, the Commission has used the following formula:

$$\text{Opening RAB}_t = \text{Opening RAB}_{t-1} + \text{Capital Expenditure}_t - \text{Regulatory Depreciation}_t - \text{Disposals}_t + \text{Indexation}$$

Capital expenditure (net of capital contributions) to be rolled into the asset base is set out in Chapter 7.

As discussed in section 8.4 the Commission has elected to adopt a straight-line approach to depreciation in the next regulatory period.

The Commission has made an adjustment to the opening value of the RAB to reflect that regulatory depreciation on two projects—the accelerated catchment remediation and Cotter Googong transfer—has already been recovered by ACTEW through its pass-through claims.

The Commission’s draft decision on the rolled forward values of the RAB for water assets and wastewater assets is set out in tables 8.5 and 8.6.

**Table 8.5** Commission’s draft decision on the rolled forward value of the RAB—Water (\$000s, nominal)

	2008–09	2009–10	2010–11	2011–12	2012–13
Opening RAB	553,816	652,534	804,336	854,166	888,571
Depreciation adjustment	1,013				
Capital expenditure (net of capital contributions)	98,134	149,382	46,815	31,386	11,493
Disposals/assets written off	–	–	–	–	–
Depreciation	13,501	15,761	17,678	18,727	19,529
Indexation	15,097	18,181	20,694	21,746	22,358
Closing value of RAB	652,534	804,336	854,166	888,571	902,893

**Table 8.6** Commission’s draft decision on the rolled forward value of the RAB—Wastewater (\$000s, nominal)

	2008–09	2009–10	2010–11	2011–12	2012–13
Opening RAB	494,816	553,900	567,315	580,848	595,545
Depreciation adjustment					
Capital expenditure (net of capital contributions)	58,623	12,921	13,240	14,616	14,427
Disposals/assets written off	–	–	–	–	–
Depreciation	12,643	13,514	14,055	14,623	15,214
Indexation	13,103	14,009	14,348	14,704	15,069
Closing value of RAB	553,900	567,315	580,848	595,545	609,826



## 9 Return on capital

The return on capital is the financial return that investors seek when considering and assessing an investment decision and represents the largest proportion of the building block revenue requirement.

In determining an appropriate rate of return on capital, the regulator's focus is on granting a return sufficient to create the incentive for the regulated business to undertake efficient investment in the distribution network. The rate of return on capital should represent the opportunity cost of capital to the regulated business—that is, the return the regulated business could have earned had it invested in alternative investments with the same level of risk. In addition, the rate of return granted to the regulated business should ensure the regulated business's financial integrity.

Return on capital issues have been debated at length by other regulators and regulatory precedents have been established in a number of areas. Further, a number of the issues raised by ACTEW have recently been considered by the Victorian Essential Services Commission (ESC) in its recent draft decision on the Victorian Gas Access Arrangements.<sup>35</sup> In arriving at this draft decision, the Commission has taken into account the discussions and views presented by other regulators, including in particular the ESC.

The Commission's decision on the appropriate level of the return on capital is guided by the TOR and the ICRC Act. Section 5 d of the TOR requires that the Commission should have regard to:

an appropriate allowance for a cost of capital that ensures optimal incentives to invest and to manage the potential risks and costs to the community of under-funding, and under-investment in, infrastructure services.

In addition, the ICRC Act section 20(A)(d) states that the Commission must have regard to:

an appropriate rate of return on any investment in the regulated industry.

The Commission produced a discussion paper in March 2007 devoted to the return on capital.<sup>36</sup> This paper provided a thorough discussion of possible approaches to determining the WACC. ACTEW's submission and supporting documents presented ACTEW's case for the determination of the WACC. The Commission's Working Conclusions paper did not fully prescribe the Commission's approach to the WACC but laid the framework the Commission will apply in the draft decision.

### 9.1 Methodology for determining the WACC

The weighted average cost of capital (WACC) represents the weighted average of the returns to debt and equity. The weights are given by the relative shares of debt and equity in financing the business. The proportion of debt financing is often referred to as the 'level of gearing' of the business.

The WACC calculation is affected by the tax regime, and must take into account the level of tax paid by the business and the influence of the imputation system that operates in Australia. Under

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<sup>35</sup> ESC, *Gas Access Arrangements: Draft Decision*, October, 2007.

<sup>36</sup> ICRC, *Water and wastewater discussion paper 2—Return on capital*, March 2007.

an imputation system, tax paid by the business can be credited against tax owed at the shareholder level. That is, the tax paid by the business is imputed to the shareholder, to avoid the distributed profits of the business being taxed twice.

In past reviews, the Commission has calculated a nominal pre-tax estimate of the WACC and then adjusted this for the expected level of inflation to determine a real pre-tax WACC using the Fisher equation.

The nominal pre-tax WACC is calculated using the following formula:

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

where:

- $R_e$  is the required return to equity holders
- $R_d$  is the required return to debt holders
- $E$  is the value of equity
- $D$  is the value of debt
- $V$  is value of debt plus equity ( $D + E$ )
- $t$  is the tax rate
- $\gamma$  (gamma) is the value of imputation credits.<sup>37</sup>

Thus, the cost of capital is estimated as a weighted average of the return to debt and the return to equity, where the return to equity has been adjusted to take into account the availability of imputation credits in Australia.

The return to debt ( $R_d$ ) is normally calculated by adding a debt margin to the risk-free market rate:

$$R_d = R_f + DM$$

where:

- $R_f$  is the risk-free market rate
- $DM$  is the debt margin.

The return to equity ( $R_e$ ) is normally calculated by applying the capital asset pricing model (CAPM). This model is widely used and understood by the finance community and industry, and is consistent with the methodology used by virtually every jurisdictional regulator in Australia.

The CAPM is most commonly calculated using the following formula:

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

where:

- $\beta_e$  (equity beta) is a measure of the correlation between a business's risk and that of the overall market

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<sup>37</sup> See Officer, RR 1994 'The Cost of Capital of a Company under an Imputation Tax System', *Accounting and Finance*, May 1994, pp. 1–17. This equation appears as Equation 5 on page 5 of the article.

- $R_m$  is the market rate of return and thus  $(R_m - R_f)$  or the market risk premium is the return over the risk free rate that investors would expect in order to invest in a well-diversified portfolio of equities.

While the risk-free rate is generally observable in the market, the market risk premium  $(R_m - R_f)$  generally reflects the long-term returns on equity in the market. The equity beta (the degree of riskiness of the business relative to the market as a whole) can itself be calculated in various ways.

Once the nominal pre-tax WACC has been calculated, it can be converted into a real pre-tax WACC using the Fisher equation. This conversion is undertaken in two steps. First, the consumer price index (CPI) is calculated by way of the Fisher equation:

$$CPI = \frac{(1 + R_f)}{(1 + RealR_f)} - 1$$

where:

- $CPI$  is the consumer price index
- $RealR_f$  is the real risk-free rate.

Second, the nominal WACC is converted into a real WACC:

$$RealWACC = \frac{1 + Nominal WACC}{1 + CPI} - 1$$

The variables that must be determined in order to apply the WACC equations fall into two groups. The first group are the ‘exogenous’ variables: that is, variables determined by available market data. These variables include:

- $t$ —tax rate
- $R_f$ —risk-free market rate
- $Real R_f$ —real risk-free rate
- $DM$ —debt margin.

The Commission classifies these variables as ‘exogenous’ because they are determined by factors outside the discretion of the decision-making process. That is, in the Commission’s opinion there are reasonable and generally accepted means of determining the appropriate value to apply for these variables on the basis of market data.

For the second group of variables, actual market data is not readily available or there is debate regarding how the value of the variable should be determined. In this situation, the Commission must make a decision regarding the value of the variable to be adopted. These variables include:

- $D$  (debt) and  $E$  (equity)—the level of gearing
- $\gamma$  (gamma)—the value of imputation credits
- $\beta_e$  (equity beta)—the correlation between a business’s risk and that of the overall market
- $R_m - R_f$ —the market risk premium.

## 9.2 Working conclusions decisions

The working conclusions report did not specify a determination for the WACC. However, the Commission did make several conclusions on aspects of the WACC calculation. These conclusions are to:

- use a pre-tax WACC;
- base the WACC on a typical firm analysis;
- maintain the gearing at 60:40;
- determine the risk-free rate using a hypothetical 10-year Treasury Fixed Coupon Bond;
- determine the real risk-free rate using a hypothetical 10-year Treasury Capital Indexed Bond;
- calculate the implied CPI using the Fisher equation applied to the risk-free rate and real risk-free rate; and
- consider all possible sources of data to determine the debt margin.

In addition, the Commission indicated that it would examine the issue raised by ACTEW that there may be bias in the determination of the risk-free rates (nominal and real).

The working conclusions report left open the Commission's determination of the values of the gamma, equity beta and market risk premium parameters that enter into the determination of the WACC. The Commission also needs to select the tax rate that is to apply in the pre-tax calculation of the WACC.

### 9.2.1 Submissions on working conclusions report

ACTEW's submission on the Working Conclusions paper expressed disappointment that the Commission did not reach a conclusion on most of the parameter that comprise the WACC. ACTEW stated:

The failure to present its working conclusions on this matter hinders ACTEW's ability to respond to and inform the Commission's assessment of this very important issue.<sup>38</sup>

## 9.3 Determining the WACC parameters

In this section, the Commission sets out its reasons and analysis of each of the input parameters used to determine the WACC.

ACTEW's submission proposed a significant increase in the WACC applied to water and wastewater assets from that decided by the Commission in its 2004. In the 2004 review, the Commission decided upon a WACC of 7.0%. In comparison, for this review, ACTEW has proposed applying a nominal pre-tax WACC of 8.42%. Table 9.1 details ACTEW's proposed values for each WACC parameter and the values determined by the Commission in the 2004 price determination.

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<sup>38</sup> ACTEW WC submission, p. 6.

**Table 9.1** Weighted average cost of capital and input parameters, ACTEW’s proposal and 2004 price determination

Parameter	ACTEW proposed values	2004 price determination values
Risk-free rate	5.87%	5.62%
CPI	3.17%	2.17%
Real risk-free rate	2.62%	3.38%
Market risk premium	7.0%	6.0%
Debt margin	1.30%	1.245%
Gearing	60%	60%
Gamma	0	0.50
Tax rate	30%	30%
Equity beta	1.05	0.90
WACC (pre-tax real)	8.42%	7.0%

Source: ACTEW submission, page 200, ICRC 2004a, p. 64.

The Commission needs to set a date for the determination of the WACC parameters that are calculated from observable market data. For the draft decision the Commission has chosen 19 October 2007 as the final day for the observation of market data. The Commission also needs to select a day for the determination of the WACC for the final decision. The Commission intends to release the final decision on 11 April 2008. Given this expected release date the Commission intends to use 21 March 2008 as the cut-off date for the determination of the WACC for the final decision.

### 9.3.1 Risk-free rate, real risk-free rate and the CPI

In the working conclusions report the Commission signalled that it intended to calculate the risk-free rate as the yield on a hypothetical Treasury Fixed Coupon Bond with a 10-year maturity. A hypothetical bond is used because bonds are issued irregularly; it is unlikely that a bond with exactly 10 years to maturity will be issued on the day the WACC is calculated. The Commission calculates the yield on a hypothetical bond with a maturity of 10 years from the day the WACC is calculated by linearly interpolating the yield of the two Treasury Fixed Coupon Bonds (TFCB) with maturities closest to either side of 10 years. In Discussion Paper No 2, the Commission indicated that it would interpolate the risk-free rate from the TFCBs due to mature in February 2017 and March 2019. These are the TFCBs with maturity dates closest to April 2018—10 years from the expected date of the final determination. The Commission uses the yield on the Treasury Fixed Coupon Bonds published by the Reserve Bank of Australia (RBA) and available on its website.<sup>39</sup> To reduce the variability that may be experienced due to short-term fluctuations in yields, the Commission has adopted an average of yields for the 20 business days up to the day the WACC is calculated.

In the working conclusions report the Commission indicated that it would consider the issue raised by ACTEW in their submission of July 2007 that there is bias in the determination of the risk-free rate and the real risk-free rate. In support of this claim ACTEW submitted a report by NERA on this issue.<sup>40</sup> The NERA report argues that government bond rates are poor proxy for the true risk free rate used in CAPM to determine the cost of equity. To support this position they contend that there has been a recent reduction in the supply of government bonds (both nominal and indexed)

<sup>39</sup> [www.rba.gov.au/Statistics/indicative.html](http://www.rba.gov.au/Statistics/indicative.html)

<sup>40</sup> NERA Economic Consulting, Bias in indexed CGS yields as a proxy for the CAPM risk free rate: A report for the ENA, March 2007.

and an increased demand for indexed government bonds. Additionally, they contend that there is bias in indexed bonds relative to nominal government bonds, which is discussed in the next section.

To calculate the return on debt and the return on equity, an estimate of the risk free rate of return is required. In principle, the benchmark risk-free rate used should reflect the yield on a risk-free instrument. Typically, the yield on a suitable government security is used as a proxy.

In addition to the risk free rate, the real risk free rate is required in the calculation of the forecast CPI. The real risk free rate is calculated on the same day as the risk free rate and is determined using the yields on Treasury Capital Indexed Bonds (TCIB). TCIBs are adjusted for inflation and therefore represent the return on a risk-free investment.

To ensure that the yields for the risk free rate and real risk free rate are comparable, it is necessary to create a hypothetical real risk free bond with a maturity date equal to that of the hypothetical risk free bond. Thus, in Discussion Paper No 2, the Commission indicated that a hypothetical 10 year real risk free rate would be calculated by interpolating the yield using the TCIBs with maturities of August 2015 and August 2020. A 20 day average of the yields published by the RBA would be used to minimise the influence of short term fluctuations.

With the risk free rate and real risk rate determined, the implied forward-looking CPI can be calculated using the Fisher equation:

$$CPI = \frac{(1 + R_f)}{(1 + RealR_f)} - 1$$

The implied CPI is used to convert the nominal WACC into a real WACC in accordance with the following formula:

$$RealWACC = \frac{1 + Nominal WACC}{1 + CPI} - 1$$

### ***ACTEW's submission***

In its submission, ACTEW noted recent analysis by the RBA that suggested that the yield on both indexed and nominal Commonwealth Government Securities (CGS) is a downward biased estimate of the true CAPM risk free rate. ACTEW pointed to analysis undertaken by the RBA and, in particular, Hird and Grundy to state that:

- Since 1999, the supply of CGS has dramatically reduced to historically low levels. The speed of this reduction has been particularly accelerated for indexed CGS due to the Commonwealth Government's policy not to issue any more indexed CGS. As a result, the yields on indexed CGS have fallen dramatically while the yields on nominal CGS have remained relatively constant. The implication of this is that the difference in yields between nominal and indexed CGS overestimated inflationary expectations.
- The analysis of Hird and Grundy suggested that the nominal risk free rate is in excess of 50bp above the nominal CGS yield and expected inflation is at least 20bp less than implied by application of the 'Fisher equation' difference in nominal and indexed CGS yields.

ACTEW was clear that it did not propose for the Commission to make such adjustments for the Draft Decision. However, it proposed that this evidence be taken into account when dealing with uncertainty in other WACC parameters. In particular, ACTEW stated that:

Where there is a range of possible values for the CAPM parameter, such as equity beta, the Hird and Grundy work should make the Commission more inclined to choose from the top of the range.<sup>41</sup>

A downward bias in the yields on TCIBs while the yields on TCFBs remained relatively constant would result in an over-estimation of the implied CPI. That is, the denominator in the Fisher equation would be downward-biased resulting in an upwardly-biased estimate of CPI. Following the equations through, over-estimation of the CPI would result in an under-estimation of the real WACC and thus an under-estimation of the return on capital.

### ***Draft decision on the risk free rate, real risk-free rate and the CPI***

The Commission intends to continue with the approach detailed above and prescribed in the Working Conclusions paper for determining the risk-free rate, the real risk-free rate and the CPI as parameters in the WACC determination. This does not imply that the Commission is unconcerned about potential biases in the risk-free rate and the real risk-free rate. The Commission's intention is to continue to examine this issue and to seek submissions from interested parties. The Commission is also aware that the Australian Energy Regulator in association with the Energy Regulators' Forum is also investigating this issue.

The Commission notes that the issue of whether there is a downward-bias in the yields on inflation-indexed bonds has been discussed and analysed at length by the ESC.<sup>42</sup> In particular, in its recent Draft Decision on the Victorian distributors' Gas Access Arrangements, the ESC accepted that there was:

... evidence to suggest that the implied yields on real government bonds do not currently provide an unbiased estimate of the real risk-free rate.<sup>43</sup>

The ESC's solution given it believed it could not rely on the observed yields on indexed CGS, was to observe the yields on 10 year nominal bonds to derive the nominal risk free rate and adjust the observed yields for forecast inflation to determine the real risk free rate. The forecast of inflation used is 3% which is the top of the RBA's target range for inflation.

The Commission is not convinced that this is a reasonable approach to adopt for determining the WACC. This approach substitutes a parameter whose value is determined through market forces, the real risk-free rate, for an arbitrarily determined CPI and a real risk-free rate calculated using the Fisher equation.

In the Commission's 2004 final decision the calculated CPI through the Fisher equation was 2.17%. If the Commission had adjusted the CPI to 2.5% the WACC would have fallen to 6.65% from the 7.0% the Commission granted and if the Commission had adopted a 3% CPI then the WACC would have been 6.14%. ACTEW would not have accepted an arbitrary determination of the CPI at 3% at that time. Both the risk-free rate and the real risk-free rate are currently

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<sup>41</sup> ACTEW Corporation, *Submission: Investigation into Prices for Water and Wastewater Services in the ACT*, 31 July 2007, p. 179

<sup>42</sup> The ESC gave consideration to this issue in its Electricity Distribution Price Review 2001–05, the Electricity Distribution Price Review 2006–12 and its recent Draft Decision on Victorian Distribution Gas Access Arrangements 2008-12.

<sup>43</sup> ESC 2007 Gas Access Arrangements: Draft Decision, p. 381

determined from traded government securities and market forces determine the resulting rates. The Commission is aware that globally financial markets have been affected by subprime mortgage crisis in the United States. This has also had an effect on the returns to corporate bonds which has consequently resulted in an increase in the debt margin. The Commission’s view is that additional research needs to be performed to determine the extent of the bias in government securities, if it exists, and the best means to factor this into the determination of the WACC.

The Commission does not accept that this downward bias should be addressed by making compensatory adjustments in the values of the other WACC parameters as ACTEW suggested. This would be arbitrary and, as set out in the Working Conclusions paper, the Commission could end up overcompensating for a small bias if it accepted higher values for the other parameters for this reason only. In the Commission’s view, the downward bias that appears to exist in the yields of indexed CGS should be corrected in the methodology used to determine the real risk free rate.

### 9.3.2 Equity beta ( $\beta_e$ )

The equity beta reflects the level of non-diversifiable risk associated with a particular asset relative to the non-diversifiable risk associated with a well-diversified portfolio of assets. Thus, the beta indicates the degree at which a business’s risk correlates with the risk of the market portfolio. The lower the equity beta the less volatile the share price compared to the market portfolio.

The value of the equity beta has a considerable effect on the final value of the WACC. Table 9.2 demonstrates how the value of the equity beta can affect the value of the WACC.

Table 9.2 Effect of the equity beta on the value of the WACC

Equity beta	0.0	0.5	0.9	1.0	1.5
WACC	4.5%	5.9%	7.0%	7.3%	8.6%

For firms listed on the stock exchange, equity betas are normally calculated by analysing the returns of the particular stock relative to the returns of the market over a designated period of time.

However, for unlisted businesses like ACTEW, the equity beta cannot be directly estimated using this method and a proxy must be developed.

One approach is to base the equity beta on that of a comparable listed business, or the average equity beta of a range of comparable businesses. It may be necessary to adjust the value of the equity beta derived in this manner for differences in the gearing levels of the comparable businesses relative to those of the unlisted business because the level of gearing affects the riskiness of a business’s returns to equity holders. With higher debt levels, a higher proportion of the earnings of a business must be assigned to debt payments and thus increases the risk that equity holders will not receive a return on their investment.

The process of adjusting the equity beta for differences in the gearing level is referred to as the ‘de/re-levering’ process. This process determines an asset beta (a beta without debt financing) for the comparable businesses (de-levering), which is then re-levered with a benchmark gearing level to obtain a comparable equity beta for the regulated firm. Regulators have typically assumed a benchmark gearing level of 60:40 to re-lever the asset beta.

As discussed in Discussion Paper 2, regulators have used a range of approaches to determining the equity beta.

IPART estimated a value for the equity beta based on its judgement of a range of relevant issues, including risk relative to that of comparable listed companies, risk relative to that of other regulated industries and evidence from overseas. IPART also considered whether retail water businesses face differing risk profiles to other regulated businesses, such as electricity and gas businesses but concluded that there was no evidence to suggest that this was the case. In its 2006 review of water prices for Gosford and Wyong Shires IPART estimated a range for the equity beta of 0.8 to 1.0.

The ESC determined a value for the equity beta for Victorian water businesses of 0.75 but did not adopt any specific method to determine this value. The ESC determined the value after considering a range of matters, including:

- the submissions from the regulated water businesses;
- capital market data from Australian energy infrastructure businesses;
- capital market data from listed water companies in the United States and United Kingdom;
- the relative risk of water businesses compared to energy businesses; and
- recent regulatory decisions.

The ERA in Western Australia appeared to place weight on the precedents set by other regulators. While the ERA provided values for the asset beta and debt beta, it is unclear whether these were used to calculate the equity beta or adopted for completeness subsequent to the decision regarding the equity beta.

In its 2004 decision on ACTEW's water and wastewater prices, the Commission did not de-lever a comparable business. Instead, it calculated an equity beta of 0.9 based on an estimated asset beta of 0.4 and an estimated debt beta of 0.06.

### ***ACTEW's submission***

In its submission, ACTEW noted the work of Fama and French who developed a three-factor model. This model suggests that firm size and the book-to-market ratio are more important determinants of the proxy equity beta than the historical proxy equity betas. ACTEW states that Fama and French's work suggests that the smaller a firm and/or the higher the book to market (BTM) ratio, the higher the return investors require before investing in that firm.

Moreover, if one attempts to explain historical returns relying only on a single 'equity beta' factor, then the most accurate assumption is that the equity beta is 1.0. That is, if one ignores firm size and BTM ratio then assuming an equity beta of one will more accurately explain historical returns than assuming an equity beta equal to the firm's historical proxy beta.<sup>44</sup>

ACTEW also referred to analysis undertaken by NERA which suggested that applying the Fama and French three-factor model would involve an increment to ACTEW's required equity returns of 340bp.

... taking account of size and book to market ratio suggests that, other things constant, ACTEW's cost of equity will be 3.4% greater than the average for the market. In a CAPM only framework

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<sup>44</sup> ACTEW Corporation, *Submission: Investigation into Prices for Water and Wastewater Services in the ACT*, 31 July 2007, p. 192.

with an MRP of 6%, an increment of 0.57 would have to be added to the equity beta to achieve the same effect.<sup>45</sup>

ACTEW concluded that the Commission should give weight to the Fama and French model by either:

- making an explicit adjustment to the required return on equity of between 2.7% and 5.4% as per NERA's analysis, or
- exercising caution in setting the equity beta.<sup>46</sup>

ACTEW also referred to analysis undertaken by the Strategic Finance Group (SFG). SFG advised ACTEW that the empirical evidence suggested that an appropriate equity beta estimate was in the order of 0.89 to 1.24 for a water business with 60% gearing. However, ACTEW noted that:

The top-end of this range stems from the less reliable five year estimate while the Vasicek estimate, which has been shown to historically outperform other estimation techniques supports an equity beta estimate in the range of 0.94 to 1.05.<sup>47</sup>

Relying on the results of the research undertaken by Fama and French and NERA to suggest that caution should be exercised in setting the equity beta, ACTEW chose a value for the equity beta at the top end of the range estimated using the Vasicek methodology—1.05.

ACTEW recognised that 1.05 was higher than the average equity beta of Australian firms (which is 1.0). However, ACTEW also pointed out that the higher equity beta reflected the effect of relatively high levels of assumed gearing (60%) on the riskiness of ACTEW's equity.

Replacing equity with debt concentrates the underlying risk of the business in a smaller number of shareholders. This increases the volatility of returns and therefore the risk attached to equity ... the assumed level of gearing (60%) more than doubles ACTEW's equity beta relative to a zero level of gearing ... at the same time as assuming that businesses are 'loaded up' with relatively cheap debt, it is unreasonable not to account fully for the impact of this assumption on the implied riskiness of equity.<sup>48</sup>

ACTEW also noted SFG's findings that there was no statistically significant difference in historical proxy betas for water and energy utilities. In ACTEW's opinion, SFG's findings were:

... consistent with a priori expectations as all of these utilities operate under similar regulatory regimes, are exposed to similar variations in demand and compete for similarly skilled staff.

ACTEW also noted that this was a view expressed by the Commission in its 2004 water decision.

In its 2004 decision, the Commission expressed the view that it was not unreasonable for the same asset beta to be applied to ActewAGL's electricity assets and ACTEW's water and wastewater assets. In particular, it noted that:

In the past, there has been a general view amongst practitioners that asset betas in the water industry are less than those in energy industries such as natural gas and electricity ... However, recent droughts, the imposition of restrictions on water use, greater trends towards pay-for-use

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<sup>45</sup> NERA 2007 as quoted by ACTEW, p. 193.

<sup>46</sup> ACTEW Corporation, *Submission: Investigation into Prices for Water and Wastewater Services in the ACT*, 31 July 2007, p. 193

<sup>47</sup> ACTEW Corporation, *Submission: Investigation into Prices for Water and Wastewater Services in the ACT*, 31 July 2007, p. 191

<sup>48</sup> ACTEW Corporation, *Submission: Investigation into Prices for Water and Wastewater Services in the ACT*, 31 July 2007, p. 194

pricing, and the emergence of environmental issues, together mean that the water industry may not be as immune to movements in the general economy and volatility in returns as has previously been the case.<sup>49</sup>

### ***Draft Decision on the equity beta***

In determining ACTEW's WACC for the next regulatory period, the Commission has applied an equity beta of 0.9.

In deciding upon an equity beta of 0.9, the Commission has given consideration to:

- regulatory precedents, including the approach and decisions it took in the last water price review and
- certainty and the current market within which ACTEW operates, particularly the continuing drought and increasing concerns about the sustainability of water resources.

Recent regulatory decisions have suggested that there is an emerging trend among regulators to adopt lower values of the equity betas. For example, the ESCV in its recent draft decision on the gas access arrangements of the Victoria distributors (2007) set an equity beta of 0.7.

In this review, however, the Commission must establish a value of the equity beta that is reasonable for a water and wastewater utility.

The Commission notes that the ESCV (2005) set a value of the equity beta for Victorian water businesses of 0.75. IPART (2006) established a range for the equity beta of 0.8 to 1.0.

The Commission has decided to maintain an equity beta of 0.9 as it is concerned to create an environment that is stable and predictable.

### **9.3.3 Equity (market risk) premium ( $R_m - R_f$ )**

The market risk premium (MRP) is defined as the difference between the return on the market portfolio and the return on the risk free rate. The MRP enters into the calculation of the WACC through the determination of the return on equity, which is given by the CAPM formula (see section 9.1).

#### ***ACTEW's submission***

In its submission, ACTEW proposed that the market risk premium be increased to 7% from the 6% the Commission decided on in the previous review.

Justification for this increase was based on two arguments. First, ACTEW cited a table from IPART's 2006 water decisions which contained estimates of the market risk premium from a number of sources. ACTEW pointed out that the average of these estimates was approximately 7%.

The second argument put forward by ACTEW was that there was an inverse relationship between the risk free rate (as given by the yields on government securities) and the market risk premium. If the risk free rate falls, then the market risk premium should rise. ACTEW argued that with:

- bias in CGS yields as a proxy for the true CAPM risk free rate at historically high levels, and

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<sup>49</sup> ICRC 2004, p. 93

- current yields on CGS (both nominal and indexed) at historically low levels

investors would require excess returns to be even higher.

### **Discussion**

The Commission has carefully considered ACTEW's proposal including the data provided in IPART's 2006 water decisions. However, the Commission notes that in its recent draft decision on the Victorian Gas Access Arrangements, the ESC cited analysis undertaken by Brailsford, Handley and Maheswaran that contended that the quality of the data used to estimate the equity premium declines as the length of the period used in its estimation increases.<sup>50</sup> In particular, the ESC noted that Brailsford et al considered that there were sufficient deficiencies in data quality prior to 1958 to warrant any estimates based thereon to be treated with caution.

Brailsford et al concluded that:

the historical equity risk premium in Australia is substantially lower than prior studies otherwise suggest. Further, the results are at the lower end of the continued presence of an equity premium in the (often quoted) 6–8% range.<sup>51</sup>

The results of Brailsford et al's analysis imply that most of the estimates set out in the IPART table are questionable as 7 out of the 9 estimates rely on measurement periods with a commencing date prior to 1958. The two remaining estimates are by AGSM which produced arithmetic averages of the MRP using the period 1974 to 2003. Using this period, AGSM estimated the MRP at 5.8% including data from October 1987 and 7.1% excluding data from October 1987.

Both of the AGSM estimates are calculated using an arithmetic average. There is extensive debate in the academic literature on whether an arithmetic or geometric average should be used when calculating the MRP. For example, Capital Research<sup>52</sup> and the South Australian Centre for Economic Studies<sup>53</sup> (SACES) have suggested that measuring the equity premium over the longest period using an arithmetic average would overstate the expected MRP. In their discussions, Capital Research and SACES considered that more weight should be placed upon more recent observations as the market has changed substantially and that geometric means should be used to interpret past data and then adjusted to an equivalent arithmetic mean in order to avoid bias.

The ESC also highlighted market observations undertaken by AMP Capital Investors that suggested that a reasonable estimate of the MRP over the next ten years was 3.8% or between 4.8% and 5.3% if imputation credits were fully valued.

... a current estimate of the expected equity premium in Australia over the next ten years is approximately 3.8 per cent per annum. AMP Capital suggests that an attribution of value to imputation credits would increase the expected equity premium to within the range of 4.8 per cent to 5.3 per cent per annum (implying a value of imputation credits at close to full value).<sup>54</sup>

In relation to ACTEW's second argument, as discussed in section 9.3.1, the Commission believes it is more appropriate to correct for any bias in the yields on CGS in the setting of the risk free rate rather than make an offsetting adjustment to the other parameter values of the WACC.

<sup>50</sup> Brailsford, T., J. Handley and K Maheswaran, A re-examination of the historical equity risk premium in Australia, 1 August, Working Paper, UQ Business School and Department of Finance University of Melbourne, 2006.

<sup>51</sup> Brailsford et al 2006, p. 23.

<sup>52</sup> Capital Research Ltd, *Australian Market Risk Premium*, January 2005.

<sup>53</sup> South Australian Centre for Economic Studies, *The Market Risk Premium for Australian Regulatory Decisions*, 28 April 2005.

<sup>54</sup> ESC 2007, p. 403

### ***Draft decision on the market risk premium***

ACTEW has proposed a relatively high value for the market risk premium of 7%. In contrast, recent research by AMP Capital suggests that a reasonable estimate of the market risk premium over the next ten years is much lower and between 4.8 to 5.3%.

Despite these estimates, the Commission concurs with the view of the ESC that a reasonable value of the MRP lies somewhere in the middle of these two opposing estimates. The Commission considers that, consistent with the decision it took at the last price review, a market risk premium of 6% is appropriate.

### **9.3.4 Debt margin**

The debt margin is the margin above the nominal risk-free rate that a business must pay to secure debt financing. Intuitively, a business must pay a premium above the risk-free rate to compensate the lender for the probability of default. The debt margin a business pays depends on the perceived riskiness of the business, with low-risk businesses able to secure debt financing at a cheaper rate than more risky businesses.

For the purposes of obtaining debt financing, the riskiness of a business is often determined by credit rating agencies such as Standard and Poor's, Moody's or Fitch Ratings. These agencies typically base their credit ratings on an analysis of the relevant business's financial records, the industry in which the business operates and the prospects of the business.

There are two approaches that can be used to determine the credit rating of a regulated business. The regulator can adopt a benchmark credit rating that it considers appropriate for the regulated business in question. Typically, regulators adopt a credit rating of BBB, BBB+ or A. The alternative approach is to establish the debt margin based on credit rating of the business as determined by financial modelling that takes into account the outcomes of the regulatory review. Regulators, including the Commission, have typically adopted a benchmark credit rating to estimate the debt margin.

Once the credit rating of the business is determined, the debt margin is obtained from market data, generally from sources such as CBASpectrum or Bloomberg.

In addition to the debt margin, regulators often make an allowance for debt-raising costs. This allowance covers the transactions costs associated with raising debt.

In its water and wastewater price determination in March 2004, the Commission granted a total debt margin of 1.245%. This was based on a benchmark credit rating of BBB+ and consisted of a 1.12% debt margin plus 0.125% allowance for debt-raising costs.

#### ***ACTEW's submission***

ACTEW has sought a debt margin of 1.30% which includes:

- the CBASpectrum spread for a BBB+ rated entity of 92 bps
- a bias in the CBASpectrum estimates of 25 bps
- debt raising costs of 12.5 bps

In relation to the CBASpectrum bias, ACTEW noted that there was a presumption amongst Australian regulators that CBA Spectrum underestimated the true cost of debt for long dated and

low rated corporate bonds. As a result, ACTEW proposed that if CBASpectrum continued to be used by the Commission then a 25bp increment be added to its estimate.

In support of its submission, ACTEW submitted a paper by Hird and Grundy prepared for the Energy Networks Association in 2005 and which was submitted to the ESVC's electricity distribution price review of that year. ACTEW stated that this report:

... definitively demonstrated the existence of this bias and a number of regulators have since ceased using CBASpectrum outputs or have made an adjustment to correct for this bias.<sup>55</sup>

ACTEW did not comment extensively on debt-raising costs. It noted that there was strong regulatory precedent for credit ratings of BBB+ and debt raising costs of 12.5bp.<sup>56</sup>

### ***Draft Decision on the debt premium and debt raising costs***

In relation to the debt premium and the CBA bias, the Commission notes this issue was considered by the ESC in its final decision on the electricity distribution price review. The ESC undertook its own analysis of the accuracy of the CBASpectrum and found that:

... the CBASpectrum yields were likely to understate bond yields by a material amount. In particular, that the average understatement for all bonds with a remaining term of 8 to 10 years was found to be 18 basis points ...<sup>57</sup>

While CBASpectrum has revised its methodology since 2005,<sup>58</sup> the ESC noted in its recent draft decision on the Victorian Gas Access Arrangements that the Bloomberg predicted yields provided a statistically unbiased yield prediction. As a result, it used Bloomberg data to calculate the debt margin. The Commission concurs with this decision and will use the Bloomberg predicted yields to calculate the debt margin. The Commission will continue to use 12.5 bps as an allowance for debt raising costs which the Commission adopted in its 2004 price direction.

### **9.3.5 Equity raising costs**

Equity raising costs refer to the transaction-related costs associated with raising the equity financed portion of a firm's capital expenditure.

These costs will depend upon the form of equity finance raised. Equity raised through the issue of new shares is more expensive than equity obtained from retained earnings or dividend re-investment plans where the costs would be close to zero.

#### ***ACTEW's submission***

In its submission, ACTEW noted that regulators have declined to provide compensation for equity raising costs on the grounds that these costs were primarily incurred in the past and that future earning can be met out of retained earnings.<sup>59</sup>

ACTEW stated that this was not a well thought through argument supporting this statement and noted that the entire regulated RAB represents a cost that has been incurred in the past but for which the regulatory framework provides a fair return. ACTEW saw little reason why equity

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<sup>55</sup> ACTEW, p. 181.

<sup>56</sup> ACTEW, p. 182

<sup>57</sup> ESC 2005 Electricity Distribution Price Review, Volume 1: Statement of Purpose and Reasons, p. 368.

<sup>58</sup> Commonwealth Research 2006 What Makes the New CBASpectrum Tick? Credit Research—Qualitative Strategy, 6 September.

<sup>59</sup> ACTEW, p. 184

raising costs should not be recovered in a similar manner just because equity raising costs do not reflect ‘physical assets’.<sup>60</sup>

The ESCV discussed equity raising costs in its determination on the Electricity Distribution Price Review 2006–10. The Commission concurs with the views expressed by the ESCV in this review that:

... once raised, equity is perpetual, and so it is not correct to imply ... that there is a continuing transaction cost ... from raising equity.<sup>61</sup>

The Commission also notes that, unlike debt raising costs, a business has an option over whether it incurs equity raising costs. If investment is financed through retained earnings rather than the issuance of new shares, the little or no additional costs are incurred.

### ***Draft Decision on equity raising costs***

The Commission has made no allowance for equity raising costs.

### **9.3.6 Imputation credits**

Australia introduced an imputation taxation regime on 1 July 1987. Under an imputation system, profits of companies are taxed only once, as shareholders who receive dividends are able to claim credits for any tax paid at the company level. This differs from a classical taxation regime where profits are taxed fully at the company level before being taxed again in the hands of the shareholders. In essence, an imputation system reduces a company’s tax burden as any tax paid by the company is imputed to the shareholder.

Imputation credits affect the calculation of the post-tax required return to equity and are symbolised by gamma ( $\gamma$ ). The required return is altered as investors who receive a tax credit will accept a lower return compared with an investor who receives no tax credit. As such, it is necessary to account for the impact of the imputation system on the business’s return on equity. The necessary adjustment to the return on equity to account for the introduction of an imputation system was identified by Officer (1994).<sup>62</sup> The calculation of the return on equity developed by Officer is that generally employed by Australian regulators.

The value of gamma can range between zero and one and is calculated as<sup>63</sup>:

$$\gamma = U \times \frac{IC}{Tax}$$

where U represents the weighted average of investors utilisation rate of imputation credits, IC equals the imputation credits assigned to the business during a period, and tax is the amount of tax paid by the business during the period. For example, the value of gamma for a business with profits of \$100, who paid \$30 tax and received imputation credits of \$30, would simply be the utilisation rate U, as IC/Tax would equal one.

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<sup>60</sup> ACTEW, p. 184

<sup>61</sup> ESCV 2005, p. 382

<sup>62</sup> Officer, R. R., *The cost of capital of a company under an imputation tax system*, Accounting and Finance May 1994 pp. 1–18.

<sup>63</sup> Lally, M., *Regulation and the cost of equity capital in Australia*, Journal of Law and Financial Management—Volume 2, No. 1, November 2003, p. 30.

A value of gamma of zero signifies that any franked distributions by the business were unable to be utilised by shareholders whereas a value of one indicates franked distributions could be fully utilised by shareholders. Imputation credits can only be utilised by those who are classified as Australian resident for taxation purposes.

The value of gamma has a significant effect on the final calculation of the WACC. In the Commission's 2004 price determination, a value for gamma of 0.5 was adopted which led to a final WACC of 7.0%. However, had zero been adopted and the remaining parameters remained unchanged, the final WACC would have been 8.1%. This compares to a WACC of 6.2% had a gamma of one been selected and the remaining parameters left unchanged. Given the significance of gamma, there has been much debate over its value.

### ***ACTEW's submission***

In its submission, ACTEW argued that the empirical evidence suggests that gamma was close to zero. However, if the Commission set a value of gamma greater than 0.5, then internal consistency dictated that the MRP be set greater than 6%.<sup>64</sup>

In support of its submission, ACTEW submitted a report by Professor Stephen Gray of the Strategic Finance Group (SFG).

One of Professor Gray's conclusions is that a value of 0.5 for the gamma is based on older, dated dividend drop-off studies, and that newer studies and studies using alternative methodologies recommend lower values of gamma. In particular, Professor Gray noted that the regulatory precedence for using a gamma of 0.5 was based on work undertaken by Hathaway and Officer in 1992. However, Hathaway and Officer revised their paper in 2004 and concluded that the appropriate value of gamma was 0.35.

Professor Gray states that regulators have re-interpreted the results of newer drop-off studies, including Hathaway and Officer (2004), to support maintenance of the regulatory precedent based on earlier studies.

One of the reasons for the decline in the estimate of gamma to 0.35 in Hathaway and Officer (2004) is a decline in the estimate of the proportion of franking credits that are distributed by the average firm. In their 2004 analysis, Hathaway and Officer found that 71% of company tax payments are distributed as imputation credits and they note that this payout ratio is very similar to the dividend payout ratio of listed Australian companies.<sup>65</sup>

While the Commission notes these results, it also recognises that Hathaway and Officer (2004) make it clear that they have developed their revised estimate of gamma using all Australian companies.<sup>66</sup> In contrast, what the Commission must do is establish a reasonable estimate of gamma for a typical water and wastewater utility.

Utilities typically have much higher dividend payout ratios than the average Australian firm and thus would typically distribute more of their franking credits than the average Australian firm. The

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<sup>64</sup> ACTEW p. 188

<sup>65</sup> Hathaway, N & B. Officer 2004 The Value of Imputation Tax Credits: Update 2004, Capital Research, November, p. 4.

<sup>66</sup> Hathaway, N & B. Officer 2004 The Value of Imputation Tax Credits: Update 2004, Capital Research, November, p. 7.

Commission notes that research undertaken by the Productivity Commission indicates that ACTEW's dividend payout ratio in 2005–06 was 100%.<sup>67</sup>

The ESC also examined the relevance of the Hathaway and Officer (2004) analysis in its Electricity Distribution Price Review 2006–10 and found that the revised Hathaway and Officer analysis did not necessarily provide strong grounds for the ESC to vary its previous estimate of the gamma of 0.5. In particular, the ESC noted that:

... the value [of the distribution rate] that was used [by Hathaway and Officer] was an average over the period since the introduction of dividend imputation, and the most recent values are very close to 80 per cent [rather than the 71% assumed by Hathaway and Officer].<sup>68</sup>

The ESC also noted that Hathaway and Officer's revised analysis was based on an average over all Australia firms and that the dividend yields of the listed and predominantly regulated Australian entities (such as GasNet and Envestra) were about twice (and sometimes more than) the average.

Another conclusion that Professor Gray makes is that if a gamma of 0.5 is used, then internal consistency required that the regulator set a value of the MRP higher than 6%.

The issue of consistency in the value of the parameters was discussed at length in the ESC's Electricity Distribution Price Review 2006–10. On reviewing Professor Gray's analysis, the ESC noted that Professor Gray assumed an effective tax rate of 30%. However, it also noted that:

... other information provided to this review would suggest that if economic income were indeed 12 per cent as SFG assumes, then it would be expected that the rate of tax paid as a proportion of economic income would be substantially less than 30 per cent. This information would imply that SFG has overstated substantially the average return that investors receive from franking credits.<sup>69</sup>

### ***Draft Decision on Gamma***

In a forthcoming paper to be published in the *Economic Record*, Handley and Maheswaran measure the rate at which imputation credits are claimed.<sup>70</sup> They determine from Australian Taxation Office data the percentage of imputation credits claimed against personal income tax liabilities. Handley and Maheswaran find that 81% of imputation credits issued over the period 2001 to 2004 were claimed against income tax liabilities. If 71% of company tax payments were distributed as imputation credits as reported by Hathaway and Officer this implies a gamma of .575. Clearly, typical Australian businesses are issuing imputation credits and Australian taxpayers are claiming these as tax credits.

Beggs and Skeels in a paper published in the *Economic Record* in 2006 examined the dividend drop-off rate for Australian businesses over the period 1986 to 2004.<sup>71</sup> One interesting result that they find is that the changes in the tax system in 2000 resulted in an increase in the value of imputation credits to investors. They state:

This final result, combined with the conclusions from Section (i), has an important practical interpretation. It suggests that the most recent tax regime change, that finally allowed a tax rebate

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<sup>67</sup> Productivity Commission 2007 Financial Performance of Government Trading Enterprises 2004–05 to 2005–06, Commission Research Paper, Canberra, July.

<sup>68</sup> ESC 2005, Electricity Distribution Price Review 2006–10: Statement of Purpose and Reasons, p. 411.

<sup>69</sup> ESC 2005, Electricity Distribution Price Review 2006–10: Statement of Purpose and Reasons, p. 406.

<sup>70</sup> Handley and Maheswaran, 2007

<sup>71</sup> Beggs and Skeels, 2006

on unused franking credits, significantly increased the value of franking credits to the marginal investor.<sup>72</sup>

Given the Handley and Maheswaran evidence and the Beggs and Skeels observation that the 2000 tax changes have had an impact on investor's returns, the Commission finds it difficult to accept a value of gamma at zero. Therefore Commission has adopted a gamma of 0.5 in deciding ACTEW's revenue requirement.

### 9.3.7 Gearing ratio

The proportion of debt to equity is referred to as the level of gearing of the business.

Theoretically in the calculation of the WACC, the level of gearing should be based on the current market value of debt relative to equity of the business being considered.<sup>73</sup> In practice, difficulties arise, particularly for a business such as ACTEW that is not publicly traded on the stock exchange. In such a case it is difficult to determine accurately the current market value of equity given that it is normally calculated as the current market price of ordinary shares multiplied by the number of shares.

To overcome these difficulties of determining the actual level of gearing of a regulated business, the convention has become to adopt a 'benchmark' gearing ratio. This has the added benefit of ensuring that regulated businesses are incentivised to arrive at the most efficient capital structure.

Regulatory precedent is for a 60/40 gearing ratio to be adopted and ACTEW has supported this approach in its submission. In the absence of views to the contrary, the Commission has adopted this ratio in this draft decision.

### 9.3.8 Taxation

The tax rate ( $t$ ) represents the rate of tax paid by the business on profits. The Commission has two choices when choosing the appropriate methodology for determining a tax rate to apply in the WACC calculation. The Commission could adopt the statutory tax rate or the Commission could model or estimate the effective tax rate. Regulators in Australia who have adopted a pre-tax WACC have generally used the statutory tax rate. The ACCC/AER have employed a post-tax WACC in their various electricity and gas determinations and subsequently calculate an effective tax rate as part of their modelling of efficient projected tax liabilities. The ESC has also adopted a post-tax WACC.

The current statutory company tax rate in Australia is 30%. However, it may be the case that the regulated business's effective tax rate is different from the statutory tax rate. In general, the effective tax rate will be lower than the statutory tax rate. This may occur due to tax concessions such as the treatment of accelerated depreciation. Determining an effective tax rate is typically done by modelling the expected revenues, costs and other activities of the business that affect the amount of tax to be paid by the business. However, the modelling of the effective tax rate can be an information intensive exercise and the possibility of an information asymmetry exists. The business clearly has better information about its tax liabilities than the regulator.

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<sup>72</sup> Beggs and Skeels, p. 249.

<sup>73</sup> Brealey, R., Myers, S., Partington, G., Robinson, D. *Principles of Corporate Finance*, 1<sup>st</sup> Australian Edition, Reprinted 2005, pp. 565–567. Chapter 19 (pp. 561–604) of this text provides a discussion of the calculation of the WACC under a range of different scenarios.

In its Discussion Paper No. 2, the Commission took the view that in the absence of evidence to the contrary the Commission would continue to use the statutory tax rate of 30% as this is consistent with a pre-tax real WACC of the form previously adopted by the Commission.

ACTEW did not comment on the tax rate used to determine the real pre-tax WACC.

***Draft Decision on tax rate***

The Commission has used the statutory tax rate to determine the real pre-tax WACC.

**9.4 Monte Carlo simulations**

While not explicitly suggesting that the Commission should rely on Monte Carlo simulations to determine the values of the WACC parameters, ACTEW has used Monte Carlo simulations to support its proposed WACC of 8.42% as entirely reasonable. ACTEW also noted that:

Monte Carlo simulations provide the Commission with a proper basis for exercising regulatory judgement. This distribution can be used to set a regulatory WACC to provide a regulated entity with an x% chance that the regulated rate of return exceeds the entity’s true cost of funds.<sup>74</sup>

Monte Carlo simulations derive a probability distribution for the output of a calculation by repeatedly sampling values from the probability distribution for each input into the calculation. Thus, in terms of the WACC, a probability distribution for the value of the WACC can be calculated by repeatedly sampling values from the probability distribution for each input used to calculate the WACC.

Monte Carlo simulations undertaken by Professor Stephen Gray from Strategic Finance Group and presented by ACTEW in its submission produced the values of the real pre-tax WACC at each percentile of the probability distribution (see Table 9.3).

Table 9.3 Real pre-tax WACC distribution percentiles

Percentile	10th	20th	30th	40th	50th	60th	70th	75th	80th	90th
Value (%)	7.62	7.77	7.89	8.00	8.12	8.24	8.37	8.43	8.50	8.70

Source: SFG 2007 reproduced by ACTEW 2007, p. 201

According to ACTEW, given the severe consequences of setting the WACC too low:

... one could reasonably expect a WACC at the 75th percentile ... to be chosen, giving a value of 8.43%. Relative to this value, ACTEW believes its proposed WACC of 8.42% is entirely reasonable.<sup>75</sup>

Monte Carlo simulations are a relatively new phenomenon in Australian utility regulation. To the best of the Commission’s knowledge, few if any regulatory decisions on regulated entities’ required revenues have employed Monte Carlo techniques to determine the return on capital.

The Commission concurs with the views of the ESC on the application of Monte Carlo techniques to the determination of the return on capital:

<sup>74</sup> ACTEW Corporation, *Submission: Investigation into Prices for Water and Wastewater Services in the ACT*, 31 July 2007, p. 201

<sup>75</sup> ACTEW, p. 201.

The application of the Monte-Carlo methodology actually requires more subjective judgement than the determination of point estimates for CAPM parameters and the WACC. As there are no statistical sampling distributions for the CAPM parameters, the specification of parameters relies on the exercise of subjective judgement on expected values, ranges and probability distributions for each of the parameters, and the methodology is subject to manipulation in this specification ... As there is more subjective judgement involved in use of the Monte Carlo methodology than in simply determining best estimates of parameters applied in estimation of the rate of return, use of the methodology to determine a rate of return estimate would tend to make regulatory determinations more uncertain.<sup>76</sup>

Further, the Commission does not believe that ACTEW has provided sufficient evidence to support its proposal that the 75th simulation percentile should be used.

For these reasons, the Commission does not believe it can place a significant amount of weight on the results of Professor Gray’s analysis. As in past reviews, the Commission will be focusing on estimating reasonable values for each of the inputs required to determine the WACC. However, it notes ACTEW’s views about the support Professor Gray’s analysis gives ACTEW’s estimate of the WACC.

## 9.5 Draft decision

The Commission has used the parameters set out in Table 9.4 to calculate the appropriate rate of return for ACTEW to earn on its investment in the water and wastewater network in the ACT. The parameters were chosen after consideration of the submissions received, and a review of recent regulatory decisions and recent movements in capital markets. They include reflect the risk-free rate, the real risk-free rate and the debt margin measured as at 2 November 2007.

Based upon these parameters, the pre-tax real WACC calculated by the Commission is 6.55 percent.

**Table 9.4** Parameters used by the commission in the weighted average cost of capital calculation

Parameter	Value
Risk-free rate	6.187%
CPI	3.405%
Real risk-free rate	2.682%
Market risk premium	6.0%
Debt margin	1.705%
Gearing	60%
Gamma	0.50
Tax rate	30%
Equity beta	0.90
<b>WACC (pre-tax real)</b>	<b>6.55%</b>

<sup>76</sup> ESC 2007, p. 377

# 10 Form of price control and total revenue

## 10.1 Introduction

The previous four chapters have compiled the information necessary to determine efficient building block costs for water and wastewater services. This chapter explains how the Commission will translate those efficient building block costs into prices for water and wastewater services as part of this price review. The discussion on the structure of tariffs and the Commission's proposed draft decision prices are contained in the next chapter. Finally, the Commission's decisions on efficient building block costs are compiled in this chapter.

An additional issue that needs to be examined is how to treat unanticipated costs in the next regulatory period. In the current regulatory period the Commission maintained a year-by-year pass-through mechanism that allowed for unanticipated costs to be recovered in the following year. The Commission's view is that the pass-through mechanism should complement the approach to setting prices.

This chapter addresses the issue of the form of price control, that is, the manner in which the Commission translates building block costs into the revenue requirement and ultimately prices. This chapter also brings together the building block costs developed in the previous four chapters in a consolidated format. Additionally, ACTEW has requested a pass-through of \$35 million (in 2008–09 dollars) for costs incurred in during the current regulatory period that were not anticipated at the time of the final decision in March 2004. These costs are evaluated and the magnitude of the costs to be passed through is reported.

The form of regulation encompasses several decisions. All of these decisions were discussed in the first discussion paper released in November 2006.<sup>77</sup>

## 10.2 Form of price control

As indicated in Discussion Paper 1, the Commission has adopted a 'cost building block' approach to calculate the efficient levels of costs which will become the notional or total revenue requirement for ACTEW. Under the building block approach the total revenue requirement for a particular year is typically expressed as:

$$\text{Total revenue requirement} = \text{efficient operating costs} + \text{return on capital} + \text{return of capital}$$

These building blocks are generated by the Commission's decisions on the WACC, forecast demand, forecast efficient operating expenditure and forecast efficient capital expenditure. However, for the purposes of this draft decision an additional three items were required in the building blocks:

- costs associated with the Water Abstraction Charge (WAC)
- costs associated with the Network Facilities Tax (NFT)
- the pass-through of costs from the current regulatory period.

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<sup>77</sup> ICRC, *Water and Wastewater Discussion Paper 1: Technical Regulatory Issues*, Report 14 of 2006, November 2006.

Each of these items has been addressed above in Chapter 6.

This section addresses the requirement in the ICRC Act when making a price direction and the requirements listed in the TOR the Commission received in February 2007. The TOR requires the Commission to:

examine all regulatory models available to it under subsection 20A(1) of the Act, and report on the various costs and benefits to ACTEW, the territory and the community under each approach.

Subsection 20A(1) of the Act provides that a price direction must include a direction about pricing in the form of either or both of (a) a price, a maximum price or both a minimum price and a maximum price, or (b) a maximum total amount of revenue (a revenue cap) that may be earned.

The Commission's first discussion paper released in November 2006 discussed in detail the possible options for determining the form of regulation under the Act available to the Commission.<sup>78</sup> The Commission views that there is a series of decisions that needs to be made when determining the form of regulation. The primary decision, which is directly applicable to subsection 20A(1) of the Act and consequently the TOR, is whether to set prices in advance for the term of the regulatory period or to set a maximum allowable revenue for the duration of the price direction and set rules for how prices are set every year. The decision that follows directly from the primary decision is how to design the annual price setting rules consistent with the option that has been chosen. Finally, the related decision of whether to make an adjustment after the regulatory period for over or under collection of revenue needs to be made.

These decisions allow for a wide variety of regulatory outcomes. One possible outcome is for prices in real terms to be determined by the Commission for the duration of the regulatory period with no option for revenue adjustment at the end on the regulatory period. Alternatively, a pure revenue cap could be employed with prices determined every year and an unders/overs account to ensure that the regulated business earns exactly the predetermined amount of revenue for the regulatory period.

In its price determination for the current regulatory period, the Commission adopted an average revenue approach to set tariffs annually. This implied that tariffs would need to be set each year to generate a revenue stream consistent with the revenue cap determined in advance by the Commission. At the time of the previous review, the Commission considered that the average revenue approach would provide an appropriate balance of risk between ACTEW and customers and, at the same time, provide incentives for ACTEW to reduce costs and provide services in response to customer demand.<sup>79</sup> In the price direction that operated from 1 July 1999 to 30 June 2004, the Commission also adopted an average revenue approach.

### 10.2.1 ACTEW proposal

ACTEW has proposed broadly to maintain the existing price control arrangements, but to make a number of amendments to provide it with more tariff flexibility and certainty regarding cost recovery. In particular, ACTEW has sought agreement to a proposal whereby it effectively sets the individual tariffs within the revenue cap set by the Commission. The current price control uses a Maximum Allowable Average Revenue (MAAR) per customer approach whereby the MAAR is

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<sup>78</sup> ICRC, *Water and Wastewater Discussion Paper 1: Technical Regulatory Issues*, Report 14 of 2006, November 2006.

<sup>79</sup> ICRC, *Draft Report and Draft Price Direction: Investigation into Prices for Water and Wastewater Services in the ACT*, Report 16 of 2003, December 2003, p. 130.

adjusted annually in real terms by the X factor set by the Commission. A separate MAAR applies for water and wastewater. Prior to the commencement of each year (that is, 1 July), the number of customers and usage is forecast for the following year by ACTEW in conjunction with the Commission, and prices adjusted to ensure that the Forecast Average Revenue (FAR) (prices times forecast demand, divided by the forecast number of customers) does not exceed the MAAR. ACTEW's proposal can be summarised as:<sup>80</sup>

- to continue to apply the X factor on a MAAR per customer basis, with the ability for ACTEW to determine specific prices and tariff structures from year to year subject to the MAAR and X factor constraint;
- the X factor to be based on a smoothed revenue stream with a constant X factor in each year of the regulatory period. However ACTEW indicated that it may be acceptable for the X factor to be higher in the initial years of the period if this was necessary to smooth out and 'saw tooth' effect from prices rising and falling on a year to year basis;
- prices be set annually on an annual basis without the Commission's input using a mutually agreed 'expected demand' (rather than average demand) forecasting model;
- the Commission monitors usage during the period against the ACTEW forecast; and
- an adjustment be applied to revenue in the subsequent regulatory period if total usage is +/- 10% from that forecast for the 2008–09 to 2012–13 period

## 10.2.2 Working Conclusions paper

In the Working Conclusions Paper the Commission suggested that the following eight objectives of the form of price control should include:

- ensuring that the regulated business has the opportunity to recover total efficient costs;
- providing incentives for the regulated business to reduce costs;
- promoting the conservation of water;
- ensuring that individual tariffs are cost reflective, that cross-subsidisation is eliminated, and that appropriate signals are provided to customers;
- minimising opportunities for regulatory 'gaming';
- minimising the regulatory burden for the regulator and regulated business;
- providing an appropriate level of regulatory certainty for the business; and
- providing customers with a high level of transparency and certainty regarding tariff structures and prices.

The Working Conclusions paper noted some of the positive aspects of the existing arrangements but expressed concern with matters including:

- the potential for prices to fluctuate on a year to year basis, both as a result of cost and revenue pass-through items but also due to variability in sales volumes and
- the resource intensive nature of the annual reset process.

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<sup>80</sup> ACTEW Corporation, *Submission: Investigation into Prices for Water and Wastewater Services in the ACT*, 31 July 2007, pp. 61–72.

The Working Conclusions paper concluded that there are strong benefits from establishing a price control mechanism that ensures the tariff structure remains unchanged across the regulatory period. It then raised two options for the form of price control:

- a modified version of the current approach whereby prices are reset on an annual basis with a catch up mechanism at the end of the regulatory period if revenue falls outside of a defined band. This is essentially the approach proposed by ACTEW.
- an approach whereby the Commission establishes all prices (in real terms) for the entire regulatory period—a ‘price cap’—again with significant variations in revenue from forecasts dealt with via a form of catch-up mechanism at the end of the regulatory period.

In response to the Working Conclusions paper ACTEW reiterated its preference for an annual setting of tariffs using an average revenue cap. ACTEW suggested that establishing prices in advance at the start of the price review period increases the risk of divergence between costs and revenue. ACTEW reiterated its preference that it should have flexibility in setting all components of the price structure. According to ACTEW this approach can provide economic, social and environmental benefits by allowing the price structure to respond to changes in circumstances as they arise. For example, revised estimates of the level of indoor water use could be incorporated in the level of the price step threshold.<sup>81</sup>

The Commission’s position expressed in the first discussion paper was to adopt some form of revenue cap and reject setting prices in advance. The primary reason given for this point of view was that a predetermined price path would be inappropriate, given the length of time over which forecasts would be required and the possible deviation between expected and actual revenues that may occur. The Commission has had the opportunity to re-evaluate this position given the price-reset process for the current year conducted in March and April of 2007 and the demand forecasting exercise currently being conducted by Breusch/Letcher.

### **10.2.3 Discussion and draft decision**

As discussed above there are a variety of decisions that need to be made in determining the form of price control.

#### ***Revenue cap, price caps and the annual price reset***

The primary decision that needs to be made is whether the Commission should continue with the existing revenue cap, with prices adjusted on an annual basis based on updated demand forecasts, or move to an alternative form of price control such where the Commission sets the real prices for the duration of the regulatory period. This is a decision that the Commission must make under the ICRC Act and the Commission is required to address under the TOR as described above.

The Commission has identified eight objectives that the form of regulation should satisfy. These objectives are listed in section 10.2.2. It is the Commission’s view that setting prices in advance coupled with a revenue catch-up at the end of the regulatory period provides ACTEW with the ability to recover the efficient costs of running the businesses. Additionally, this form of regulation provided sufficient incentives for the business to reduce costs. These results are also true for the revenue cap approach. One of the concerns expressed both by the Commission and ACTEW regarding annual price resets based on updated usage forecasts has been the difficulty associated with reaching agreement on the forecasts. In an attempt to address this issue ACTEW

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<sup>81</sup> Source from ACTEW submission

Commissioned Dr Rebecca Letcher and Professor Trevor Breusch from the ANU to develop a rigorous model that would provide an improved ability to forecast demand. ACTEW had proposed that the Commission and ACTEW would agree to use this model, and then the annual demand forecast would be generated by the model, hence avoiding debate on the model's outcomes.

The model has now been prepared and consistent with standard academic practice it is currently being peer reviewed.

The Commission is satisfied that the model that has been developed provides a good ex post 'fit' between the explanatory variables and usage. These explanatory variables include evaporation, the level of restrictions, and usage in the previous 12 months. However, the difficulty with using the model to forecast usage is that agreement needs to be reached on the level of restrictions and evaporation over the forthcoming 12 months in order that they can be fed into model. This is a non-trivial exercise and requires the exercise of some judgement. There are no independent forecasts of evaporation, for example, which the ACTEW and the Commission could agree to use.

Therefore, while the Letcher/Breusch work has improved both ACTEW and the Commission's understanding of the drivers of usage, it is not clear that this work enables the resource-intensive nature of agreeing forecasts as part of an annual review to be avoided.

ACTEW's concerns about setting prices in advance for five years centre on the difficulty in forecasting the level of demand and especially the likelihood of restrictions five years in advance. This would, according to ACTEW, result in a weakening of price signals in the event of scarcity.<sup>82</sup> The Commission accepts that this is major drawback of setting prices for five years. However, the Commission notes that the Breusch/Letcher report finds that price has had little historical impact on demand; thus, very large price increases would be necessary to significantly reduce demand. If price has little impact on the level of demand then scarcity pricing is unlikely to be a reasonable pricing approach. Thus, setting prices in advance is not in conflict with scarcity pricing

Finally, the Commission believes there is a significant benefit to consumers from providing some degree of certainty going forward. The volumetric price for water has tripled over the past 5 years. This was not envisaged at the time of the last price review. Water customers have certainly responded to the changes in the availability of water and their ability to use water for outdoor uses. Many customers have responded to water restrictions by changing the type of garden they have or by moving to more efficient means of watering their outdoor spaces. Providing customers with certainty reaffirms these decisions and also provides water customers with the information to make sensible economic decision about their future investments in water saving devices and fixtures.

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<sup>82</sup> ACTEW, response to WC, p. 10.

### *Changes to tariff structure*

The final aspect of the form of price control upon which the Commission must decide is ACTEW's ability to amend the structure of tariffs during the regulatory period. ACTEW has noted that it wishes to be able to do so in order to respond to changes in circumstances as they arise. However, there is no guarantee that this will occur and in any case there is much debate over the economic, social and environmental benefits of different tariff structures.<sup>83</sup> Making the 'correct' response to changes in circumstances is not a straightforward task and involves consideration of a number of, often competing, efficiency and equity matters. Further, as noted in the Working Conclusions paper:

- if the price structure was to change on a regular basis, this may hamper customers' understanding of prices and therefore their ability to respond to price signals;
- it is not clear that ACTEW should be unilaterally responsible for making decisions on matters which will directly impact welfare; and
- the structure of water tariffs is a matter of significant public interest and debate. It is far more desirable for the structure to be determined through an open and consultative process which draws on broad community input and debate, such as this price determination.

The Commission therefore reaffirms the position set out in the Working Conclusions paper and its draft decision is that the tariff structure should remain unchanged across the regulatory period.

## **10.3 Cost pass-throughs**

However, the Commission agrees that a mechanism needs to be developed to ensure that ACTEW is not unnecessarily exposed to the risk of actual revenue deviating from forecasts. As noted above, the Commission has permitted changes in certain costs to be passed through to consumers during the current regulatory period. The rationale for permitting cost pass-throughs is that they reduce the cost risk faced by the regulated business, thus reducing overall costs to customers in the long term. This imitates the workings of a reasonably competitive market where costs will be able to be passed directly through to customers in the short term.

However, cost pass-throughs increase regulatory costs and reduce certainty regarding prices. Therefore it is clearly in the interests of regulated businesses and their customers that pass-through items be limited to material and clearly defined events so that:

- regulated businesses have an incentive to minimise the long-term impact of changes in costs—hence pass-throughs should be limited to 'uncontrollable' items
- administrative costs for businesses and the regulator (for example, in determining whether a pass-through event has occurred and the magnitude of any pass-through event) are not unreasonable
- customers have as much certainty as possible regarding future prices.

Pass-throughs are currently permitted in respect of the following events:

- a change in taxes—some taxes such as income taxes, stamp duty and debits taxes are excluded from pass-through
- an act of terrorism

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<sup>83</sup> This is evidenced by the divergent views on tariff structures set out in Chapter 11 of this draft decision

- a major natural disaster—such as floods or fires
- a subvention payment event—the Commonwealth government currently provides approximately \$10 million per year to ACTEW to operate the water and wastewater system. If this amount changes in real terms then ACTEW is entitled to seek a pass-through.
- a service standard event
- an augmentation event.

A materiality threshold of \$1.5 million per annum currently applies and pass-throughs occur on an annual basis.

### 10.3.1 ACTEW proposal

ACTEW has proposed that the existing pass-through events be retained, with the following amendments:

- a recasting of the change in taxes event to clarify that taxes levied by the ACT Government can be passed through to customers.
- a recasting of the existing augmentation event as a water shortage event
- the introduction of a contingent project mechanism. Under this approach, certain projects which are unknown either in terms of need or cost (for example, water supply augmentation projects) would be ‘approved’ as part of the price direction, but their costs would not be included in tariffs. Once a trigger event occurred, the project(s) would be resubmitted to the Commission for an efficiency and prudence review, and cost-recovery arrangements would be agreed.
- the introduction of a deadband mechanism which provides for a pass-through of water supply operating costs if they are outside the range of plus or minus 10% from forecast.

### 10.3.2 Working Conclusions paper

In the Working Conclusions paper the Commission noted that the existing yearly pass-through process can lead to significant and unanticipated fluctuations in prices from year to year, particularly where costs pass-throughs relate to one-off operating cost items. It also noted that the annual review process creates substantial additional costs for ACTEW and the Commission, but time constraints may not permit pass-throughs to be subject to a rigorous prudence/efficiency evaluation. This can create a situation where there is limited transparency in the price setting process.<sup>84</sup>

The Commission therefore indicated a preference for an approach where most pass-through items are aggregated across the regulatory period and recovered through prices in the subsequent regulatory period. The exception to this would be costs imposed by the ACT government for policy reasons—such as changes in the WAC—where it may be appropriate for these costs to be passed through on an annual basis.

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<sup>84</sup> While the Commission released an information paper on the 2006–07 price reset it did not do so for other years.

### 10.3.3 Timing of pass-throughs

In its response to the Working Conclusions paper ACTEW did not address the issue of the timing of pass-throughs.

Having considered the matter further, the Commission remains of the view that requiring most cost pass-throughs to take place at the end of the regulatory period will reduce regulatory costs and result in less fluctuation in prices on a year-to-year basis.

The Commission therefore proposes that cost pass-throughs be aggregated across the first four years of the regulatory period and considered in determining prices for the next regulatory period. Cost pass-throughs that arise in the final year of the regulatory period will need to be dealt with at the subsequent price review.

In relation to changes in the level of the WAC the Commission believes that as this item is an instrument of government policy directly related to the volume of water abstracted, increases or decreases in the level of this charge should be able to be passed through on an annual basis. While this is inconsistent with the Commission's view that there should be stability in prices over the regulatory period, the Commission accepts that the level of the WAC is a policy decision for the ACT Government and passing through changes in the WAC on an annual basis gives the Government the capability to influence the price of water if the Government wishes to do so. All other government taxes and charges will pass-through at the end of the regulatory period including the NFT.

For the purpose of the draft decision the Commission will adopt a pass-through of 1.1 cents for each kilolitre in the price of water for every 1 cent per kilolitre increase in the WAC, which will apply to all water sold and will be rounded to the nearest cent. The government's submission to the ICRC has indicated that the WAC will be set at 51 cents per kilolitre abstracted as on 1 July 2008.<sup>85</sup> The Commission has decided that it will not pass-through changes in the NFT on an annual basis due to the fact that rate of the NFT applies to all network infrastructure, including the electricity, gas and telephone networks in the ACT, and as such is not a useful instrument for demand management for water and wastewater pricing. Pass-through of changes to the NFT, either increases or decreases, will apply at the end of the regulatory period.

### 10.3.4 Pass-through items

The sections below discuss ACTEW's proposed amendments to the cost pass-through items.

#### *Change in taxes event*

In respect of ACTEW's suggestion to change the definition of the change in taxes event, the Commission agrees that it would be desirable to clarify that taxes and other imposts imposed by the ACT government can be passed through by ACTEW. The wording of the current pass-through mechanism—'relevant taxes' as levied by 'any authority of the Commonwealth of Australia' is not clear on this point. Additional Government taxes or other government-imposed imposts, over which ACTEW has no control, should be able to be passed through regardless of whether they are levied by the Commonwealth or ACT Government. The Commission proposes to amend the wording of the mechanism such that 'relevant taxes' are defined as follows (additional words are underlined):

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<sup>85</sup> ACT Government, *Submission to the Independent Competition and Regulatory Commission inquiry into water and wastewater pricing, 2008-09 to 2012-13*, 30 November 2007.

Relevant taxes are any tax, rate, duty, charge of levy or other like or analogous impost that is imposed by or payable directly or indirectly by ACTEW to any authority of the Commonwealth of Australia or the government of the ACT, including goods and services tax but excluding ...

### ***Augmentation event***

The augmentation event permits ACTEW to pass through certain costs where it is required to fund or contribute to funding a major augmentation to ACTEW's water supply that was not foreseen at the time of the previous price direction. ACTEW has argued that the terms 'required to fund or contribute to the funding' and 'major augmentation' are vague and unduly limiting and do not cater for the circumstance where other arrangements (eg demand management measures) may better deal with supply shortages. ACTEW has therefore proposed that the augmentation event be replaced with a 'water shortage event' defined as follows:

A water shortage event is when dam levels fall below [xx] per cent of capacity, or additional operating or capital expenditure is necessary to provide water supply security in the long-term interests of consumers in the ACT.

ACTEW has proposed that where a water shortage event occurs the price direction would allow ACTEW to seek approval from the Commission for operating or capital expenditure to secure the ACT's water supplies for the immediate to medium term future. This is capital and operating expenditure above and beyond the amount envisaged in the phase 1 water security measures.

The Commission agrees with ACTEW that the definition of augmentation event may be unduly limiting and that ACTEW should be able to pass through any materially higher costs required to address unanticipated water shortages. However the Commission notes that ACTEW has not proposed the level of capacity at which dam levels would trigger such an event and the Commission is not convinced that a trigger level is helpful in defining the event in any case. The Commission therefore proposes to change the 'augmentation event' to 'water shortage' event defined as follows:

A water shortage event occurs where ACTEW is required to undertake additional actions and incur materially higher expenditure on ensuring the security of supply of water to its customers than was envisaged in this price determination. This includes:

- undertaking prudent capital works or incurring prudent increased operating expenditure associated with a new supply source
- undertaking additional demand management activities over and above those assumed in this price determination
- any other activities (e.g. water carting) required to ensure supply security which were not assumed in this price determination

Consistent with the discussion in relation to water supply operating costs below, this mechanism does not relate to changes in operating expenditure associated with existing supply sources.

### ***Contingent project mechanism***

ACTEW has proposed that certain projects which are unknown either in terms of need or cost (for example, water supply augmentation projects) would be 'approved' as part of the price direction, but their costs would not be included in tariffs. Once a trigger event occurred, the project(s) would be resubmitted to the Commission for an efficiency and prudence review, and cost-recovery arrangements would be agreed.

The Commission sees few benefits either for ACTEW or customers in such a mechanism and notes that it is simply likely to add additional regulatory costs associated with resubmission and review of the projects during the regulatory period. Except for the uncertainty about spillway upgrade costs at Corin and Bendora Dams, which the Commission has removed from ACTEW's capital expenditure plan, there are few major projects where costs are significantly uncertain. The exception to this is in relation to security of supply projects, which are dealt with via the augmentation event above.

The Commission's draft decision is therefore not to accept ACTEW's proposal to include a contingent project mechanism.

### ***Water supply operating costs***

ACTEW has proposed a mechanism which provides for a pass-through of water supply operating costs if they are outside the range of plus or minus 10% from forecast. According to ACTEW this will address the situation where, depending on inflows and usage, different supply/demand scenarios will have different operating costs. ACTEW has indicated that the relationship between water supply and operating costs is significantly more uncertain than at previous regulatory reviews.

While the Commission notes ACTEW's concerns, it does not support ACTEW's proposal for a specific adjustment mechanism. A mechanism of this nature creates a number of definitional difficulties, including:

- identifying which costs are to be considered 'water supply costs'
- identifying the change in those costs that are attributable to changes in volumes supplied and supply sources and not other factors.

The Commission also believes that such a mechanism may also have the effect of diminishing ACTEW's incentives to make appropriate trade offs between maximising supply and minimising costs. An important principle of risk sharing is that risks are usually best borne by the party that can best manage the impact of that risk. The Commission accepts that ACTEW has limited ability to manage the impact of certain factors—for example some taxes—and thus it is appropriate for changes in these taxes to be passed through to customers. However, ACTEW makes decisions regarding water supply sources, water quality and costs on a day-to-day basis and is best placed to consider and manage these risks and costs rather than pass them to customers.

Further, the Commission considers that the pass-through arrangements in place, including the revenue pass-through mechanism proposed below, already remove a substantial amount of cost and revenue risk from ACTEW and transfer it to customers.

### **10.3.5 Materiality threshold**

A materiality threshold of \$1.5 million currently applies to individual pass-through events on an annual basis. This threshold is designed to protect the integrity of incentive based regulation and ensure that regulatory resources are not tied up in considering pass-throughs for relatively immaterial sums of money.

Given the Commission's proposal above to consider pass-throughs only at the end of the regulatory period, all pass-throughs can be considered as part of the price determination process and resources will not need to be devoted to the task during the regulatory period. The

Commission therefore considers it is appropriate to reduce the materiality threshold for individual pass-throughs items to \$1 million per event per year across the regulatory period.

## 10.4 Revenue pass-throughs

As noted above, the Commission has elected to establish prices (in real terms) for the entire regulatory period, based on forecasts of expenditure and demand.

As ACTEW has pointed out, setting prices in advance increases the risk that there will be a divergence between forecasts and actual outcomes, particularly in relation to revenue. In order to reduce this risk, the Commission intends to introduce a deadband mechanism to protect both ACTEW and consumers from the risk that revenue falls outside this range. Under this deadband mechanism, if revenue from all water and wastewater charges (including sales to Queanbeyan but excluding miscellaneous services) falls outside a range of  $\pm 10\%$  from that established in this price determination then the difference will be recouped/offset against prices in the next regulatory period in the same way that pass-throughs are.

This mechanism is identical to the one adopted by IPART in its recent review of prices for Sydney Water, Hunter Water and Sydney Catchment Authority.<sup>86</sup> Its features include:

- consumption risk within the deadband rests with ACTEW, while consumption outside the band rests with customers;
- customers have relative certainty over prices during the regulatory period;
- the regulatory costs associated with making adjustments to prices during the regulatory period are avoided; and
- ‘over and under’ recoveries during the period will offset each other.

The Commission considers that a 10% deadband represents an appropriate balancing of risks between ACTEW and its customers. A lower deadband transfers too much risk to customers while a higher deadband leaves too much risk with ACTEW, particularly given the regulatory period will be 5 years long.

In its response to the Working Conclusions paper ACTEW has argued that difficulties in forecasting demand over a five year period may result in the assumption that there is a low risk of restrictions and hence that ACTEW is more likely to under than over-recover revenue as a result of any forecast error. The deadband mechanism is essentially asymmetric under these circumstances. The Commission has considered this view is proposing an adjustment to forecast volumes to account for the potential asymmetry. This is an issue the Commission intends to explore in greater detail in the final decision. The nature of demand forecasting should enable an appropriate forecast to be developed such that over a 5 year period the probability of the forecasts being exceeded are approximately equal to the probability of the forecasts being too high. The issue is whether to use the mean or the median forecast. The mean is forecast is the expected average forecast, while the median forecast would be the forecast where the probabilities of being above or below the forecast are equal. To compensate for the bias the Commission will adjust the MMA demand forecasts by subtracting 3% from the forecast.

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<sup>86</sup> IPART, Final Report Prices of Water Supply, Wastewater and Stormwater Services for Sydney Water Corporation, Hunter Water Corporation and Sydney Catchment Authority, September 2005 pp. 23–24.

In terms of the operation of the deadband mechanism, the Commission proposes that the mechanism apply to:

- the aggregate difference between actual and forecast revenue over the first 4 years of the regulatory period, plus
- the difference between forecast revenue in the final year of the regulatory period and an estimate of revenue in the final year of the regulatory period.

Any difference between actual and forecast revenue for the final year of the regulatory period that will fall outside the deadband range can be carried through to the next regulatory period.

## 10.5 Building block costs

Tables 10.1 and 10.2 provide a summary of the build-up of the revenue requirement as proposed by ACTEW.

**Table 10.1 ACTEW's proposed building blocks—(water, \$000s, nominal)**

	2008–09	2009–10	2010–11	2011–12	2012–13
Operating costs	51,948	50,961	52,898	54,221	58,001
Return of capital (depreciation)	13,242	13,862	15,206	15,895	17,068
Return on regulated asset base	47,138	51,385	54,950	57,922	60,954
Pass-through of additional costs incurred in previous period	35,757	—	—	—	—
<b>Total</b>	<b>148,085</b>	<b>116,208</b>	<b>123,055</b>	<b>128,038</b>	<b>135,663</b>

**Table 10.2 ACTEW's proposed building blocks—wastewater, (\$000s, nominal)**

	2008–09	2009–10	2010–11	2011–12	2012–13
Operating costs	47,497	51,593	52,741	55,979	59,471
Return of capital (depreciation)	11,508	12,773	13,309	13,863	14,454
Return on regulated asset base	44,228	47,532	48,794	50,117	51,478
<b>Total</b>	<b>103,233</b>	<b>111,898</b>	<b>114,843</b>	<b>119,959</b>	<b>125,404</b>

Having reviewed and made decisions on the various cost components, as outlined in the previous chapters, the Commission has used the cost building blocks set out in tables 10.3 and 10.4 to determine ACTEW's total revenue requirement for its water and wastewater businesses over the next regulatory period.

**Table 10.3 Revenue requirement, Draft Decision—water, (\$000s, nominal)**

	2008–09	2009–10	2010–11	2011–12	2012–13
Operating costs	50,493	49,457	51,935	52,827	55,586
Return of capital (depreciation)	13,501	15,761	17,678	18,727	19,529
Return on regulated asset base	39,541	47,712	54,316	57,075	58,670
Pass-through of additional costs incurred in previous period	35,757	—	—	—	—
Water Abstraction Charge and Network Facilities Tax	30,740	32,973	34,134	34,571	34,684
<b>Total</b>	<b>170,033</b>	<b>145,903</b>	<b>158,063</b>	<b>163,200</b>	<b>168,470</b>

**Table 10.4 Revenue requirement, Draft Decision—wastewater, (\$000s, nominal)**

	2008–09	2009–10	2010–11	2011–12	2012–13
Operating costs including Network Facilities Tax	46,699	49,900	50,714	53,470	56,554
Return of capital (depreciation)	12,643	13,514	14,055	14,623	15,214
Return on regulated asset base	34,345	36,720	37,602	38,527	39,476
<b>Total</b>	<b>93,687</b>	<b>100,134</b>	<b>102,372</b>	<b>106,620</b>	<b>111,244</b>

ACTEW derives revenue from a number of unregulated activities including:

- provision of bulk water to the Queanbeyan City Council for use by Queanbeyan residents;
- payment for permitted discharge of liquid trade waste for transport and treatment via ACTEW’s sewerage system by certain customers on negotiated contracts;
- special purpose (subvention) payments by the Commonwealth in respect of cost disadvantage of operating in an inland location in the operation of water and wastewater service for the national capital; and
- miscellaneous charges such as conveyancing fees.

ACTEW forecasts that it will earn the income levels set out in tables 10.5 and 10.6 from its unregulated activities.

**Table 10.5 ACTEW’s forecasts of revenue from unregulated activities—water, (\$000s, nominal)**

	2008–09	2009–10	2010–11	2011–12	2012–13
Subvention payment from Commonwealth Government	984	1,003	1,024	1,049	1,075
Provision of bulk water to Queanbeyan City Council	4,705	5,227	5,809	6,455	7,171
Reuse	267	271	275	279	283
<b>Total</b>	<b>5,956</b>	<b>6,502</b>	<b>7,108</b>	<b>7,783</b>	<b>8,530</b>

**Table 10.6 ACTEW’s forecasts of revenue from unregulated activities—wastewater, (\$000s, nominal)**

	2008–09	2009–10	2010–11	2011–12	2012–13
Subvention payment from Commonwealth Government	8,853	9,031	9,212	9,442	9,678
Trade waste	63	66	69	73	77
<b>Total</b>	<b>8,916</b>	<b>9,097</b>	<b>9,281</b>	<b>9,515</b>	<b>9,754</b>

The revenue that ACTEW forecasts that it will derive from its unregulated activities is deducted from the Commission’s draft decision on the building block revenue requirements set out in tables 10.3 and 10.4 to determine ACTEW’s net revenue requirement for the 2008–09 to 2012–13 regulatory period.

***Draft decision on ACTEW’s net revenue requirements***

These net revenue requirements are set out in tables 10.7 and 10.8 and have been used by the Commission to determine ACTEW’s price path. The Commission has made several adjustments to ACTEW’s forecasts of revenue from unregulated activities. First, the Commission has added in revenue from miscellaneous services not included in tables 10.5 and 10.6. Second the Commission

has adjusted the revenue from bulk water sales for the expected WAC that is attributed to these sales.

**Table 10.7 Net revenue requirement, Draft Decision—water, net of unregulated revenue, (\$000s, nominal)**

	2008–09	2009–10	2010–11	2011–12	2012–13
Total Revenue Requirement from Table 10.3	170,033	145,903	158,063	163,200	168,470
Income from unregulated activities	9,051	9,835	10,575	11,334	12,132
Net Revenue Requirement	160,982	136,068	147,488	151,865	156,338

**Table 10.8 Revenue requirement, Draft Decision—water, \$000s, nominal**

	2008–09	2009–10	2010–11	2011–12	2012–13
Total Revenue Requirement from Table 10.4	93,687	100,134	102,372	106,620	111,244
Income from unregulated activities	9,298	9,493	9,692	9,942	10,198
Net Revenue Requirement	84,389	90,641	92,680	96,678	101,046

# 11 Tariffs

## 11.1 Introduction

The Minister's terms of reference and the ICRC Act require the Commission, in arriving at its price direction, to consider matters such as targets for reductions in consumption, social impacts, ecologically sustainable development and economic efficiency. All these matters are related in some way to the pricing structure for water and wastewater services. While the CPI plus X price path provides the broad framework within which individual tariffs are set, it is the structure of these tariffs that has a more direct impact on consumers and consumption behaviour. This section sets out the Commission's view on the issues associated with the tariff structure.

## 11.2 Water tariffs

### 11.2.1 Current pricing structure

The Commission adopted an inclining block tariff for the 1999–2000 to 2003–04 price determination. This consisted of a fixed charge and two blocks with a step that declined over time and reached 175 kilolitres per year in 2003–04. The prices in place during 2003–04 were:

- a fixed water supply charge of \$125
- a 43 cent variable component for the first 175 kilolitres consumed
- a \$1.05 variable component for consumption thereafter.

For the 2004–05 to 2007–08 price determination, a new structure for the price of water was introduced with the Commission reducing the fixed charge to \$75 and introducing an additional block into the inclining block structure, such that there are steps at 100 kilolitres and 300 kilolitres. This resulted in the average price of water increasing with increased levels of consumption and was aimed at sending a clear message to customers to reduce their consumption of water. During the regulatory period price increases have been applied more heavily to the top tier charge, so that while it has approximately doubled in real terms, the lower tier has only increased by 50%. The following table shows the prices for water under the current price direction.

Table 11.1 ACT water prices (\$ nominal) (excluding WAC and NFT)

Water	2004–05	2005–06	2006–07	2007–08
Fixed \$/pa	75	75	75	75
Tier 1 0–100 \$/kL	0.515	0.58	0.66	0.775
Tier 2 101–300 \$/kL	1.00	1.135	1.29	1.67
Tier 3 301+ \$/kL	1.35	1.53	1.74	2.57

ACTEW's tariffs do not distinguish between residential and non-residential customers. During the most recent price determination process the Commission decided that a single tariff structure would reduce complexity in billing, improve customer understanding of charges, and reflect the

fact that the cost of supplying a kilolitre of water does not vary according to the identity of the user.

The Commission's Discussion Paper 3, as well as its Working Conclusions paper, discussed the matter of tariff structures at some length.

### **11.2.2 ACTEW proposal**

ACTEW has proposed the following arrangements for the water tariff structure:

- a single price step at 100kl per annum;
- the WAC should be used to complement water restrictions and would increase as the level of restrictions increased;
- the introduction of daily pricing—which results in the 100kl step being translated to 274 litres per day. Customers would pay price for the second step whenever their quarterly billed consumption exceeds 274 litres multiplied by the number of days since the last meter reading; and
- ACTEW should be permitted to adjust the structure of prices and level of the fixed charge within the overall revenue cap set by the Commission.

### **11.2.3 Submissions**

The Commission received a number of submissions on the level and structure of the water tariff. In relation to the level of tariffs, common themes included:

- the recent large increases in prices;
- concern that water tariffs in the ACT were the highest of any major population centre in Australia; and
- concern from many respondents that the top tier price was excessive.

Views on the most appropriate tariff structure were more divergent and are summarised below.

**Table 11.2 Summary of submissions on water tariff structure**

Submitter	Recommendation	Comment
O'Malley Park Executive Committee	No specific recommendation	Amongst other observations, the Committee noted the significant difference between the first tier price and the third tier price
Water Our Garden City Inc	Price per kilolitre should be uniform and non-discriminatory for all users	Stepped pricing oppresses ordinary families and garden lovers. Prices of other commodities do not increase based on usage
Mr Kevin Cox	Each user should receive an 'allowance' determined on a 'per head' basis for residential customers and 'best practice usage' for businesses and other organisational users	Proposed a 'rewards' system whereby revenue from price increases is not returned to ACTEW but provided to consumers and government in the form of 'rewards'. Rewards can only be spent on approved ways of saving water or increasing water supply or designated government projects. Any individual or organisation can compete with ACTEW for funds from reward holders.
Queanbeyan City Council	No specific recommendation	Expressed strong opposition to the WAC and the fact that the Council is required to pay it.
Dr Terry Dwyer	A two part tariff with a single volumetric charge is optimal. Increasing block tariffs maximise deadweight loss by penalising discretionary usage. The price per kilolitre should be based on short run marginal cost and the fixed cost assessed on the value of the land serviced. If there is a need to reflect a scarcity price this should be a uniform charge on every kilolitre of water consumed	Revenue from any scarcity charge should be placed into an earmarked fund for capital works to augment supply.
Essential Services Consumer Council	Prefers a tariff with a low fixed charge and two step inclining block tariff set at the average daily use for non-discretionary purposes—around 200kl (no less than 100kl and no more than 280kl per year).	Notes there is an argument for a single price for all water used, but the distorting effect of fixed charges means that low use customers pay significantly more per unit than large users. This discriminates against water savers and those who have difficulty in meeting payments

### 11.2.4 Theoretical and practical issues

The Commission has considered the issue of the structure of the water tariff in some detail, both in Discussion Paper 3 and the Working Conclusions paper. This discussion in these papers is not repeated here. However, it is clear that decisions regarding the structure of the water tariff can be condensed to a trade off between three distinct but interrelated factors:

- economic efficiency. The key issue here is the degree to which the volumetric tariff reflect the (long run) marginal cost of supply and hence provides efficient signals for consumption and for making investments in complementary and substitute infrastructure and goods and services;
- equity. Equity is a difficult concept to define. However, relevant considerations include:
  - the extent to which the tariff should and can address social issues including the perceived desirability of providing cheaper water for non-discretionary purposes and higher prices for non-discretionary purposes and<sup>87</sup>

<sup>87</sup> ACTEW's submission provides evidence that there is a (weak) positive relationship between average income and quarterly water consumption. Although, as noted by ACTEW and also set out in Discussion Paper 2, assistance to low income customers is perhaps better addressed through targeted payments to those in need rather than via the tariff structure.

- the relationship between the tariff structure and rebates for low income and other needy customers;
- practicality—There are a number of matters that need to be considered:
  - the extent to which the tariff is simple and easy to administer,
  - the degree to which customers are able to understand and therefore respond to price signals provided by the tariff,
  - the degree to which customers feel they are able to ‘control’ their bills,
  - the extent to which ACTEW’s revenue is ‘at risk’ due to fluctuations in sales,
  - the degree to which the tariff complements government policies such as those aimed at reducing use. In times of high restrictions price will have limited impact on behaviour,
  - the extent to which the tariff structure is stable and predictable and as a result enables customers to make long term decisions with confidence, and
  - the fact that in the short term restrictions, rather than price, will be the dominant determinant of usage.

Key decisions which the Commission is required to make include:

- whether inclining block tariffs should be adopted;
- if so, the level and price of the respective blocks;
- the level of the fixed charge;
- whether prices should fluctuate according to seasonal conditions; and
- whether to adopt daily pricing.

### ***Inclining block tariffs***

A threshold tariff structure issue is whether there should be inclining block tariffs or whether a flat volumetric charge should apply. The Commission notes that major water authorities in most jurisdictions apply inclining block tariffs, particularly for residential usage.

The case for a single volumetric charge is usually based on economic efficiency, although there is a potential equity argument as well. If it is accepted that price should equal long run marginal cost then a tariff structure that has two prices will have at least one charge that is ‘inefficient’.

However, as Water Our Garden City Inc points out, equity arguments can also apply—why should two customers pay a different marginal volumetric price for water just because of the different volumes they have already consumed that year?

The benefits of inclining block tariffs are usually couched in terms of equity and practicality. Inclining block tariffs can complement government policy by recognising that establishing a lower price for certain volume of ‘non-discretionary’ use water has public health benefits and can provide lower tariffs for low-income customers. Higher prices for higher use can discourage discretionary use, which the ACT Government has determined to be an important public policy objective.

Bearing in mind the Government’s policy objectives, the Commission intends to maintain an inclining block tariff structure in the forthcoming regulatory period.

### ***Level and price of the inclining blocks***

Once a decision has been made to apply an inclining block structure, a number of subsequent choices need to be made. These include:

- the number of blocks to be established and how they are applied over different customer classes;
- the level of usage at which the first block should be set, such that non-discretionary water use is affordable for vulnerable households;
- the level of usage at which subsequent blocks are set; and
- the price relativities between the blocks

An inclining block tariff with similar prices for the steps will have a comparatively lower distortionary impact (assuming the price of both steps is close to long run marginal cost). On the other hand the ability of such a tariff structure to address equity and public policy objectives (including that of reducing usage) will be less effective as there is little difference between the prices applying to the different block steps, thus defeating the purpose of the inclining block tariff approach.

The current steps in the ACT tariff are set at 100kl and 300kl. Most ACTEW residential customers' consumption currently falls into the second block tariff, as 85% of residential customers consume less than 450 kilolitres per year. Despite this, ACTEW sells more water at the top tier price than the other two tiers—this is primarily due to high usage by a small number of non-residential customers

Table 11.3 Volume of water sold in each tariff block

Water	Approximate % of consumption in band
Tier 1 0–100 kl	27
Tier 2 101–300 kl	32
Tier 3 301+ kl	41

ACTEW's current tariffs are characterised by a top tier price which is 3.3 times higher than the bottom tier (excluding the WAC and NFT) and 2.3 times higher than the bottom tier (including the WAC and NFT). This ratio is much greater than that which applies to prices for comparative volumes in other jurisdictions. For example, Sydney Water's top tier price (for 400kl+) is 1.4 times higher than its low (<400kl) tier price. Yarra Valley Water's top tier (for 320kl+) is 1.7 times higher than its lowest (<160kl) price.

A report by Access Economics commissioned by ACTEW recommended a flatter price structure with a single 100kl step 'reflecting the lower opportunity cost of water that re-enters the system and the high social benefit of meeting basic hygiene requirements'.

Submissions from parties including the O'Malley Park Executive Committee and Water Our Garden City Inc have expressed concern about this divergence in price between the bottom and top tier prices. Both parties pointed out the additional, and in their view unfair burden faced by customers with gardens under the existing pricing regime.

Dr Terry Dwyer has proposed that a (single tier) tariff be set at the short run (rather than long run) marginal cost of water. Dr Dwyer believes that short run marginal cost pricing better reflects

economic theory than long run marginal cost. However, a low volumetric price is inconsistent with government policy to reduce usage and ensure ecologically sustainable development.

In considering volumetric prices there is no reliable estimate of the long run marginal cost of water supply in the ACT. ACTEW estimated this cost at approximately \$1.40 in 2004 but notes that it is likely now to be higher due to reducing yields and higher real capital costs.

For the purposes of this draft decision, the Commission has adopted the following volumetric tariff structure for the 2008–09 regulatory year:

- a single step in the volumetric tariff at 200 kilolitres and
- a top tier price of \$3.50 and a bottom tier price of \$1.75.

This is broadly consistent with the structure advocated by Access Economics; however the Commission supports a higher step on the basis that it will better achieve social policy objectives. The Commission has also taken into account that:

In terms of the level of the step, the Commission has had particular regard to the fact that:

- the ESCC has supported a top tier of less than 280 kilolitres per year and
- the figure adopted by the Commission in its 2004 decision at the time of non-discretionary use of around 57 kilolitres per person (based on Western Australian data) appears high in light of recent reductions in usage. This means that non-discretionary usage by large families is likely to be less than the existing 300kl step.

In terms of the relative price of the two tiers, the Commission considers that there may be benefits in reducing the differential between the top and bottom tier prices, and bringing the lower tier closer to the likely long run marginal cost of supply. A slightly higher lower tier price will reduce the required level for the top tier price.

The scheme proposed by Mr Kevin Cox has some appeal from an equity perspective and may assist to reduce usage. However the Commission believes that practical considerations—including determining the number of persons at each premises as well as the potential cost of the scheme—may be prohibitive.

The Commission intends to continue the approach of maintaining the same tariff structure for residential and non-residential customers. While the two sets of customers have different attributes—non-residential customers have lower elasticities and the concepts of equity and discretionary use are not relevant—there are a number of practical benefits from applying a common tariff to both sets of customers. Further, the Commission’s decision to move to a two step approach with the block prices relatively closer together will result in a more efficient non-residential tariff structure.

### ***Fixed charges***

The absolute level of the fixed charge, and the level of the fixed charge relative to the volumetric charges, has a number of equity and efficiency implications. The most obvious is that there is an immediate trade off between the level of fixed and volumetric charges. For any given revenue requirement, the higher the fixed charge the lower the volumetric charge, and vice-versa.

Economists have advocated an approach where the fixed charge is the ‘residual’ term in the pricing equation. That is, the fixed charge is set simply to recover the shortfall between the marginal cost price and the revenue needed to cover full costs.<sup>88</sup> However, applying this approach is not straightforward<sup>89</sup> and as noted above there are a number of equity and practicality issues that need to be considered.

In the past, and particularly prior to the 2004 determination, a common criticism from customers was that despite the messages being sent regard the need to conserve water, and their willingness to participate in such programs, they had a limited financial incentive to do so because a substantial portion of their bill was fixed. This was partly because wastewater charges are fixed and represent a substantial proportion of the bill, particularly for low use customers. However for many customers the fixed charge still represented more than 50% of their water bill.

In its 2004 determination the Commission reduced the fixed charge from \$125 to \$75, and the fixed charge has remained at this level (in nominal terms) since this time. Given the increases in volumetric charges that have occurred, the fixed charge for a 250kl customer has declined from almost 40% of the water bill in 2003–04 to just 13% in 2007–08. However, in 2007–08 fixed charges still represent 50% of the total water and wastewater charge for a 250kl customer.

The reduction in fixed charge also had a number of other implications, including that it reduced the amount of rebate available to concession customers as the rebate was calculated on the fixed charge, not the total bill.

ACTEW has proposed an ‘indicative’ fixed charge of \$75, consistent with existing levels, and indicated that lowering this charge would require an increase in the marginal price for low levels of consumption in order to manage volume risk.<sup>90</sup> The Commission has not been presented with any evidence to suggest that a substantial increase in the fixed charges is warranted. Indeed, given the current drought and government policy it believes that maintaining the fixed charge at a level broadly consistent with the current charge is appropriate.

The Commission therefore proposes that the fixed charge be set at \$85 in 2008–09 (in nominal terms), consistent with the \$75 set for 2004–05 updated for inflation.

Dr Terry Dwyer has suggested that the fixed charge, rather than being a flat rate, should be based on the value of the land being serviced. Water Our Garden City Inc has expressed similar sentiments. According to Dr Dwyer this will ensure the fixed charge reflects the beneficial externalities of infrastructure availability. However, there are a number of practical difficulties with such an approach:

- experience in other jurisdictions demonstrates that rate-based fixed charges are confusing for customers;
- it is not clear why the fixed tariff should reflect the beneficial externalities of infrastructure availability—in any case, the value of the land being serviced will reflect many factors in addition to the benefits of infrastructure availability;
- the cost of maintaining and administering land valuation data will not be insignificant; and

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<sup>88</sup> For example, see H Sibly, ‘Efficient urban water pricing’, *Australian Economic Review*, vol. 39, no. 2, 2006, pp. 227–237.

<sup>89</sup> For example, if marginal cost is above average cost then the fixed charge may be negative.

<sup>90</sup> Although ACTEW has suggested that it should have the ability to amend this over time if need be.

- it is difficult to explain to customers why two customers who have identical use of a service should pay different fixed charges.

### ***Using pricing for short-term demand management***

As with any good or service, price will influence the level of demand for that service. In a competitive market price will determine the point at which supply equals demand and hence where the market is cleared. However, in the water sector there is a commonly held view that prices (as well as other measures such as restrictions) should be used to positively 'manage' demand. This view is reflected in the Commission's terms of reference which require it, when setting prices, to have regard to the Government's targets for reductions in water consumption. In economic terms, this 'management' of demand would involve prices being set above the LRMC of supply

ACTEW has suggested that pricing should be used as a complementary mechanism to restrictions in order to manage demand in the short to medium term. Under ACTEW's approach higher levels of restrictions may be accompanied by higher charges, potentially through increases in the WAC. A decision regarding the use of the WAC is ultimately with the Government to determine. However, the Commission notes that the work of Letcher and Breusch suggests that in times of restrictions, demand is extremely insensitive to price. In such circumstances significant changes in price would be required to have any influence on demand. Further, frequent changes to prices make it more difficult for customers to understand water prices and will impose a number of transactional costs (billing, communications etc) on ACTEW particularly if the intention is to amend prices outside of the normal annual price reset.

The Queanbeyan City Council also questioned the economic validity of using prices to influence short term demand. Council noted that in a competitive market higher prices in times of supply shortages would encourage greater supply and a return to supply/demand balance. However, it pointed out that as a monopolist in a market where additional supply is not readily available this argument is not relevant and that the only outcome is that ACTEW's revenue is increased.

The Commission rejects the argument that it would allow prices to increase for demand management purposes and without any linkage to bringing further additional supply. However, the Commission is not able to determine the extent to which the Government may use the WAC as a mechanism to influence demand without necessarily bringing forward further supplies of water. The Commission does recognise and accept that higher prices will also result from increased investment in infrastructure that results in a higher level of water security through improved capture, storage and treatment of water. These higher prices are necessary to recover the efficient costs of investment. However, the Commission has sympathy with the Council's views that in the short term, increasing the price will not necessarily facilitate a balancing of supply and demand, particularly when there is significant non-discretionary use.

The Commission therefore does not believe that short-term changes in tariffs would be an effective tool to influence demand and bring supply and demand back into equilibrium. This does not deny the role of price in influencing demand over the long term and funding infrastructure designed to improve the security of supply in the long run

### ***Pricing and reductions in usage***

Several submissions, including those from Dr Terry Dwyer and Water Our Garden City criticised the TOR requirement that the Commission have regard to the Government's policy target of a reduction in per capita consumption of mains water by 12% by 2013 and 25% by 2025. Water Our Garden City Inc stated that:

The terms of reference ... defy all economic or social reason in purporting to dictate a forced per capita reduction in consumption—without any reference whatsoever to the social and economic costs!

Water Our Garden City Inc indicated that the Commission should seek a fresh terms of reference for the inquiry.

The Commission notes these comments but is bound by its Terms of Reference to establish prices having regard to these objectives. The Commission does not intend to seek new terms of reference for the inquiry.

### 11.2.5 Draft decision—water tariffs

The Commission has adopted the tariff structure for water in Table 11.4 for 2008–09.

Table 11.4 ACT water prices for 2008–09 (\$ nominal)

Water	2008–09
Fixed \$/pa	85.00
Tier 1 0–200 \$/kL	1.75
Tier 2 201+ \$/kL	3.50

All prices including the fixed charge will increase by the CPI for the remaining four years of the regulatory period.

The Commission has determined these tariffs by the following methodology. As previously discussed, the Commission has adopted the demand forecasts made by the Commission’s consultant, MMA. ACTEW in its submission on the Working Conclusions paper has claimed that the pass-through provision with a 10% +/- deadband will result in a likely asymmetric outcome for the business.<sup>91</sup> They claim that it is more likely that they would suffer a negative shock to revenue than a positive shock due to forecast error. If this is the case then the revenue pass-through provisions will be asymmetric in that the probability of a pass-through of an under-collection of revenue will exceed the probability of a pass-through of an over-collection of revenue. Therefore, the Commission has made an adjustment to volumes to correct for this asymmetry by reducing the forecast volumes by 3%. The Commission has also determined that there will be a one off price increase in 2008–09 and subsequently prices will only adjust by CPI thereafter. To calculate price the Commission determined prices for 2008–09 such that the present discounted value of the revenue from prices over the five years of the regulatory period equals the present discounted costs determined from the building block model.

### 11.2.6 Daily pricing

Under an inclining block tariff customers can progress through the steps of the inclining block tariff either on an annual basis or on a daily basis. The Commission opted for an annual basis in the 2004 final decision. Thus, a customer who consumes a constant volume of water during each quarter will usually receive a larger bill for the final quarter compared to the first quarter of the financial year. Under daily pricing, the annual price structure is applied on a daily basis at each

<sup>91</sup> ACTEW submission on WC p. 12.

meter reading. That is, the annual allocation of water in each consumption band is determined as a daily allowance. The daily allowance is then multiplied by the number of days in the billing period to determine the quarterly allocations and hence the quarterly bill.

ACTEW has advocated daily pricing on the basis that it believes the current approach can cause confusion amongst customers, particularly when water charges effectively decrease between the final quarter of one financial year and the first quarter of the next. ACTEW also suggested that daily pricing would provide more effective seasonal price signals, and noted that daily pricing for water is adopted in most other jurisdictions.

In the Working Conclusions paper the Commission noted that daily pricing would mean that two customers who consume the same amount annually but with different consumption profiles over the year may face different total water bills. It also indicated that it believes the benefits from improved price signals may be small and that it may add extra complexity to setting tariffs, particularly if they are reset on an annual basis.

In response to the Working Conclusions paper ACTEW emphasised the social benefits of increased predicability of bill amounts and the economic benefits of improved resource allocation from more cost reflective price signals. ACTEW characterised the difference between daily and annual pricing as a debate between whether it is more important that customers receive price signals based on annual or quarterly consumption.

The Commission has further considered the issue of daily pricing since the release of its Working Conclusions Paper. The Commission remains of the view that benefits from improved price signals that are potentially sent under daily pricing are small. Customers receive bills after consumption has occurred, hence they do not receive a contemporaneous signal of the cost of the water they are consuming.

However, the Commission considers there will be benefits for customers from daily pricing. The fact that bills are likely to be more even across the year will make planning and budgeting easier, particularly for low-income households where outdoor use is low. The Commission also agrees with ACTEW that the effective reduction in price between the last bill of one financial year and the first bill of the next may prove confusing. The Commission believes there may be some merit from a customer understanding perspective of moving to an approach which is consistent with that adopted elsewhere.

Given the Commission's decision to adopt a form of price control that does not involve complicated annual resets, there will be limited additional complexity and costs associated with moving to daily pricing.

The Commission's draft decision is therefore to support ACTEW's proposal to move to daily pricing in the next regulatory period. This move will require some amendment to ACTEW's volume forecasts, as daily pricing results in lower volumes being recorded in the high priced band, and higher volumes being recorded in the low priced band.

## 11.3 Wastewater tariffs

### 11.3.1 Current pricing structure

Pricing arrangements for wastewater have remained unchanged for several years. Wastewater prices comprise a fixed supply charge for residential premises of \$413.76, and the same fixed supply charge plus a \$404.64 charge per flushing fixture (in excess of two) for non-residential premises for 2007–08 (see Table 11.5). No volume or strength based charges apply. The following table shows water and wastewater charges for the duration of the current price direction.

Table 11.5 ACT wastewater charge (\$ nominal)

Wastewater	2005–06	2005–06	2006–07	2007–08
Service charge (\$/pa)	375.32	389.00	398.80	413.76
Fixtures charge for non-residential properties (fixture/pa)	366.20	380.72	390.00	404.64

While fixed charges have the advantage of being simple, transparent and easy to understand, they do not distinguish between customers that produce large amounts of wastewater and those that produce a small amount. They also do not provide signals to customers about the merits of on-site treatment versus treatment via the ACTEW system, which is desirable in the case of waste that is relatively more expensive to treat.

In its 2004 determination the Commission expressed concern with ACTEW's wastewater pricing arrangements and in particular the non-residential charge per flushing fixture. The Commission noted that this charge was a poor proxy for the volume and strength of discharge. The Commission therefore requested that ACTEW undertake a review of wastewater pricing arrangements, including:

- the issue of cross-subsidisation between customer groups
- cost allocation arrangements
- alternative pricing options for residential customers
- alternative pricing arrangements for non-residential customers.
- trade waste pricing arrangements.

The NWC has also expressed concern with ACTEW's wastewater pricing, and in its April 2006 National Competition Policy Assessment of Water Reform Progress it noted a report by the Centre for International Economics that found that the non-residential sector may be subsidising the recovery of costs from the residential wastewater sector. This report and the conclusion reached was cited by ACTEW in its submission to the Commission's 2004 determination.

### 11.3.2 ACTEW proposal and Working Conclusions Paper

In its initial submission ACTEW acknowledged the deficiencies with the wastewater pricing arrangements, but indicated that the review process had ‘encountered practical, legal and administrative obstacles that have prolonged resolution beyond what would have been hoped.’<sup>92</sup> Accordingly, ACTEW only provided details of possible wastewater pricing arrangements, which included:

- for residential premises, continuation of the fixed charge approach
- for non-residential premises, a fixed charge plus a volumetric charge per kilolitre
- trade waste charges based on contaminant load for certain non-residential customers.

ACTEW has indicated that further work needs to be undertaken to finalise the proposed non-residential wastewater tariff arrangements (including in relation to the contaminant based charge) and that a phase-in period of three years may be required.

In the Working Conclusions paper the Commission indicated that it broadly supported ACTEW’s proposal, but expressed concern that ACTEW had not finalised an approach for consideration. The Commission indicated that its preference was to work with ACTEW to determine which elements of the tariff structure changes could be brought forward and examined as part of this determination. The Commission indicated that other reforms to the wastewater tariff structure would need to be deferred until the next regulatory period.

### 11.3.3 Submissions

In response to the Working Conclusions paper ACTEW indicated that it would develop a proposal for those elements of the wastewater pricing structure which can be finalised in the short term. ACTEW indicated that these were likely to include:

- continuation of the flat fixed wastewater charge for all residential customers
- extension of the residential flat fixed charge for non-residential customers and removal of the fixtures charge. The flat charge for larger customers would be factored up to reflect water meter size and a notional sewage discharge factor
- introduction of a volumetric charge for wastewater discharged by non-residential customer based on a discharge factor applied to metered water consumption and with a ‘free’ allowance such that small non-residential customers with similar system demands to residential customers pay the same as residential customers.
- undertaking studies to enable development of the non-residential trade waste strength-base charging arrangements in the next regulatory period.

In response to the Discussion Paper 3 Mr Scott Crawford provided a submission to the Commission favouring the adoption of a two part tariff approach to residential wastewater customers. The proposal advocated a fixed quarterly charge plus a water consumption based volumetric charge where the volumetric charge is adjusted up or down (using a pro rata method) by a standard percentage dependent on both the seasons of the year and the stages of water restrictions in force during the metered period. Mr Crawford noted that:

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<sup>92</sup> ACTEW Corporation, *Submission: Investigation into Prices for Water and Wastewater Services in the ACT*, 31 July 2007, p. 55.

while the current fixed price wastewater pricing regime in the ACT has the advantages of being quite simple (reducing administration costs), very transparent and easy to understand, its disadvantages include not distinguishing between customers producing large amounts of wastewater and those producing only a small amount.

Mr Nick Mayo and Ms Sarah Clayton made a submission to the Commission claiming that they have designed and constructed a state of the art environmental house in Ainslie. They are not connected to the potable water system or the sewer network. Mr Mayo and Ms Clayton argue that they should not be charged the supply charge for potable water and the service charge for the wastewater, as they are not connected to the mains water or the sewer network.

They submitted that 'in the absence of ActewAGL choosing to waive the fee for potable water supply and wastewater treatment fees, the ICRC has powers and responsibilities to review and amend current pricing structures for both water and wastewater charges in the ACT'. Mr Mayo and Ms Clayton noted that there is no incentive with the current charging structure for citizens to make concerted efforts to significantly reduce water use and wastewater discharge. They also claimed that there is nothing at present under current pricing structures pertaining to water supply and wastewater treatment to encourage individuals to take significant steps towards sustainable water management in the ACT.

In view of the submission from Mr Mayo and Ms Clayton, the Commission has referred the matter to the ACT Government Solicitors and is awaiting legal advice. This issue will be addressed in the final decision.

#### **11.3.4 Discussion and draft decision**

The Commission again welcomes ACTEW's commitment to reforming its wastewater tariff structure. However, as no firm proposals have yet been presented to the Commission regarding the new structure, the Commission does not believe that sufficient time now exists for the Commission and other interested stakeholders to consider any proposal prior to the Commission's final decision which is scheduled for 11 April 2008. The Commission therefore, regrettably, considers that new wastewater pricing arrangements will need to be deferred until the subsequent regulatory period.

In relation to Mr Crawford's proposal to introduce volumetric wastewater pricing, the Commission notes that similar arrangements are in place in other jurisdictions, including Victoria. The Commission agrees that such an approach has a number of benefits. However, as noted in Discussion Paper 3, there are a number of issues with volumetric pricing for wastewater, including:

- any volumetric methodology relies on a number of assumptions and is only able to approximate the volume of water that becomes wastewater as compared to the volume of water that might go to other purposes
- demand for sewerage services is inelastic, therefore consumers are generally unresponsive to price signals
- wastewater expenditure, at least in relation to the residential load, are largely fixed in nature.

Nevertheless, the Commission expects ACTEW to consider volumetric wastewater pricing for all premises when developing proposals for wastewater tariffs in the subsequent regulatory period. To achieve this goal the Commission expects that ACTEW could develop a trial program for volumetric wastewater charges to ensure measure the capability of volumetric pricing for wastewater for recovering the efficient costs of providing wastewater services.

The Commission has adopted the tariff structure for wastewater in Table 11.6 for 2008–09. This represents a 7.635% increase in 2007–08 wastewater tariffs.

Table 11.6 ACT wastewater charges for 2008–09 (\$ nominal)

Wastewater	2008–09
Service charge (\$/pa)	445.35
Fixtures charge for non-residential properties (fixture/pa)	435.53

The service charge and the fixtures charge will increase by the CPI for the remaining four years of the regulatory period. The charges for wastewater have been determined in a similar manner to the prices for water. Charges for 2008–09 were determined so that the present discounted value of revenue over the regulatory period was equal to the present discounted value of the building block costs for wastewater services.

## 11.4 Water abstraction charge

The ACT Government currently applies a water abstraction charge (WAC) of 55 cents per kilolitre and the revenue received is passed by ACTEW to the ACT Government. The first 25 cents per kilolitre are used to offset costs incurred by the ACT Government related to catchment management, the scarcity value of water and environmental costs such as environmental flows. The revenue received from the remaining 30 cents per kilolitre ‘provides a return on a valuable resource and assists in managing demand’.<sup>93</sup>

It is important to understand that the Commission has no role in determining the level of the WAC, although it has previously advised the ACT Government on a methodology for calculating the WAC.<sup>94</sup> It should also be noted that as ACTEW does not receive revenue from the WAC, this revenue is not used to offset the total efficient costs of ACTEW. However, the WAC significantly increases the marginal cost of water and therefore it is important that the Commission have regard to the WAC in its pricing determination.

The Commission has held discussions with the ACT government regarding the WAC and understands that the Government will change the basis upon which the WAC is charged to ACTEW from a per kilolitre consumed basis, to a per kilolitre of water abstracted basis. According to the Government this will better reflect the intention of the WAC as a measure to promote water conservation.

The Commission notes that the treatment of the WAC from a public transparency perspective, including the manner in which it is reflected in water tariffs, is determined largely by the Government’s decision whether to apply the WAC as an ‘operating cost’ on ACTEW or as a per kilolitre charge that is to be passed through to customers. The WAC is currently treated as a per kilolitre charge and applies to every kilolitre consumed. The inclusion of the WAC as a total charge for all water abstracted from the ACT catchments and water off take points would effectively mean that the WAC becomes part of the total operating costs which ACTEW would need to recover in its regulated price determination. This would give the Commission greater

<sup>93</sup> ACT Treasurer’s response to Question on Notice number 60 during the 2006 Select Committee on Estimates. The response can be located at: <http://www.parliament.act.gov.au/downloads/issues-papers/Stanhope%20Treasurer%202006.pdf>

<sup>94</sup> ICRC, *Final report: water abstraction charge*, ICRC, Canberra, Oct 2003.

flexibility when considering tariff structures, particularly when considering the need for tariffs to address social welfare issues.

## 11.5 Miscellaneous charges

The miscellaneous additional services provided by ACTEW represent a relatively small proportion of its revenue; however, these fees and charges may be significant for individual users. Although some of these services (for example, special meter reading) are potentially contestable, there are no firm proposals to introduce contestability in the foreseeable future. The Commission is therefore inclined to continue to subject these miscellaneous services to regulation.

Miscellaneous monopoly services provided by ACTEW include:

- special meter readings
- testing of water meters
- the provision of rate certificates
- tapping into water mains
- installation of fire hydrants
- disconnection
- installation and removal of stop valve locking cover
- meter relocation.

Under the current price control mechanism ACTEW must set prices for year of the regulatory period such that the reasonably forecast average revenue per property received from the provision of water services is less than or equal to the maximum allowable average revenue (MAAR). The MAAR includes revenue from miscellaneous services.

As discussed in Chapter 10, the Commission intends to set prices for all services in real terms for each year of the regulatory period and the MAAR calculation is no longer relevant. This requires a decision to be made regarding price changes for miscellaneous services. The two most obvious options are (a) for prices to change annually by the CPI, or (b) prices to change by the same real X factor as water prices.

Noting that water prices are rising in real terms, the Commission favours an approach whereby individual prices change by CPI. This approach is simple and easy to understand and apply, and recognises that the cost of providing these services is unlikely to vary significantly from year to year.



## 12 Impact on customers and ACTEW

Under section 20(2)(g) of the ICRC Act the Commission, in making its decision on the level of prices for services in the specified period, must have regard to the social impact of its decision.

### 12.1 Financial impact on customers

#### 12.1.1 Water bills

The following table demonstrates water tariffs for 2007–08 including the WAC and NFT and the Commission’s proposed tariffs for 2008–09.

Table 12.1 2007–08 and proposed 2008–09 water prices (\$nominal)

Water	2007–08	Water	2008–09
Fixed \$/pa	75	Fixed \$/pa	85.00
Tier 1 0–100 \$/kL	1.145	Tier 1 0–200 \$/kL	1.70
Tier 2 101–300 \$/kL	2.31		
Tier 3 301+ \$/kL	3.21	Tier 2 201+ \$/kL	3.40

This draft decision will have financial impacts on customers due to:

- the increase in average revenue that ACTEW may recover, as set out in Chapter 10;
- the proposed changes to the water tariff structure set out in Chapter 11;
- the introduction of daily pricing; and
- the holding of prices constant in real terms for the final 4 years of the regulatory period.

Changes in water bills are shown in Table 12.2. This table shows the annual water bills for customers under two assumptions about the distribution of yearly usage. For consumption levels from 0 to 10,000 kilolitres per year, annual bills are shown for the 2007–08 year including the WAC and NFT, for 2008–09 assuming constant usage over the course of the year, and 2008–09 assuming that summer usage is twice winter usage. Percentage increases for the 2008–09 bills as compared to the 2007–08 bills are also calculated. The two different yearly profiles of usage are reported to demonstrate the effects of the introduction of daily pricing.

Table 12.2 Changes in real water bills, for constant and seasonal usage

Current consumption kL	2007–08 water bill \$ (including WAC and NFT)	2008–09 water bill \$ (constant usage)	Percentage increase over 2007–08 (constant usage)	2008–09 combined bill \$ (seasonal usage)	Percentage increase over 2007–08 (seasonal usage)
0	75.00	85.00	13.33%	85.00	13.33%
50	145.75	172.50	18.35%	172.50	18.35%
100	216.50	260.00	20.09%	260.00	20.09%
150	332.00	347.50	4.67%	351.00	5.72%
200	447.50	435.00	-2.79%	498.00	11.28%
250	563.00	610.00	8.35%	645.00	14.56%
300	678.50	785.00	15.70%	792.00	16.73%
350	839.00	960.00	14.42%	960.00	14.42%
400	999.50	1,135.00	13.56%	1,135.00	13.56%
500	1,320.50	1,485.00	12.46%	1,485.00	12.46%
750	2,123.00	2,360.00	11.16%	2,360.00	11.16%
1000	2,925.50	3,235.00	10.58%	3,235.00	10.58%
2000	6,135.50	6,735.00	9.77%	6,735.00	9.77%
5000	15,765.50	17,235.00	9.32%	17,235.00	9.32%
10,000	31,815.50	34,735.00	9.18%	34,735.00	9.18%

As can be seen in Table 12.2 customers who consume around 200 kilolitres per year may experience a reduction in their total bill. This occurs only if they consume a constant amount over the year. The reason for this potential reduction is due to reduction in the volumetric price they face for water consumption between 100 and 200 kilolitres per year. This reduction outweighs the increased cost of the first 100 kilolitres. Additionally, customers who consume between 150 and 300 kilolitres will face higher water bills if they have a seasonal consumption profile compared to those with even consumption over all four quarters of the year.

For the remaining four years of the price direction water customers will face no real change in their water bills if their water consumption remains unchanged.

### 12.1.2 Wastewater bills

The Commission's draft decision will result in a 7.6% increase in their bills comparing 2007–08 bills to 2008–09 bills. After 2009 wastewater bills will rise with changes in the CPI. Thus, wastewater customers will face no real increase in their wastewater bills for the remaining four years of the regulatory period.

### 12.1.3 Combined water and wastewater bills

Table 12.3 Changes in residential combined water and wastewater bills, including WAC

Current consumption kL	2007–08 combined bill \$	2008–09 combined bill \$ (constant usage)	Percentage increase in combined bill
0	488.76	530.35	8.51%
50	559.51	617.85	10.43%
100	630.26	705.35	11.91%
150	745.76	796.35	6.78%
200	861.26	943.35	9.53%
250	976.76	1,090.35	11.63%
300	1,092.26	1,237.35	13.28%
350	1,252.76	1,405.35	12.18%
400	1,413.26	1,580.35	11.82%
500	1,734.26	1,930.35	11.31%
750	2,536.76	2,805.35	10.59%
1000	3,339.26	3,680.35	10.21%
2000	6,549.26	7,180.35	9.64%
5000	16,179.26	17,680.35	9.28%
10000	32,229.26	35,180.35	9.16%

Combined bill increases for non-residential customers who are large water users should expect nominal increases in water and wastewater bill in the range of 8% to 9% for 2008–09 and then no real increase for the four remaining years in the regulatory period.

## 12.2 Concessions

### 12.2.1 Existing arrangements

Responsibility for determining concession arrangements lies with the ACT Government, with the concessions scheme being administered through the Department of Disability, Housing and Community Services. Current concessional arrangements provide for the following:

- certain concession cardholders are eligible for a rebate on the fixed component of water and wastewater bills (to a maximum of 65%) where the cardholder is an owner or part owner of the property in question;
- property owners using life-support equipment which depends upon a fresh supply of water are eligible for a reduction in water usage charges; and
- schools and ecclesiastical properties receive a 50% discount on the volumetric charge that applies for consumption above 175 kilolitres. The full cost of these concessions is reimbursed to ACTEW by the Government.

In its 2004 determination the Commission made a number of recommendations regarding the concessions program. These included:

- the Government give consideration to allowing the ESCC to provide access to some extra concession payments in exceptional cases, where warranted, to address foreshadowed increases in the WAC;
- the extension of the concessions scheme so that it applies both to renters as well as home owners; and
- a review be undertaken of the concessions given to schools and ecclesiastical establishments.

In making these recommendations the Commission noted that:

the ACT Government has developed a social plan for Canberra which, among other things, notes that the Government is currently reviewing the overall effectiveness and coverage of concession arrangements in the ACT. The review of concessions has not been finalised. However, it makes a commitment to ease the financial pressures facing individuals and families on low incomes, particularly older people, by increasing concession payments on energy, water and sewerage charges to ensure people on low incomes are not disadvantaged by price rises.<sup>95</sup>

### 12.2.2 Submissions

ACTEW's submission did not address the issue of concessions. However, the ESCC made a number of comments. In summary, the ESCC's views are that:

- the water/wastewater rebates need to be increased and should be linked to, and generally cover, the fixed charges for water and wastewater;
- rebates need to be extended to include health care card holders and low income tenants; and
- the effect of the WACC should be wholly off-set within the water/wastewater rebate.

### 12.2.3 Discussion and draft decision

Despite the Government's commitment in its social plan, no changes have been made to the concessions scheme since the 2004 price direction and the Commission is concerned that the current level of water and wastewater concessions in the ACT is inadequate.

Since 2003–04 the level of concession payments has fallen as a proportion of the total bill and customers' own contributions to the bill have risen significantly in dollar terms. This is partly an outcome of the Commission's 2004 price direction which reduced the water fixed charge relative to volumetric charges and has seen subsequent price increases apply solely to the volumetric charge. While this has given customers greater control over their bills, the increase in volumetric charges relative to the fixed charge combined with increases in the WAC and the imposition of the NFT, mean that rebates apply to an increasingly smaller proportion of a customer's bill. For example, in 2003–04 a customer using 250kl would have been eligible for a concession of up to \$311, or 46% of the total water and wastewater bill. In 2007–08 the maximum concession for a 250kl customer is \$329 which reflects a reduction in real terms. More importantly,

- the 2007–08 total rebate represents only 33% of the total bill and the customer's contribution has risen 85% from \$359 to \$665;

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<sup>95</sup> ICRC, *Final report and price direction—Investigation into prices for water and wastewater services in the ACT*, March 2004, p. 145.

- the 2007–08 water rebate represents only 9% of a 250kl customer’s water bill, compared to 26% in 2003–04

Secondly, the Commission agrees with the ESCC that strong consideration needs to be given to the extension of the rebate scheme to apply to health care cardholders and low-income tenants. If the intention of the rebate scheme is to target low income customers who experience difficulty in paying their bills, then limiting rebates to Pensioners concession and DVA gold card holders who own and occupy their property would appear to exclude a large proportion of this target group. The Commission notes the apparent incongruence of excluding these customers from rebates yet maintaining a 50% discount on the volumetric charge for use schools and ecclesiastical establishments.

This draft decision provides for an increase in the level of both the water and wastewater fixed charges, and under existing concession arrangements the level of the rebate will increase accordingly. However, because the proposed level of the water fixed charge of \$85 remains lower than in 2003–04 (\$125) this means that the water fixed charge rebate of \$55.25 (65% of \$85) is still significantly lower in both nominal and real terms compared to 2003–04. To maintain an equivalent rebate in real dollar terms, the water rebate would need to increase to approximately \$93 or 109% of the fixed charge. To maintain an equivalent rebate as a percentage of the water bill as in 2003–04 the rebate would need to increase to a greater percentage of the fixed charge

The Commission understands that the Department of Disability, Housing and Community Services (DHCS) is currently examining the issue of concessions and the Commission has met with DHCS during the course of this review.

The Commission urges the Government to consider as part of this review:

- increasing the amount of the rebate, particularly in respect of the water service
- extending the concessions scheme so that it applies both to health care card holders and low income tenants
- whether discounts on the volumetric charge should continue to be provided to schools and ecclesiastical establishments.

In the event that the Government does not wish to review eligibility criteria, at a minimum, the Commission seek the Government’s support to increase the water rebate to 100% of the fixed charge.

### **12.3 Community service obligations**

Other than being reimbursed for the cost of offering discounted charges to the groups identified above, ACTEW is not reimbursed by the ACT Government for undertaking any formal CSOs.

ACTEW does undertake a number of activities which have broader community benefit or are conducted consistent with ACT Government social policy. These include the fluoridation of water and the provision of water for firefighting purposes.

The ACT Government has indicated that, under its CSO policy, these activities are part of the normal requirements of operating a water authority and therefore should not be funded by government. However, ACTEW is not required to fund these activities through a reduction in

returns and the costs of these activities are included in ACTEW's capital and operating forecasts and implicitly included in water and wastewater tariffs.

Given the nature of these activities, the Commission considers it is reasonable for all customers to contribute to these costs through their tariffs. Alternative approaches, such as adopting the 'user pays' principle or even separately identifying the costs of these activities in bills, would be impractical and inconsistent with approaches generally adopted elsewhere.

## **12.4 Compliance with the National Water Initiative**

The Commission's TOR requires the price determination to have regard to the requirements of the National Water Initiative. The Commission has done so and considers that the elements of the prices established by the Commission under this draft decision fundamentally address the requirements of the NWI. While the Commission notes that trade waste prices require reform, the limited extent of trade waste disposal in the ACT means that any inefficiencies associated with the current trade waste pricing system are likely to be minor.

**Table 12.4 Compliance with the requirements of the National Water Initiative**

NWI requirement	Comment
Consumption-based pricing (paragraph 65(i))	ACTEW's water prices contain a substantial element of consumption based pricing.
Full cost recovery (including recovery of environmental externalities where feasible and practical) (paragraph 65(ii))	The application of the WAC as a charge on water abstractions in the ACT ensures that all costs, including environmental externalities, are recovered from water consumers.
Continued movement towards upper bound pricing by 2008 (where upper bound pricing is defined as recovering no more than operating costs, externalities, taxes, and the cost of asset consumption and the cost of capital) (paragraph 66(i))	<p>ACTEW's charges comply with the requirement of upper bound pricing to the extent they cover operating costs, externalities, taxes, and the cost of asset consumption and the cost of capital. They also include the recovery of the portion of the WAC that reflects externalities and the costs of water planning and management.</p> <p>To the extent that prices contain the component of the WAC that reflects only the objective of managing demand, this may mean that overall cost recovery exceeds upper bound pricing, (noting that the is not retained by ACTEW but passed to the Government).</p>
Development of pricing policies for recycled water and stormwater that are congruent with pricing policies for potable water and stimulate efficient water use by 2006 (paragraph 66(ii))	<p>In the ACT, pricing arrangements are governed by the requirement, (established in the Commission's 1999 price determination) that customers pay at least the avoidable cost of recycled water.</p> <p>ACTEW's customers do not currently fund any costs associated with stormwater recycling in the ACT however the Commission understands that ACTEW is currently participating in a Commonwealth Government funded program to examine stormwater recycling opportunities.</p>
Development of pricing policies for trade waste that encourage the most cost-effective methods of treating industrial wastes by 2006 (paragraph 66(iii))	ACTEW has a very small trade waste customer base with limited impact on the wastewater system. Nevertheless, the Commission agrees with ACTEW that there is no consistent framework for charging high volume/strength customers. In its 2004 determination the Commission asked ACTEW to develop a revised wastewater pricing system including tariffs for high volume/strength customers. However this work has not yet been completed, and as discussed in Chapter 11, reform of the wastewater tariff structure will not commence until the subsequent regulatory period.
Identification of costs associated with water planning and management and the identification of the proportion that can be attributed to water access entitlement holders, with such charges excluding activities undertaken for the Government (such as policy development) (paragraph 67)	Costs associated with water planning and management were considered by the Commission and the Government when the WAC was established in 2003 and the WAC incorporates these costs.
Public reporting on cost recovery for water planning and management (paragraph 68)	<p>Prices also reflect ongoing catchment management and remediation costs required to be undertaken by ACTEW in response to the 2003 bushfires.</p> <p>Prices have also recovered the cost of examining future water options for the ACT. The Commission considers that some of these policy costs have been undertaken at the direction of the ACT government.</p>
Institutional separation of the roles of water resource management, standard setting and regulatory enforcement, and service provision (paragraph 74)	These roles are separated in the ACT.
Participation in a nationally consistent framework for benchmarking (paragraph 75)	ACTEW is an active participant in the NWC/WSAA benchmarking project
Use of independent regulatory bodies to set or review prices or price setting processes, and to review and report on whether paragraphs 65 to 68 are being met (paragraph 77).	The ICRC—an independent statutory body—is responsible for setting prices in the ACT.

## 12.5 Impact on ACTEW

Section 20(2)(i) of the ICRC Act requires that when making a price direction the Commission is to have regard to the borrowing, capital and cash flow requirements of persons providing regulated services and the need to renew or increase relevant assets in the regulated industry in making a decision under section 20(1) of the ICRC Act.

The Commission considers that the financial settings used in this draft decision allow ACTEW to maintain a strong financial position over the course of the price direction. Table 12.5 presents ACTEW's financial ratios and corresponding rating for a series of financial indicators.

The results of the Commission's ratio analyses indicate that ACTEW's overall financial position and viability is strong, as reflected by its standing relative to the indicative benchmark ratings supplied by Standard and Poor's and the New South Wales Treasury.

The calculation and assessments are those of the Commission and not Standard and Poor's. The actual rating process used by Standard and Poor's is very broad, involving subjective judgements of industry risk and cost structures, not just financial ratios. Standard and Poor's use both qualitative and quantitative analyses in determining an entity's rating. The ratios used by the Commission in its financial analysis are part of the latter—they should therefore be used as a guide to rating. The overall ratings that have been or may be derived by Standard and Poor's for a business cannot be derived from simple inspection of these ratios.

The New South Wales Treasury rating indicators form part of the Treasury's financial policy framework for government trading enterprises. These indicators are based on ratios provided to the New South Wales Treasury by Standard and Poor's.

As indicated in Table 12.5, the financial settings used in this draft decision will maintain ACTEW's strong financial position over the course of the regulatory period. On the basis of both the Standard and Poor's methodology and the New South Wales Treasury guidelines, ACTEW will maintain a ratio of A or greater for most categories. The credit ratings that are lower than an A rating are primarily due to the large capital spending on water security measures in the first two years of the regulatory period. The overall rating in the New South Wales Treasury assessment scale (the bottom line of the table) ranges from A to AA+ across the regulatory period.

In summary, the Commission's final decision will allow ACTEW to maintain its strong overall financial position as measured by the New South Wales Treasury total score and by an overall credit rating which does not fall below A over the next regulatory period.

**Table 12.5 Financial viability and credit ratings**

Year ending 30 June	2008–09	2009–10	2010–11	2011–12	2012–13
<b>Ability to finance investment from internal sources</b>					
EBITDA interest cover	6.5	5.2	4.1	4.1	4.2
NSW Treasury rating (2002)	AAA	AAA	AA+	AA+	AA+
Funds from operations interest coverage	5.6	3.9	3.2	3.4	3.5
Standard and Poor's—US Utilities (2003)	AA	AA	AA	AA	AA
Pre-tax interest coverage	4.9	3.9	3.1	3.1	3.1
Standard and Poor's—US Utilities (2003)	AA	AA	AA	AA	AA
<b>Ability to repay debt</b>					
Funds flow net debt payback	3.36	4.14	4.35	4.15	3.87
NSW Treasury rating (2002)	AA	A	A	A	A+
Funds from operations/total debt	19%	14%	13%	15%	16%
Standard and Poor's—US Utilities (2003)	AA	BBB	BBB	BBB	A
(Net debt)/(regulatory value of fixed assets + working capital)	31%	36%	36%	34%	32%
NSW Treasury rating (2002)	AA+	AA+	AA+	AA+	AA+
Standard and Poor's—US Utilities (2003)	AA	AA	AA	AA	AA
<b>Ability to finance investment from internal sources</b>					
Internal financing ratio	26%	28%	79%	108%	199%
NSW Treasury rating (2002)	B	B	A+	AAA	AAA
Net cash flow/capital expenditure (%)	29%	23%	63%	104%	190%
Standard and Poor's—US Utilities (2003)	BB	BB	A	AA	AA
<b>NSW Treasury total score (0–10)</b>					
NSW Treasury total score (0–10)	6.75	6.25	7.75	8.50	8.75
Overall rating	A	A	A+	AA	AA

Notes:

(i) The Commission particularly relies on indicators based on cash flows because these are not as subjective as indicators that use components derived from estimates (such as asset value and depreciation).

(ii) The information in this table should be read and understood only after reviewing the remainder of this section and the explanations and qualifications mentioned therein.

1. EBITA interest cover = interest cover on earnings before interest, tax, depreciation and amortisation
2. Pre-tax interest coverage = EBIT/net interest
3. Funds from operations interest coverage = (Pre-tax funds flow + net interest)/(net interest)
4. Funds flow net debt payback = (Net debt)/(NPAT + depreciation + tax expense – tax paid)
5. Funds from operations/total debt = Funds from operations (FFO) defined below/total debt
6. Internal financing ratio = (NPAT excluding capital contributions + depreciation – dividends payable)/(capital expenditure net of capital contributions)
7. Net cash flow/capital expenditure (%) = (Funds from operations – dividends)/(capital expenditure net of capital contributions)
8. Net debt = all interest bearing debt – cash and interest bearing investments
9. Funds from operations = Profit after tax excluding capital contributions + depreciation + movement in working capital and provisions (excluding provisions for tax and dividends) + cost of assets sold
10. NPAT = Net profit after tax



# 13 Ecologically sustainable development

## 13.1 Introduction

Section 20(2)(f) of the ICRC Act requires the Commission to have regard to the principles of ecologically sustainable development in making a price direction. Section 20(4) of the ICRC Act, *ecologically sustainable development*, requires the effective integration of economic and environmental considerations in decision making processes through the implementation of the following principles:

1. the precautionary principle—that if there is a threat of serious or irreversible environmental damage a lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation
2. the intergenerational equity principle —that the present generation should ensure that health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations
3. conservation of biological diversity and ecological integrity
4. improved valuation and pricing of environmental resources.

Key aspects of ACTEW’s operations and this price determination that are relevant to the principle of economically sustainable development include:

- the objective of reducing water abstractions and usage through restrictions, pricing, demand management and other measures such as water recycling
- ensuring that ACTEW meets its environmental obligations such as those contained in its wastewater discharge licences and its obligations to meet environmental flows.

## 13.2 Demand management

In April 2004 the ACT Government released *Think Water, Act Water—a Strategy for Sustainable Water Resource Management in the ACT*. The strategy defined actions to achieve sustainability objectives for water use in the ACT to 2050, including to:

- increase the efficiency of water usage
- provide a long term reliable source of water for the ACT and the region
- protect the water quality in ACT rivers, lakes and aquifers, to maintain and enhance environmental, amenity, recreational and designated use values and to protect the health of people in the ACT and down river.

A key policy target is the reduction in per capita consumption of mains water by 12% by 2013 and 25% by 2023. The 2013 target is currently being achieved because temporary restrictions are in place. However the targets will only be achieved on an ongoing basis with changes in community attitudes and investment in water savings appliances.

### 13.2.1 Restrictions

Consumption of water from ACTEW’s potable water supply system is subject to restrictions on the use of that water. There are several different levels of restrictions.

Permanent water conservation measures (PWCMS) were first introduced in March 2006 and apply at all times when temporary restrictions are not in place. Amongst other things PWCMS:

- limit the times at which sprinkler and other irrigation systems can be used to water lawns and plants;
- prohibit the cleaning of paved areas with water except with a bucket and mop or high pressure, low volume cleaner;
- place restrictions on the cleaning of buildings; and
- place restrictions on water used for dust or pollutant suppression.

Temporary water restrictions may be imposed in accordance with Regulation 12 of the *Utilities (Water Conservation) Regulation 2006*. Before imposing temporary water restrictions ACTEW must consult with the Minister and the Environmental Protection Agency. There are four stages of water restrictions, each of increasing severity. The restrictions target outdoor water use—no restrictions on indoor use apply. A summary of some of the elements of the restrictions schemes is set out in the table below.

Table 13.1 Restrictions summary, stages 1 to 4

Year ending 30 June	Stage 1	Stage 2	Stage 3	Stage 4
Target reductions	10%	25%	35%	55%
Private gardens, nurseries	Sprinklers and irrigation systems only used 7–10am and 7–10pm on alternate days. Hand held hose with a trigger nozzle, bucket or watering can may be used at any time.	No sprinklers or irrigation systems (except drippers) may be used. Trigger hose, bucket or watering can may only be used 7–10am and 7–10pm on alternate days.	As per stage 2 but no watering of lawns is permitted.	No external watering of lawns and plants except using non-potable water.
Public lawns and gardens, golf courses	Target of 10% reduction should be met.	Target of 25% reduction should be met.	Target of 35% reduction should be met.	Target of 55% reduction should be met.
Paved areas	Water not used to clean except in emergency.	As per Stage 1	As per Stage 1.	As per Stage 1.
Private swimming pools	Not to be emptied or filled without exemption. May be topped up with hand held hose.	Not to be emptied or filled without exemption. Must not be topped up without exemption unless pool is covered.	Not to be emptied, filled or topped up without exemption.	As per Stage 3.
Vehicle washing	May be washed at a commercial car wash or on a lawn or porous surface using a hand held trigger hose, bucket or high pressure low volume cleaner.	As per Stage 1 but commercial car wash must recycle water and hold an exemption.	No vehicle washing except at commercial car wash that recycles water and holds an exemption.	No vehicle washing.

The ACT is currently operating under Stage 3 restrictions.

### 13.2.2 Demand management measures

*Think Water Act Water* set out a numbers of measures to improve water efficiency, including:<sup>96</sup>

- providing a rebate for AAA showerheads;
- subsidising household water tune-ups;
- subsidising household garden tune-ups;
- subsidising provision and fitting of a AAA 6/3 litre dual flush toilet in place of a single flush toilet;
- providing a rainwater tank rebate scheme;
- information and awareness programs;
- supporting a national scheme for compulsory water efficiency labelling of appliances; and
- a range of regulations to support more water efficient use of water in the home and garden.

A submission from the O’Malley Park Executive Committee criticised the ACT Government and ACTEW’s efforts to encourage reduced water consumption through means other than pricing and restrictions. The Committee noted that some years ago ACT residents were offered two free water reducing showerheads; however this subsidy has since been discontinued. The Committee was unable to identify any other positive incentives to reduce water use in the ACT and noted that ACTEW’s website was silent on these matters. The Committee considered that ACTEW’s actions did not compare favourably with those of interstate water authorities.

The Commission agrees with several of the Committee’s concerns. Despite water restrictions currently being more severe than in 2004, of the measures offered to customers that are set out above, only the rainwater tank rebates and the garden tune ups remain. The availability of these offers is not well published on the ACTEW website. The Commission notes that the situation in the ACT compares poorly with, for example, the range of rebates and other opportunities offered in Victoria. For example, the Yarra Valley Water website provides details of offers including:

- free showerhead exchange;
- free water efficiency audit for pensioners and other concession card holders; and
- rebates on permanent greywater systems, rainwater tanks, tank to toilet connection, dual flush toilets, water conservation audits, hot water recirculator, and rebates on a basket of water efficient products.

It is outside the Commission’s ambit to review these schemes in any detail, and funding for such measures is typically provided by Government rather than directly through water prices. In some cases these measures may have lower economic returns than alternatives. However, the Commission believes that the Government and ACTEW should revisit these measures as a potential complement to restrictions and pricing.

### 13.2.3 Water reuse and recycling

The ACT has a target of increasing the use of reclaimed water to 20% by 2013.<sup>97</sup> However, as *Think Water Act Water* notes, this target is challenging and broad-scale opportunities for using

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<sup>96</sup> *Think Water Act Water* summary, p. 2.

<sup>97</sup> *Think Water Act Water* volume 1, p. 36

reclaimed water can be very costly and require individual proposal assessment. It is necessary to consider carefully the cost effectiveness, health and environmental implications of reuse proposals.

ACTEW has two major water recycling projects—at Southwell Park and North Canberra. The Southwell Park project is a watermining facility where water is extracted from the sewer, treated and then used for irrigation. The North Canberra project irrigates sporting fields in the North Canberra area using treated wastewater from the Fyshwick treatment plant. Of the two, the North Canberra project is the most cost effective and reliable. Both the Fyshwick treatment plant and the reuse facilities are being upgraded to cater for greater demands. However, together these projects will not enable ACTEW to come close to achieving the 20% recycling target set out in *Think Water Act Water*.

The Commission received a number of submissions urging it not to accept any proposals for the recycling of sewage for drinking water. A submission from Jo Forestier argued that recycled sewage was expensive and potentially dangerous to health. Professor Peter Collignon expressed similar concerns, noting that:

In my view this proposal to recycle sewage should not proceed in Canberra. We have ample flows of much safer water that could be stored and used for human consumption. If we proceed we will be creating a human health hazard needlessly for our population at great financial cost and without any obvious benefit to our environment.

Policy decisions on the use of recycled water for drinking purposes are ultimately up to the Government and technical regulators to decide. The Commission understands that there are no proposals to incorporate recycled sewage for drinking purposes at this time. Further decisions on the use of recycled water in the ACT are likely to be made by the Government following the design of the water purification plant.

## 13.3 Environmental obligations

### 13.3.1 Effluent discharges

Key environmental standards are established for ACTEW's operations in accordance with the *ACT Environmental Protection Act 1997* and the Environmental Protection Regulations 1997. These legislative requirements impact on ACTEW in a number of ways, the most important being through the licence conditions applying to ACTEW's wastewater treatment plants, including the LMWQCC. Further, the Territory-owned Corporations Act requires ACTEW to conduct its operations consistent with the principle of ecologically sustainable development.

The LMWQCC is a relatively advanced and sophisticated treatment plant. Discharges from the treatment plant form a component of the flow of the Murrumbidgee River. Compliance with licence conditions is generally high. ACTEW makes data on its performance available on its website on a monthly basis.<sup>98</sup>

ACTEW currently has a major project under way to upgrade the capacity of the LMWQCC including the replacement of pumps and other mechanical and civil equipment. Amongst other things this will allow improved ammonia and nitrogen management capacity. Nitrogen levels have been nearing licence limits in the last 12 months.

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<sup>98</sup> Other performance information, including in relation to water quality, is also available on the website.

Meeting environmental standards is a significant cost driver for ACTEW. In cases where a regulated business proposes to exceed minimum environmental standards, a regulator must be convinced that the community requires, and is willing to pay for, the higher service levels.

This draft decision allows ACTEW to recover its cost of meeting environmental compliance requirements in the ACT and to undertake necessary upgrade works, in particular at LMWQCC.

### **13.3.2 Environmental flows**

As noted in Chapter 2, under ACTEW's licence to take water it is required to release a certain level of environmental flows to ensure the health of aquatic systems. This decision acknowledges the fact that these releases will continue to be required in the future and that these environmental flows ultimately reduce the amount of water available for human consumption. However, contrary to some claims, ACTEW does not deliberately release water beyond the environmental flow requirements except in circumstances where there is a spill at one of the storages. The existing Cotter Dam is more prone to spills as it normally maintained near full capacity, although recent upgrading to the Cotter pump station has now allowed further water to be taken from the Cotter Dam storage. The Government determines environmental flow guidelines. In recognition of the recent prolonged drought, the environmental flow requirements have been reduced in recent years.

## **13.4 Conclusion**

The commission believes that this draft decision, which has been made with due regard to the principles of ecologically sustainable development, will contribute towards positive outcomes for the environment.



# Appendix 1 Draft Price Direction

This appendix contains the Commission's draft price direction in respect of water, wastewater and trade waste services for the five year period 1 July 2008 to 30 June 2012.

## 1. Period of direction

As foreshadowed in this report and provided for under section 20C of the ICRC Act, the provisions below will apply to the five year period 1 July 2008 to 30 June 2013. The Commission proposes that a new price direction be made to apply from 1 July 2013.

## 2. Services to be regulated

The following services will be regulated by the Commission and the prices for these services will be subject to the formulas and other arrangements set out in clauses 3 to 9 below:

- the provision of water services by ACTEW (including the availability of supply) to domestic, commercial, and industrial premises
- the provision of wastewater services by ACTEW (including the availability of supply) to domestic, commercial, and industrial premises
- miscellaneous services provided by ACTEW, including
  - special meter readings
  - testing of water meters
  - the provision of rate certificates
  - tapping into water mains
  - installation of fire hydrants
  - disconnection
  - installation and removal of stop valve locking cover
  - meter relocation.
- the provision of bulk water by ACTEW
- the provision of trade waste services and reuse water by ACTEW.

## 3. Price control for water services and wastewater services

### 3.1 Water services

The price to be charged for water services in each year of the regulatory period is set out in the table below.

	2008–09	2009–10	2010–11	2011–12	2012–13
Fixed charge	85.00	85.00×(1+ΔCPI <sub>1</sub> )	85.00×(1+ΔCPI <sub>2</sub> )	85.00×(1+ΔCPI <sub>3</sub> )	85.00×(1+ΔCPI <sub>4</sub> )
Volumetric charge (\$/kl)					
Tier 1 (0 - 137 kl/day)	1.75	1.75×(1+ΔCPI <sub>1</sub> )	1.75×(1+ΔCPI <sub>2</sub> )	1.75×(1+ΔCPI <sub>3</sub> )	1.75×(1+ΔCPI <sub>4</sub> )
Tier 1 (138 + kl/day)	3.50	3.50×(1+ΔCPI <sub>1</sub> )	3.50×(1+ΔCPI <sub>2</sub> )	3.50×(1+ΔCPI <sub>3</sub> )	3.50×(1+ΔCPI <sub>4</sub> )

The CPI figures will be determined using the following formula:

$$\Delta\text{CPI}_1 = \frac{\text{CPI}_{\text{March 2008}} + \text{CPI}_{\text{June 2008}} + \text{CPI}_{\text{Sept 2008}} + \text{CPI}_{\text{Dec 2008}}}{\text{CPI}_{\text{March 2007}} + \text{CPI}_{\text{June 2007}} + \text{CPI}_{\text{Sept 2007}} + \text{CPI}_{\text{Dec 2007}}} - 1$$

$$\Delta\text{CPI}_2 = \frac{\text{CPI}_{\text{March 2009}} + \text{CPI}_{\text{June 2009}} + \text{CPI}_{\text{Sept 2009}} + \text{CPI}_{\text{Dec 2009}}}{\text{CPI}_{\text{March 2007}} + \text{CPI}_{\text{June 2007}} + \text{CPI}_{\text{Sept 2007}} + \text{CPI}_{\text{Dec 2007}}} - 1$$

$$\Delta\text{CPI}_3 = \frac{\text{CPI}_{\text{March 2010}} + \text{CPI}_{\text{June 2010}} + \text{CPI}_{\text{Sept 2010}} + \text{CPI}_{\text{Dec 2010}}}{\text{CPI}_{\text{March 2007}} + \text{CPI}_{\text{June 2007}} + \text{CPI}_{\text{Sept 2007}} + \text{CPI}_{\text{Dec 2007}}} - 1$$

$$\Delta\text{CPI}_4 = \frac{\text{CPI}_{\text{March 2011}} + \text{CPI}_{\text{June 2011}} + \text{CPI}_{\text{Sept 2011}} + \text{CPI}_{\text{Dec 2011}}}{\text{CPI}_{\text{March 2007}} + \text{CPI}_{\text{June 2007}} + \text{CPI}_{\text{Sept 2007}} + \text{CPI}_{\text{Dec 2007}}} - 1$$

where CPI means the Consumer Price Index, All Groups Index number for the weighted average of eight capital cities as published by the Australian Bureau of Statistics; if the Australian Bureau of Statistics does not or ceases to publish the index, then CPI will mean an index determined by the Commission that is its best estimate of the index.

### 3.2 Wastewater services

The price to be charged for wastewater services in each year of the regulatory period (in 2006–07 dollars) is set out in the below.

	2008–09	2009–10	2010–11	2011–12	2012–13
Fixed charge	445.35	445.35×(1+ΔCPI <sub>1</sub> )	445.35×(1+ΔCPI <sub>2</sub> )	445.35×(1+ΔCPI <sub>3</sub> )	445.35×(1+ΔCPI <sub>4</sub> )
Per fixture change (for greater than 2 fixtures)	435.53	435.53×(1+ΔCPI <sub>1</sub> )	435.53×(1+ΔCPI <sub>2</sub> )	435.53×(1+ΔCPI <sub>3</sub> )	435.53×(1+ΔCPI <sub>4</sub> )

The CPI figures will be determined using the formula given for water services.

### 3.2 Miscellaneous services

The price to be charged for each miscellaneous service (P<sub>t</sub>) in each year of the regulatory period, including 2008–09, is to be calculated in the following manner:

$$P_t = P_{t-1} * (1 + \text{CPI}_{(t)})$$

Where P<sub>t-1</sub> is the price charged for the miscellaneous service in the previous year and CPI<sub>(t)</sub> is defined as:

$$\text{CPI}_{(t)} = \frac{\text{CPI}_{\text{March}(t-2)} + \text{CPI}_{\text{June}(t-2)} + \text{CPI}_{\text{Sept}(t-1)} + \text{CPI}_{\text{Dec}(t-1)}}{\text{CPI}_{\text{March}(t-3)} + \text{CPI}_{\text{June}(t-3)} + \text{CPI}_{\text{Sept}(t-2)} + \text{CPI}_{\text{Dec}(t-2)}} - 1,$$

where

- CPI means the Consumer Price Index, All Groups Index number for the weighted average of eight capital cities as published by the Australian Bureau of Statistics; if the Australian Bureau of Statistics does not or ceases to publish the index, then CPI will mean an index determined by the omission that is its best estimate of the index;
- year t is the July to June regulatory year for which tariffs are being set;
- year t-1 is the previous regulatory year;
- year t-2 is regulatory year two years previous;
- year t-3 is regulatory year three years previous; and
- Dec is December and Sept is September.

## 4. Bulk water

ACTEW must provide bulk water on the basis that customers pay at least the avoidable cost of supply, and less than the stand-alone cost of supply. Furthermore, bulk water prices should be set on the basis of the following principles:

- prices should seek to recover avoidable costs;
- prices should provide for a fair and reasonable rate of return on capital invested;
- prices should discourage uneconomic bypass; and
- prices should be set according to a well defined and clearly explained methodology.

## 5. Price approval process

### 5.1 ACTEW submission

On or before 1 March each year (for all years 2009 to 2012) ACTEW must provide the following to the Commission:

- proposed tariffs for the services which are subject the price controls in clause 3 of this price direction;
- information to demonstrate to the Commission that the proposed tariffs comply with the requirements of clause 3 of this price direction, and other supporting data, including ACTEW's calculation of the CPI; and
- any other information specified by the Commission that the Commission reasonably requires to assess whether the proposed tariffs comply with this price direction.

## **5.2 Commission consideration**

The Commission will advise ACTEW prior to 1 April each year (for all years 2009 to 2012) whether the tariffs proposed under clause 5.1 comply with this price direction and, if they do not comply, the reasons that they do not comply.

If the Commission does not provide advice to ACTEW by 1 May (for all years 2009 to 2012) in accordance with this clause 5.2 the proposed tariffs will be deemed to comply with this price direction.

## **5.3 ACTEW resubmission**

If the Commission has advised ACTEW that the tariffs do not comply or has sought additional information from ACTEW, ACTEW must resubmit revised tariffs or provide additional information to the Commission by a date to be specified by the Commission.

Within 20 business days of receiving revised tariffs or information from ACTEW the Commission will advise ACTEW whether the revised tariffs comply with the price direction or will indicate the additional information the Commission requires from ACTEW in order to form an opinion as to whether they comply or not.

If the Commission has advised ACTEW that the tariffs do not comply or requires further additional information the provisions of this clause 5.3 will continue to apply until the Commission approves the tariffs as complying with this price direction.

## **5.4 Non-compliance**

If by 1 June ACTEW has not proposed tariffs to the Commission or the Commission has not approved the proposed tariffs then than tariffs will remain at their current level. These tariffs will remain in place until the Commission approves tariffs proposed by ACTEW consistent with the provisions of this price direction.

## **6. Cost pass-throughs**

A pass-through event is either:

- a change in taxes event;
- an act of terrorism;
- major natural disaster;
- a subvention payment event;
- a service standard event; or
- a water shortage event.

### **6.1 Change in taxes event**

A change in taxes event is:

- a change in the way or rate at which a relevant tax is calculated (including a change in the application or official interpretation of a relevant tax)

or

- the removal of a relevant tax or imposition of a new relevant tax

which in each case occurs on or after 30 June 2008.

Relevant taxes are any tax, rate, duty, charge of levy or other like or analogous impost that is imposed by or payable directly or indirectly by ACTEW to any authority of the Commonwealth of Australia or the government of the ACT, including goods and services tax, the Water Abstraction Charge and the Network Facilities Tax but excluding:

- income tax (or ACT-equivalent income tax) or capital gains tax
- stamp duty, financial institutions duty, bank account debits tax or similar taxes or duties
- penalties and interest for late payment relating to any tax
- any tax which replaces the taxes referred to above, where ‘tax’ includes any rate, duty, charge or other like or analogous impost.

## 6.2 Acts of terrorism or a major natural disaster

A terrorism event or major natural disaster event is an act of terrorism or a major natural disaster (including but not limited to fire, flood or earthquake) which results in costs which are substantially different to those reasonably foreseen by the Commission and ACTEW and incorporated in this price direction.

## 6.3 Subvention payment event

A subvention payment event occurs where for a particular year the subvention payment from the Commonwealth Government to ACTEW differs from the amount incorporated in this price direction.

The amounts incorporated in this price direction are:

Year t	<b>Subvention payment</b> <b>\$'000 (2006–07 dollars)</b>
2008–09	9,363
2009–10	9,318
2010–11	9,272
2011–12	9,272
2012–13	9,272

No subvention event will be deemed to have occurred in the event that ACTEW receives a payment from the Commonwealth Government or ACT Government that explicitly or implicitly replaces the subvention payment, except to the extent that the amount differs by more than \$1 million (in 2006–07 dollar terms) from the amount incorporated in this price direction.

## 6.4 Service standards event

A service standards event means a decision made by the Commission or any other Authority, or any introduction of or amendment to an Applicable Law, after 31 March 2004 that has the effect of:

- (i) imposing or varying minimum standards on ACTEW relating to water and wastewater services that are more onerous than the minimum standards applicable to ACTEW in respect of water and wastewater services at 31 March 2004
  - (ii) altering the nature or scope of water and wastewater services required to be provided by ACTEW
- or
- (iii) substantially varying the manner in which ACTEW is required to provide water and wastewater services from 31 March 2004

where

- an ‘Applicable Law’ is ACTEW’s licence to supply water and wastewater services, the *Utilities Act 2000*, the *Environment Protection Act 1997*, the *Independent Competition and Regulatory Commission Act 1997*, the *Emergency Management Act 1999*, the *Land (Planning and Environment) Act 1991*, the *Occupational Health and Safety Act 1989*, the *Water and Sewerage Act 2000* and the *Water Resources Act 1998*
- an ‘Authority’ means ACT WorkCover, the ACT Environmental Management Authority, the NSW EPA or the Commonwealth Grants Commission.

## 6.5 Water shortage event

A water shortage event occurs where ACTEW is required to undertake additional actions and incur materially higher expenditure on ensuring the security of supply of water to its customers than was envisaged in this price determination. This includes:

- undertaking prudent capital works or incurring prudent increased operating expenditure associated with a new supply source
- undertaking additional demand management activities over and above those assumed in this price determination
- any other activities (e.g. water carting) required to ensure supply security which were not assumed in this price determination

## 6.6 Materiality test

The effect of the terrorism or major natural disaster event, service standard event and water shortage event must be such that the total annualised cost incurred by ACTEW as a result of the event occurring is at least \$1 million (in 2006–07 dollar terms) in aggregate terms from 2008–09 to 2011–12. [i.e. first 4 years only] The annualised cost in any one year is equal to the amount of additional operating expenditure incurred in that year plus 15% of the additional capital expenditure incurred in that year.

The effect of the change in taxes event must be such that the total annualised cost incurred by ACTEW as a result of the event occurring is at least \$1 million in relation to the year for which the pass-through is sought.

### **6.8 Recovery of pass-through amount—change in the WAC**

ACTEW may, when submitting proposed tariffs to the Commission in accordance with clause 5.1, seek to incorporate in tariffs the effect of a change in the WAC. A submission must include

- details of the change in the WAC and
- the date the change in taxes event occurred or is anticipated to occur.

If the Commission receives a submission under this clause it must decide whether the pass-through event specified in the statement will occur, occurred or is continuing. If the Commission decides that the pass-through event will occur, occurred or is continuing the Commission will pass through 1.1 cents for each 1 cent increase in the rate of the WAC. This adjustment to prices will be rounded to the nearest whole cent.

### **6.9 Recovery of pass-through amount—other pass-through events**

ACTEW may, when submitting proposed tariffs to the Commission as part of the Commission's price determination for the period commencing on 1 July 2013, seek to incorporate in tariffs the effect of pass-through events on ACTEW's costs during the period 1 July 2008 to 30 June 2012. A submission must include:

- details of the pass-through event
- the date the pass-through event occurred
- the estimated financial impact of the pass-through event on ACTEW and the basis on which this impact has been calculated
- the pass-through amount proposed by ACTEW in relation to the pass-through event.

If the Commission receives a submission under this clause it must decide whether the pass-through event specified in the statement has occurred, and if so, the pass-through amount and the basis on which the pass-through amount is to apply. In making this decision, the Commission will allow the impact of the pass-through event to be rolled forward at the nominal risk-free rate established in this draft decision.

The impact of any pass-through events in 2012–13 will be considered by the Commission when considering tariffs for the regulatory period subsequent to the regulatory period commencing on 1 July 2013.

### **6.10 Factors the Commission will consider**

In deciding the pass-through amount and the basis on which the pass-through amount is to apply in accordance with clauses 6.8 and 6.9, the Commission must ensure the financial effect on ACTEW associated with the pass-through event is economically neutral. The Commission must also have regard to the matters set out in section 20(2) of the *Independent Competition and Regulatory Commission Act 1997*.

## **6.11 Commission may initiate pass-through**

If a pass-through event occurs and ACTEW is likely to be affected by the event but does not give the Commission a submission in accordance with clause 6.8 or 6.9, the Commission may decide on a pass-through amount (which may be a negative amount) and the basis on which the pass-through amount is to apply. In doing so the Commission:

- may seek information from ACTEW in relation to the pass-through event and the pass-through amount
- must notify ACTEW in writing of the pass-through amount, the basis on which the pass-through amount is to apply, and the reason for the Commission's decision.

## **6.12 No effect on compliance**

A pass-through amount applied by ACTEW is not taken into account in deciding whether proposed tariffs comply with clause 3 of this price direction.

# **7. Revenue pass-throughs**

## **7.1 Revenue pass-throughs**

Where the net present value of actual revenue earned by ACTEW over the period 2008–09 to 2011–12 from the services set out in clauses 3 and 4 of this price direction differs by more than 10% from the forecast net present value of revenue set out in the Commission's price determination then ACTEW must, when submitting proposed tariffs to the Commission as part of the Commission's price determination for the period commencing on 1 July 2013, seek to incorporate in tariffs a revenue pass-through amount. If there has been a pass-through for a change in the WAC, forecast revenue must be adjusted for the change in the WAC payments.

## **7.2 Consideration of revenue pass-through amount**

If the Commission receives a submission under this clause 7 and once the Commission is satisfied that the revenue pass-through amount has calculated correctly it will incorporate the revenue pass-through amount in tariffs for the regulatory period commencing on 1 July 2013.

Prior to making these decisions the Commission may seek additional information from ACTEW.

The impact of the difference between forecast and actual revenue in 2012–13 will be considered by the Commission when considering tariffs for the regulatory period subsequent to the regulatory period commencing on 1 July 2013.

# **8. Trigger events**

The following events are price variation triggers which would entitle the Commission to initiate a reference to make a variation to this price direction:

- acts of terrorism
- major natural disasters.

These events will be price variation triggers where they severely restrict ACTEW's ability to provide services and impose a total annualised cost on ACTEW for the remainder of the regulatory period of more than \$10 million (in 2006–07 dollar terms).

## **9. Reset principles**

As required under section 20B of the ICRC Act, the future reset principles are:

- The Commission will seek a reference from the ACT Treasurer regarding services covered by this direction 18 months prior to the expiry of the regulatory period as set in clause 1 of this direction.
- The Commission will roll forward the Regulatory Asset Base to determine the opening value as at the start of the regulatory period commencing on 1 July 2013.
- The Commission will monitor and assess the prudence of ACTEW's capital expenditures.
- The Commission will assess the pricing structures for water, wastewater and trade waste services used over the regulatory period covered in clause 1 of this direction. This will include an assessment of any additional research undertaken by the Commission, ACTEW or interested parties with regards to the appropriateness of various pricing structures.

## Appendix 2 Terms of Reference

### Independent Competition and Regulatory Commission (Regulated Water and Sewerage Services) Terms of Reference Determination 2007<sup>99</sup>

#### Disallowable instrument DI2007–65

made under the

*Independent Competition and Regulatory Commission Act 1997* ('the Act'), Section 15 (Nature of industry references) and Section 16 (Terms of industry references)

#### ***Reference for investigation under s. 15:***

Pursuant to subsection 15(1) of the Act, I refer to the Independent Competition and Regulatory Commission (the 'Commission') the matter of an investigation into, and the making of a price direction for, regulated water and sewerage services provided by ACTEW Corporation Limited ('ACTEW').

#### ***Specified requirements in relation to investigation under s. 16:***

Pursuant to subsection 16(1) of the Act, I specify the following requirements in relation to the conduct of the investigation:

1. The territory intends to continue to impose a charge on ACTEW (currently the Water Abstraction Charge) to recover from ACTEW (and all other water takers) the costs associated with the taking of water and to reflect the value of water as a scarce resource.
2. The territory may set the charge referred to in paragraph 1 for the period 2008–09 to 2013–14 at a level or levels designed to:
  - a. support the policies of the ACT Government, particularly as set out in the document entitled *Think Water, Act Water—Strategy for Sustainable Water Resource Management in the ACT*, and its target of a 'reduction in per capita consumption of mains water by 12 per cent by 2013 and 25 per cent by 2023'; and
  - b. support such further reductions in water consumption as may be considered necessary or appropriate from time to time having regard to the impact of drought or other factors affecting the availability of water for supply in the territory.

The setting of this charge will be in conjunction with other existing and possible future demand management policies of a non-price nature.
3. In making the price direction, the Commission is required to have regard to the charge referred to in paragraph 1 (as well as the possibility that the territory will change the level of the charge), the ACT Government policies referred to in paragraphs 2a and 2b, as well as ecologically sustainable development and National Water Initiative policies agreed to by the ACT Government.

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<sup>99</sup> Name amended under Legislation Act, s. 60.

4. In arriving at its decision on the price direction, the Commission should examine all regulatory models available to it under subsection 20A(1) of the Act, and report on the various costs and benefits to ACTEW, the territory and the community under each approach.
5. In arriving at its decisions in relation to the price direction, the Commission should have regard to:
  - a. ACTEW's need to invest and sustainably maintain and manage its assets to maximise the security of the territory's water supply, particularly having regard to the current severe drought and the longer term impact of the damage to water catchments arising from the 2003 bushfires;
  - b. the commercial value of past investment by ACTEW or its predecessor bodies in infrastructure that continues to deliver services and is needed to sustain a high standard of service to all residents of the territory, giving particular consideration to an optimised depreciated replacement cost valuation as applies in relation to other utilities;
  - c. an assessment of the commercial value of ACTEW's regulatory asset base that gives particular consideration to all investment in the water network (including water and sewerage assets purchased or transferred from the Commonwealth in 1988 at the time of the creation of the ACT Electricity and Water Authority or otherwise gifted to it) and appropriately reflects the re-instatement of assets returned to service as the result of changes to operating procedures during the current period;
  - d. an appropriate allowance for a cost of capital that ensures optimal incentives to invest and to manage the potential risks and costs to the community of under-funding, and under-investment in, infrastructure services;
  - e. ACTEW's objectives under the *Territory-owned Corporations Act 1990* 'to operate at least as efficiently as any comparable business', 'to maximise the sustainable return to the Territory on its investment in the corporation...', 'to show a sense of social responsibility by having regard to the interests of the community in which it operates, and by trying to accommodate or encourage those interests' and 'to operate in accordance with the object of ecologically sustainable development';
  - f. incentives for ACTEW to undertake commercial investment in research and development in water and sewerage services in the territory; and
  - g. achieved efficiencies in service delivery and appropriate incentives to both ACTEW and the operator, currently ActewAGL, to ensure ongoing efficiencies.
6. In accordance with section 16(2)(a) of the Act, the Commission is to provide its final report by 1st March 2008.

Simon Corbell MLA  
Attorney-General  
February 2007

# Independent Competition and Regulatory Commission (Regulated Water and Sewerage Services) Terms of Reference Amendment Determination 2007

## Disallowable instrument DI2007–293

made under the

*Independent Competition and Regulatory Commission Act 1997* ('the Act'), Section 15 (Nature of industry references) and Section 16 (Terms of industry references)

### 1 Name of instrument

This instrument is the Independent Competition and Regulatory Commission (Regulated Water and Sewerage Services) Terms of Reference Amendment Determination 2007.

### 2 Commencement

This instrument commences on the day after notification.

### 3 Amendment

This instrument amends DI 2007–65 as follows:

Clause 6, substitute:

- 6 In accordance with paragraph 16(2)(a) of the Act, the Commission is to provide its final report by 11 April 2008.

Simon Corbell MLA  
Attorney-General  
29 November 2007

## Appendix 3 List of submissions

The following submissions have been received by the Commission in relation to this price determination:

Date	Submitter	Subject
24 Mar 2007	Mrs Jo Forestier	Future supply options and ACTEW efficiency
27 March 2007	Professor Peter Collignon	Recycled sewage
15 Jun 2007	Mrs Jo Forestier	Recycled sewage
29 Jun 2007	Mr Ben Ponton, ACT Planning and Land Authority	Advising that consultant has been engaged and further submissions will be made
16 Jun 2007	Mr Scott Crawford	Increasing water consumption charges based on water restrictions
18 Jun 2007	Mr Nick Mayo and Ms Sarah Clayton	Wastewater charges
31 July 2007	ACTEW	Submission: Investigation into prices for water and wastewater services in the ACT
6 September 2007	Mr John McCarthy, Water Our Garden City Inc.	ACTEW asset base and rate of return, water tariff structure
7 September 2007	ACTEW	Response to ICRC water and wastewater discussion papers
8 Sept 2007	Mr Scott Crawford	Response to ICRC Discussion Paper 3
11 September 2007	Mr Terry Dwyer	Observations on Discussion Papers and water tariff issues
12 September 2007	Mr Peter Sutherland, Essential Services Consumer Council	Water pricing and low income and disadvantaged utility customers
21 September 2007	Mr Gary Chapman, Queanbeyan City Council	Water abstraction charge and prices for Queanbeyan
22 September 2007	Ms Suzanne Vidler, O'Malley Park Executive Committee	Water restrictions, tariffs and incentives to reduce consumption
25 September 2007	Mr Peter Sutherland, Essential Services Consumer Council	Additional matters raised in the Working Conclusions paper
21 October 2007	Mr Terry Dwyer (by email)	Working Conclusions paper and water tariffs
26 October 2007	Mr Neil Savery, ACT Planning and Land Authority	Technical issues related to setting water prices

## Appendix 4 KPIs under the UMA

### KPIs incorporated in the UMA

KPI No.	KPI	Description	Measure and Frequency	Target level	Fee adjustment or Underperformance (UPP) or Overperformance (OPP) levels
26	Sewerage service interruptions	The rate at which wastewater reticulation service breaks and chokes occur.	<p>Calculate number of wastewater breaks and chokes—being sewer chokes, bursts and leaks—occurring:</p> <ul style="list-style-type: none"> <li>in the mains; and</li> <li>in the mains and the Property Connections, but not in the sanitary drain of the relevant property (i.e. The total number of wastewater breaks and chokes.</li> </ul> <p>Per 1000 properties.</p> <p>In this KPI, 'property' means properties connected to the sewerage system and taken into account for billing of sewerage services, and includes both residential and non residential properties.</p> <p>Assess monthly for rolling 12 month total</p>	<p>Mains breaks/chokes per 1000 properties &lt; 35</p> <p>Total breaks/chokes per 1000 properties &lt; 50</p>	10 UPP per month in which Mains breaks/chokes per 1000 properties > 35
30	Sewage Overflows to Dwellings: response time	Measure speed of response to Sewage Overflows to Dwellings where advised by customer	<p>Percentage of Response times within 1 hour</p> <p>Performance assessed monthly.</p>	100%	\$50 per event where Response Time not within 1 hour
31	Sewerage service restoration time	Measure of timeliness of restoration of service	<p>Percentage of Response times within 5 hours.</p> <p>Performance assessed monthly on a rolling 12 month percentage basis.</p>	95%	<p>In a month, based on the 12 month rolling percentage measure for the month:</p> <ul style="list-style-type: none"> <li>1 OPP for each 0.1% &gt; 95%</li> <li>90% &lt; 95%: 1 UPP per 0.1% below 95%</li> <li>&lt;90.0%: FA of 0.05% of the MOFPA per 0.1% below 90%</li> <li>The FA for any month is limited to 1.5% of the MOFPA</li> </ul>
32	Water supply interruptions	The rate at which Unplanned Interruptions to water supply occur	<p>Number of Unplanned Interruptions to water supply services per 1000 properties per 12 month period (excluding customer service failures)</p> <p>In this KPI, 'property' means properties connected to the water supply system and taken into account for billing of water supply services, and includes both residential and non-residential properties.</p> <p>Performance assessed monthly. Each interruption to supply to a property counts as a separate event.</p> <p>12 month rolling total.</p>	<150 in any 12 month period	No FA or PP

KPI No.	KPI	Description	Measure and Frequency	Target level	Fee adjustment or Underperformance (UPP) or Overperformance (OPP) levels
33A	Attendance at burst or leaking water pipes	Average response time to Priority 1 Events	Measure average Response Time for Priority 1 Events. Assess monthly on a rolling 12 month basis. Assess PP and FA each financial year.	< 105 minutes average in a month.	If Response Time average for financial year is: <ul style="list-style-type: none"> <li>&lt;45 minutes: 150 OPP</li> <li>45 &lt; 60 minutes: 100 OPP</li> <li>60 &lt; 75 minutes: 75 OPP</li> <li>75 &lt; 90 minutes: 50 OPP</li> <li>90 &lt; 105 minutes: nil OPP</li> <li>105 &lt; 120 minutes: 50 OPP</li> <li>120 &lt; 135 minutes: FA of 0.3% of the MOFPA</li> <li>135 &lt; 150 minutes: FA of 0.7% of the MOFPA</li> <li>150 &lt; 165 minutes: FA of 1.1% of the MOFPA</li> <li>&gt; 165 minutes: FA of 1.5% of the MOFPA</li> </ul>
33B		Maximum response time to Priority 1 Events	Measure maximum Response Time for priority 1 Events. Performance assessed monthly	240 minutes	10 UPP per event where response Time is > 240 minutes
33C		Maximum response time to Priority 2 Events	Measure: <ul style="list-style-type: none"> <li>maximum Response Time for Priority 2 Events; and</li> <li>percentage of Response Times for Priority 2 Events within 24 hours</li> </ul> Performance assessed monthly,	24 hours target, 48 hour maximum for each event	<ul style="list-style-type: none"> <li>10 UPP if &lt; 95% of response times in a month are within 24 hours</li> <li>5 UPP per event where the Response Time &gt; 48 hours</li> </ul>
34A	Water services average interruption time	Timeliness of repairs to interruptions in water supply: Priority 1 Events	Measure average Interruption Time for Priority 1 Events (excludes Major Burst Events as identified by ActewAGL and ratified by PCG). Assess monthly on a rolling 12 month basis. Assess PP and FA each financial year.	< 2.5 hours average in a month	If relevant Interruption Time average for financial year is: <ul style="list-style-type: none"> <li>&lt; 1 hour: 150 OPP</li> <li>1 &lt; 1.25 hours: 100 OPP</li> <li>1.25 &lt; 1.50 hours: 50 OPP</li> <li>1.50 &lt; 2 hours: 25 OPP</li> <li>2 &lt; 2.5 hours: nil PP</li> <li>&lt; 2.5 hours: nil FA</li> <li>2.5 &lt; 3.5 hours: FA of 0.25% of the MOFPA</li> <li>3.5 &lt; 4 hours: FA of 0.5% of the MOFPA</li> <li>4 &lt; 5 hours: FA of 1.0% of the MOFPA</li> <li>&gt; 5 hours: FA of 1.5% of the MOFPA</li> </ul>
34B	Water services maximum interruption time	Timeliness of repairs to unplanned interruptions in water supply: Priority 1 Events	Measure Interruption Times for Unplanned Interruptions being Priority 1 Events (excludes Major Burst Events as identified by ActewAGL and ratified by PCG). Assessed for each financial year for PP, monthly for CAL.	Less than 6 hours per event	<ul style="list-style-type: none"> <li>120 OPP if &gt; 98% in a financial year are 4 &lt; hours</li> <li>40 OPP if &gt; 98% in a financial year are from 4 hours to &lt; 5 hours</li> <li>5 UPP per Unplanned Interruption &gt; 6 hours and ≤ 12 hours</li> <li>20 UPP per Unplanned Interruption &gt; 12 hours</li> </ul>

KPI No.	KPI	Description	Measure and Frequency	Target level	Fee adjustment or Underperformance (UPP) or Overperformance (OPP) levels
35	Planned interruptions to water and sewerage services: notice times	Measure notice times for planned interruptions to water and sewerage services	Measure occurrences (per interruption, not per premises) of failure to provide the required notice for Notified Interruptions. Must be a material failure (eg. Not simply one or two properties missed because of an inaccuracy in plans identifying the relevant shut down area). Assessed quarterly.	No occurrences	20 UPP per failure
36	Notified Interruptions to water and sewerage services: restoration of service	Measure restoration times for Notified Interruptions to service	Measure occurrences of failure to restore water and sewerage services for Notified Interruptions within 12 hours.  For water services, time is measured from when the last shut off valve is closed, until normal service is resumed.	No occurrences	20 UPP per failure
39	Responding to written customer account queries	Measure speed of response to customer account queries	Measure occurrences of failure to respond to written Query or Complaint (account queries) within current Consumer Protection Code permitted timeframes.  Assessed on a half yearly basis	No occurrences	2 UPP per failure
40	Responding to written customer complaints (other than account queries)	Measure speed of response to customer complaints received (other than account queries)	Measure occurrences of failure to respond to written Query or Complaint (other than account queries) within current Consumer Protection Code permitted timeframes.  Assessed on a half yearly basis	No occurrences	2 UPP per failure
43	Billing reliability (account issue)	Prompt issue of accounts from receipt of meter read data	Measure percentage of accounts raised and sent to the printer for printing within 2 business days of ActewAGL reviewing and approving the meter readings received from a meter reading route (comparison of 'Read' and 'Billed' system generated dates recorded in Gentracks).	100%	<ul style="list-style-type: none"> <li>• 15 UPP if quarterly performance is 95% to &lt; 97%</li> <li>• 50 UPP if quarterly performance is 90% to &lt; 95%</li> <li>• 100 UPP if quarterly performance is &lt;90%</li> </ul>
45	Customer Contact Services—call centre performance	Respond to all customer enquiries in a timely manner—call centre—answering calls	Measure percentage of calls answered within not more than 30 seconds.  Assess each financial year.	80%	<ul style="list-style-type: none"> <li>• 50 UPP if 70% to &lt; 80% in a financial year</li> <li>• 100 UPP if &lt; 70% in a financial year</li> </ul>
46	Customer Contact Services—call centre performance	Respond to all customer enquiries in a timely manner—call centre abandonment rate	Measure percentage call abandonment rate.  Assess each financial year.	≤ 5%	<ul style="list-style-type: none"> <li>• 50 UPP if &gt; 5% and ≤ 10% in a financial year</li> <li>• 100 UPP if &gt; 10% in a financial year.</li> </ul>

# Appendix 5 Summary of Technical Regulator's comments

This Appendix provides a condensed and edited (by the Commission) version of the Technical Regulator's submission to the Commission. A full copy of the submission may be found on the Commission's website.

## Introduction

The ACT Planning and Land Authority (ACTPLA) is interested in ensuring that the ICRC inquiry into water and sewerage services pricing recognizes the need for adequate funding provision for network asset renewal and preventative maintenance. This is necessary if ACTEW is to manage the physical water and sewerage network assets to an acceptable standard and maintain the serviceability of those networks.

As Technical Regulator the ACTPLA's objective is to ensure the serviceability of networks over the long-term and effective deployment by the utility of technical skills and systems to deliver the required performance. To comply with this objective a utility must maintain an adequate level of expenditure for network creation, operation, maintenance and renewal.

The Technical Regulator submitted that the chosen methodology for determining infrastructure-funding requirements should adequately recognise the interrelationships between:

- sustainable levels of service to consumers
- network serviceability
- funding to maintain network serviceability.

## General principles

The Technical Regulator submitted that the following general principles should apply in the price determination process:

- the utility should be required to maintain network serviceability at least at a stable level
- where serviceability has declined, the catch-up should be funded by the utility, not through price increases
- the pricing structure may need to make special provisions for a utility's regulatory compliance requirements, but only where those requirements are *newly introduced* or *tightened* since the previous price determination
- maintenance of network serviceability is a core utility responsibility, and price increases should *not* be permitted for the purpose of *maintaining* compliance with pre-existing regulatory requirements and technical standards. If a regulator focuses attention on a particular aspect of compliance, this should not be seen as a tightening of the regulatory framework.
- in allowing for any necessary capital works, including new works, capacity augmentations and infrastructure renewals, the regulator should be satisfied on the basis of an 'ex-ante' approach that the proposed budget or Asset Management Plan (AMP) line items represent the least cost options, on an all-of-life costing basis. In particular for maintaining network serviceability, the

work items should constitute the least all-of-life cost mix of proactive versus reactive maintenance and renewals.

- a mechanism should be in place to ensure that funds allocated or sanctioned for asset renewal and maintenance in a price determination are spent in accordance with a utility's proposed use as submitted in the determination, unless a more efficient way of achieving the same outcome is subsequently established and approved by the regulators.

## Indicators and standards

There are two principal types of performance indicators (KPIs) used in the water industry to measure water main breaks which cause interruptions to supply, both of which are benchmarked by the Water Services Association of Australia (WSAA):

- based on main breaks per 100 km of main—directly reflecting network condition and preventive maintenance, but only indirectly related to customer service level; and
- based on interruptions/1000 properties—directly reflecting current customer service levels, but only indirectly related to mains condition and upkeep. Water loss indicators, insofar as they relate to real losses<sup>100</sup> through the network, can also function as indicators of network serviceability. However, they are at best of only marginal benefit in an environment where the losses are in any case quite low.

The rate of water main mains break is the most appropriate indicator of serviceability for technical regulation purposes in the ACT.

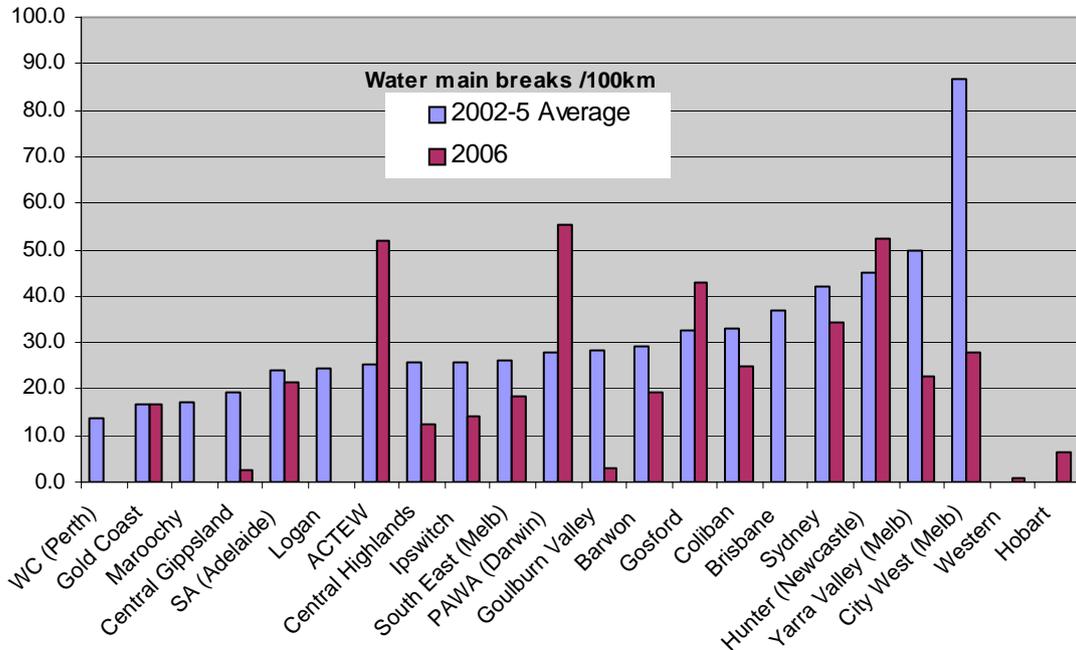
The regulatory framework established by the ACT *Utilities Act* currently does not specify any explicit performance standard for any of these indicators, although unplanned interruptions are a performance measure in the UMA. Required performance levels should, when determined, include at least a standard for main breaks per 100km. The Technical Regulator has previously proposed that introduction of explicit, and hence measurable, performance standards is necessary for effective technical regulation.

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<sup>100</sup> Water losses include apparent losses resulting from factors like unauthorised consumption and metering inaccuracies as well as authorised unmetered consumption such as for fire-fighting or mains cleaning purposes. Only the real losses resulting from leaks in the network are an indicator of network serviceability.

## Water Supply Network Serviceability and Upkeep

A chart comparing ACTEW with other Australian utilities benchmarked by WSAA with respect to water main breaks is given below:

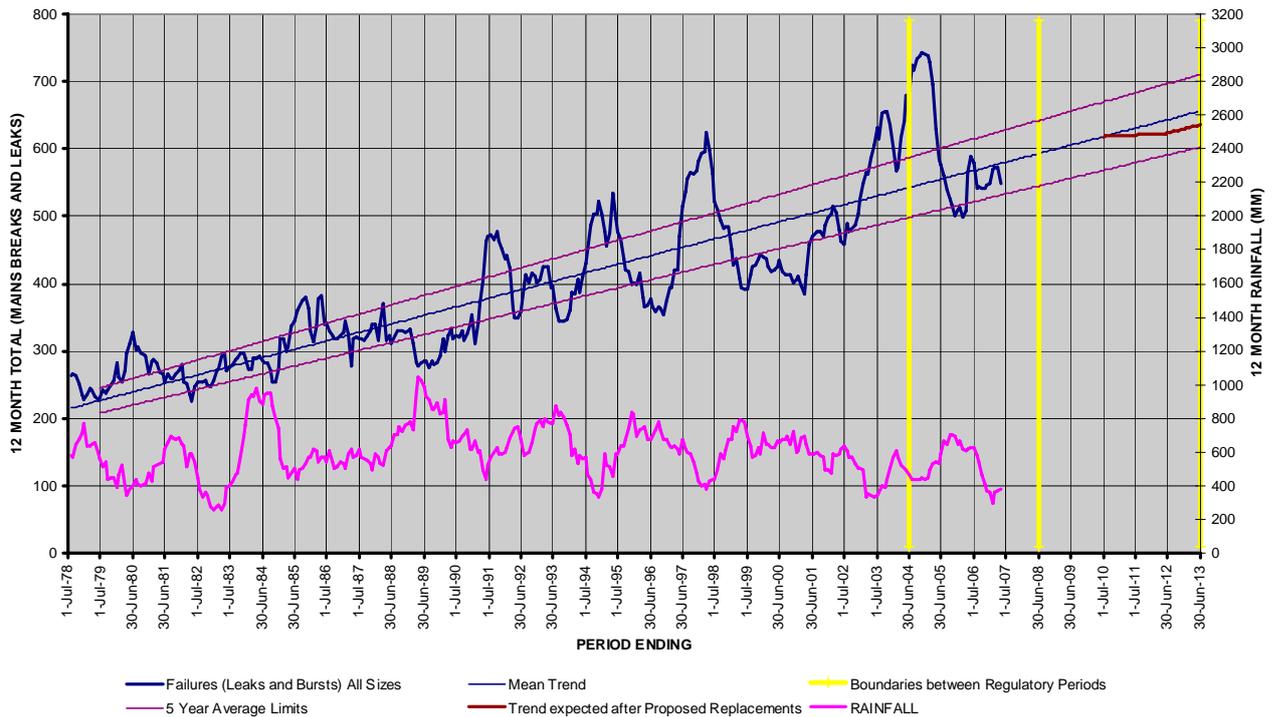


The comparison shows ACTEW as currently being middle of the pack or better in comparison to other utilities based on the pre-2006 indicator. Interpretation of the 2006 benchmark data is problematic owing to a change in the definition of the indicator.

A less comforting picture is given by the trend in ACTEW's water main breaks, which strongly suggests that the water supply network is deteriorating and has been doing so since prior to the *Utilities Act* framework. While the WSAA benchmarking data does not give a precise picture, the trend is verified by ActewAGL's own investigations report<sup>101</sup> as shown in the following graph from that report.

<sup>101</sup> ActewAGL, Reactive maintenance in the ACT water mains system - An examination of failures and trends in these failures in ACT water mains systems, first issue, June 2007.

### WATER MAIN FAILURE TREND



In the past, Canberra’s water supply experienced fewer interruptions than in other cities, but this situation is changing as other cities manage to improve their water supply networks while Canberra’s continues to degrade. This might be viewed as a case of historic ‘gold-plating’ in which the gold plate is being allowed to wear down to ‘normal’ standards—alternatively it might be viewed as a running down of assets. The big question is to what level the network should or would be allowed to degrade.

Falling below a standard for network serviceability would ordinarily constitute the primary driver for a program of water network improvement. The Utilities Act currently has no explicit standard for water supply network serviceability. In accepting an operating licence, the utility would, however, have accepted (and have been required to accept) responsibility for maintain network serviceability. Arresting the serviceability decline should thus become the primary driver for network improvement in the absence of an explicit performance standard

The Leane study<sup>102</sup> has shown that ActewAGL’s decision tool for water main renewal, viz: 1 to 1.5 breaks/year/shut, appears to be consistent with their economic analysis based on its typical repair and replacement costs.

The fact, however, that the serviceability decline is still continuing and the probability that reactive maintenance costs are all the while increasing<sup>103</sup> indicates that this methodology is either not being used to force renewals (no reticulation network renewals have yet been undertaken), or that the methodology is inadequate (or both).

<sup>102</sup> Atech Group, Report to ACTPLA: Overview of ACTEW’s Hydraulic Reticulation Assets Renewal, September 2007.

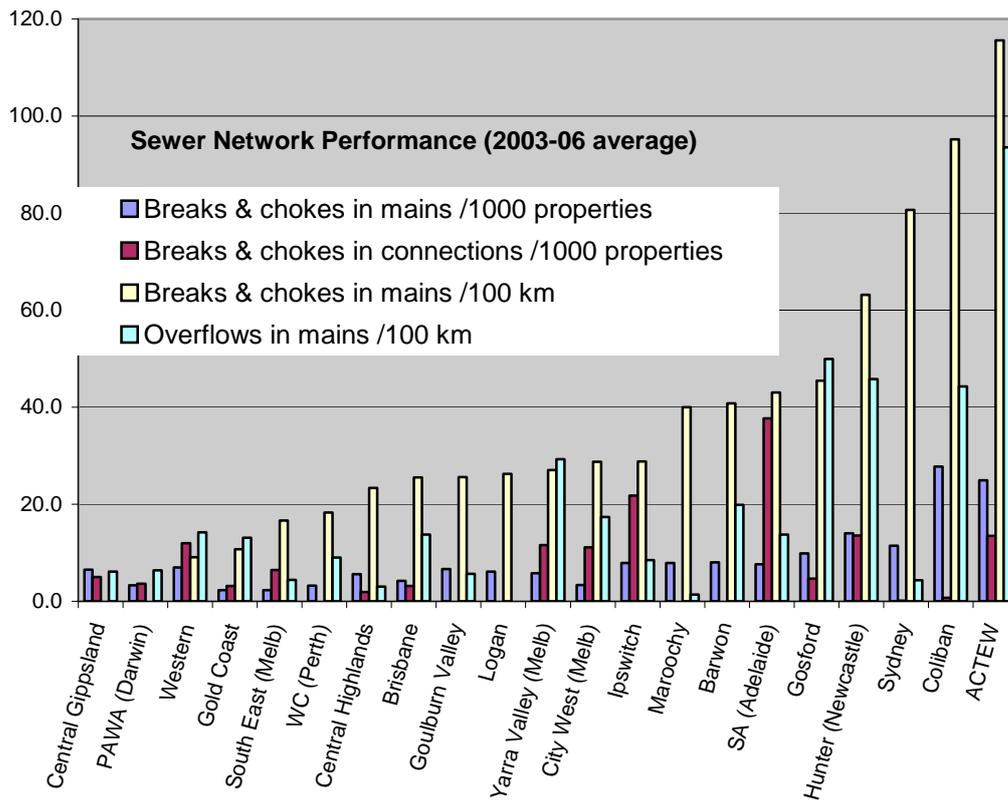
<sup>103</sup> Data is not conclusive on this point as an appropriate breakdown of costs is not available for a sufficiently long period.

The table below shows a comparison of the extent of mains renewal in the ACT with that in Sydney Water and with Yarra Valley Water in Melbourne.

Utility	ACTEW 2003-04	ACTEW 2004-05	Sydney 2003-04	Sydney 2004-05	Yarra Valley 2004-05
No of properties served	131,893	134,020	1,661,394	1,684,617	
Length of water mains (km)	2,985	3,013	20,867	20,960	8,788
Mains renewed (km)	0	0	54	91	65
Mains renewed (% of total length)	0	0	0.26	0.43	0.74

## Sewerage

The major sewerage problem for ACTEW pointed out by the WSAA benchmarking is the very high rate of sewer breaks and chokes. ACTEW's performance ranks as the worst amongst the major Australian utilities, as shown in the figure below.



Most of the incidences of sewer main breaks and chokes are not 'breaks' (collapses of the pipes themselves), but chokes, which are largely caused by root intrusions.

### Chokes and overflows in sewer connections

ACTEW's comparative performance with respect to breaks and chokes in sewer *connections* within the utility network does appear well within industry practice when normalised to a scale

per 1000 properties, but, as previously mentioned, rating break and choke data against numbers of properties is not meaningful for asset management purposes.

A more useful indicator in this case would be the number of breaks and chokes in sewer connections per 100 (say) sewer connections. This sort of assessment has not yet been undertaken. ActewAGL studies have, however, indicated that whereas blockage rates in sewers are tending to level off with system age, blockage rates in connections are still very much in the rising phase. This issue will need to be further considered in future.

## Specific comments

1. Lack of strategic overview—A significant omission in ACTEW’s submission to the ICRC is the lack of a strategic overview section addressing the trends and direction in asset performance. In the UK, the common framework requires some in-depth analysis of future asset trends beyond projections by ‘age and condition’ for asset classes. The lack of a strategic directions strategy for asset performance means that stakeholders (i.e. the ACT Government) are uninformed as to the detailed status of asset performance, and thus are unable to develop an appropriate renewals policy, measure against target performance parameters, compare against benchmark data, progress data collection across the networks, conduct comprehensive strategic analysis, make trend comparisons over time, and trend comparisons against other utilities.

2. Declining service standards and efficiency improvements—The information currently available to the ICRC is incomplete. There is a significant issue with declining asset performance that is undetected by performance reporting and compliance standards. The focus on efficiency within the accepted existing analysis framework, and the lack of a mechanism to focus on asset performance has perhaps blinkered parties to the possibility that aggregate performance measures may mask an emerging major renewals problem.

3. Reliability of services—The legislative requirement is that the ICRC must have regard for ‘standards of quality, reliability and safety of the regulated services’. The ongoing acceptance of declining water mains service performance without investigation may, arguably, be seen as giving inadequate regard to system reliability.

4. Shortcomings of Regulatory Asset Base—It is a matter of concern that trends in asset performance/conditions are not reflected at all in the regulatory asset base (RAB). If the long-term trend of asset performance is projected to decline, it is logical that such a decline is acknowledged in the regulatory asset base valuation process. This would in turn impact on the weighted average cost of capital (WACC) and lower returns to ACTEW, and provide a strong economic incentive to arrest and reverse the declining performance. Similarly, justifiable precautionary investment to avert asset performance declines and adverse customer impacts should reflect positively in the asset value and WACC.

In both the water and sewerage mains reticulation investigations, asset performance trends have emerged in specific locations to suggest that the expected life may be less than anticipated. Some regional or asset type adjustments may be warranted in the RAB.

A more strategic assessment of asset performance and especially comparison against a benchmark target and trend would inform the regulatory asset base valuation process as to the future asset performance of the RAB.

## Conclusions

The Technical Regulator believes that the methodology chosen by ICRC to determine prices for ACTEW must adequately recognise the interrelationships between sustainable levels of service to consumers, network serviceability and the level of funding necessary to maintain that network serviceability.

The price determination should enable ACTEW to provide sufficient funding to:

- maintain network serviceability at least at a stable level,
- achieve compliance with any regulatory requirements *introduced* or *tightened* since the previous price determination; and
- provide the least cost option, on an all-of-life costing basis, for any necessary capital works, including new works, capacity augmentations and infrastructure renewals.

The ICRC's determined price should consider the need to:

- undertake water main renewals to arrest the declining serviceability level when measured in terms of network size (rather than according to the number of properties affected) and possibly to return it to the level at the time of grant of utility licence (although this may need to occur over more than a single regulatory period).
- undertake proactive sewer maintenance to at least produce a measurable downturn in the number of unplanned sewer interruptions when measured in terms of network size (rather than according to the number of properties affected).
- undertake an adequate level of CCTV sewer inspections and data analysis to plan future sewer rehabilitation programs.



## Glossary and abbreviations

ACT	Australian Capital Territory
ACTEW	ACTEW Corporation
AER	Australian Energy Regulator
CAPM	capital asset pricing model
COAG	Council of Australian Governments
Commission	Independent Competition and Regulatory Commission
CPI	consumer price index
FAR	forecast average revenue
ICRC Act	<i>Independent Competition and Regulatory Commission Act 1997</i>
KPI	key performance indicator
LMWQCC	Lower Molonglo Water Quality Control Centre
MAAR	maximum allowable average revenue
MJA	Marsden Jacob Associates
MMA	McLennan Magasanik Associates
MOU	memorandum of understanding
NPV	net present value
NWC	National Water Commission
NWI	National Water Initiative
ODRC	optimised depreciated replacement cost
R&D	research and development
RAB	regulatory asset base
RBA	Reserve Bank of Australia
TOR	terms of reference
TWAW	<i>Think Water, Act Water</i>
UMA	Utilities Management Agreement
WAC	Water Abstraction Charge
WACC	weighted average cost of capital