



independent competition and regulatory commission

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

**Report 1 of 2008  
April 2008**

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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# Foreword

## The price determination process

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 set by the Commission recover the prudent and efficient costs of ACTEW providing water and wastewater 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 specifically to apply to utilities in the ACT. These costs are 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 determination, which sets water and wastewater tariffs charged by ACTEW in the ACT from 1 July 2008, the Commission released three discussion papers and a working conclusions paper, and in December 2007 it issued a draft report.

A number of submissions were received in response to the draft report, including from ACTEW, and a public forum to discuss the draft report was held on 14 February 2008. The Commission's deliberations have benefited substantially from the ideas and views expressed in submissions and at the public forum. The Commission wishes to express thanks to those parties, and particularly those private citizens, who gave their time to the price review process. I would also like to thank the Commission staff and ACTEW for their efforts during the price review process.

## The Commission's decision

In recent years water and wastewater customers in the ACT have endured both substantial price increases and water shortages. ACTEW's urban water prices are currently the highest in Australia (and are substantially higher than in some capital cities) and at the date of this final report Stage 3 restrictions are in place. In 2007–08, larger water customers—those using more than 300 kilolitres per annum—are paying more than twice what they paid for water in 2004–05.

The higher prices and restrictions are primarily due to factors which could not reasonably be foreseen. Bushfires in 2003 and an unprecedented drought have imposed additional costs on ACTEW and substantially reduced supply. During these tough times the ACT community has responded well by reducing consumption but the Commission recognises that water restrictions must never be more than a short to medium term solution as the economic and social costs of restrictions are high.

To address the situation, in recent years several million dollars has been spent on reviewing future water supply options for the ACT. In October 2007 the ACT Government announced a number of water security measures, including enlarging the Cotter Dam (at a cost the Commission has determined to be \$145 million in 2006–07 dollars) and transferring water from the Murrumbidgee River to Googong Reservoir (at a cost the Commission has determined to be \$96.5 million in 2006–07 dollars).

A key outcome of this final report is that it provides for price increases which will provide ACTEW with the funding capacity to construct these major capital works over the coming years. The Cotter Dam enlargement is forecast to be completed in 2010–11 and the Murrumbidgee to Googong Reservoir transfer in 2009–10. The Commission looks forward to ACTEW progressing these projects and trusts that by the time it makes its next price decision in 2013 prohibitive water restrictions will be a thing of the past.

At the same time this final report requires ACTEW to keep its costs under control in other areas. ACTEW's operating costs have increased significantly in recent years and ACTEW has forecast further increases in some areas. The Commission considers that some of these cost increases are avoidable and has not accepted ACTEW's forecasts in some areas. At a time when consumers are paying higher prices and enduring restrictions, the Commission considers it essential that ACTEW play its part by exercising restraint and avoiding excessive expenditure.

As always, the subject of the structure of water tariffs has generated a wide range of divergent views. Some members of the community have sought a 'flat' structure with a single volumetric tariff. Others have argued that it is essential that the existing 'stepped' tariff structure remain. ACTEW and other submitters have argued the merits of volumetric tariffs which vary according to storage levels.

Tariff structures represent a trade-off between economic efficiency, equity, and revenue stability for the regulated business. Having regard to all these matters, its terms of reference, and taking into account stakeholder views, the Commission considers it is appropriate to move from the current two-step tariff structure (with steps at 100 kilolitres and 300 kilolitres) to a single step at 200 kilolitres.

The price path that the Commission has determined for the next five years will result in a significant price increase for water and wastewater services in the first year (2008–09) and then an annual increase in water prices of CPI+1% and CPI+4.76% for wastewater services for the following four years. The magnitude of the price increase in the first year (which will see the cost of water and wastewater services for the average household increase by around \$3 per week) is a reflection of the fourfold increase in new investment that ACTEW will undertake over the next five years, with much of this expenditure occurring in 2008–09 and 2009–10. This investment program is designed to provide greater security for the supply of water to the ACT and, subject to rainfall, should remove the need for continued reliance on high levels of water restrictions to protect the quantity of water held in the ACT's existing storage infrastructure.

The Commission recognises that increases in the price of water and wastewater services of this magnitude will impact heavily on consumers who are suffering financial hardship. The Commission has structured the tariff arrangements to facilitate relevant consumers' access to the support programs available from the ACT Government. At the same time, the prices paid for water and wastewater services will reinforce the ACT Government's targeted per capita water use reductions, particularly as it becomes possible to reduce reliance on water restrictions.

Having increased prices to allow for the funding of new investment, ACT consumers should expect that ACTEW will now deliver on the greater water security this new investment is designed to provide. The Commission will be monitoring performance against this overall objective to ensure that ACTEW meets its performance obligations to the ACT community.

**Paul Baxter**

**Senior Commissioner**

**April 2008**

# Contents

<b>Foreword</b>	<b>iii</b>
<b>Executive summary</b>	<b>ix</b>
<b>1 Introduction</b>	<b>1</b>
1.1 Introduction	1
1.2 Statutory obligations	1
1.3 Terms of reference	2
1.4 Outline of this report	3
1.5 The price determination process	3
<b>2 Regulatory environment</b>	<b>5</b>
2.1 The drought	5
2.2 National water developments	6
2.3 Australian Government programs and agencies	7
2.4 ACT Government policy	8
2.5 Environmental water	9
2.6 Outcomes from the current regulatory period	10
2.7 ACTEW and ActewAGL	12
<b>3 Regulatory methodology</b>	<b>15</b>
3.1 Services to be regulated	15
3.2 Building block method	16
3.3 Working capital	16
3.4 Length of the regulatory period	17
<b>4 Service standards</b>	<b>19</b>
4.1 Introduction	19
4.2 Draft decision	20
4.3 Comments on draft decision	22
4.4 Final decision	25
<b>5 Demand forecasts</b>	<b>27</b>
5.1 Introduction	27
5.2 Draft decision	28
5.3 Comments on draft decision	28
5.4 Discussion and final decision	29
5.5 Achievement of usage reduction targets	31

<b>6</b>	<b>Operating expenditure</b>	<b>33</b>
6.1	Draft decision	34
6.2	Summary of comments on draft decision	35
6.3	Forecast costs	36
6.4	Pass-throughs	54
6.5	Water abstraction charge	54
6.6	Network facilities tax	56
6.7	Additional operating costs	56
6.8	Phase 1 water security projects	57
6.9	Final decision	60
<b>7</b>	<b>Capital expenditure</b>	<b>63</b>
7.1	Draft decision	64
7.2	Summary of comments on draft decision	66
7.3	Current period expenditure	67
7.4	Forecast costs	67
7.5	Final decision	78
<b>8</b>	<b>Regulatory asset base</b>	<b>81</b>
8.1	Introduction	81
8.2	Revaluation of the RAB	82
8.3	Other matters	86
8.4	Opening value of the RAB	86
8.5	Rolled-forward value of the RAB (2008–09 to 2012–13)	88
<b>9</b>	<b>Return on capital</b>	<b>91</b>
9.1	Introduction	91
9.2	Draft decision and overview of ACTEW’s response	94
9.3	Discussion	94
9.4	Final decision	106
<b>10</b>	<b>Total revenue requirement and form of price control</b>	<b>107</b>
10.1	Introduction	107
10.2	Building-block costs	107
10.3	Form of price control	108
10.4	Cost pass-throughs	115
10.5	Nature of cost pass-throughs	117
10.6	Timing of pass-throughs	121
10.7	Materiality threshold	122
10.8	Revenue pass-throughs	122
<b>11</b>	<b>Tariffs</b>	<b>127</b>
11.1	Introduction	127

11.2	Water tariffs	127
11.3	Wastewater tariffs	137
<b>12</b>	<b>Impact on customers and ACTEW</b>	<b>141</b>
12.1	Financial impact on customers	141
12.2	Concessions	144
12.3	Community service obligations	145
12.4	Compliance with the National Water Initiative	146
12.5	Impact on ACTEW	148
<b>13</b>	<b>Ecologically sustainable development</b>	<b>151</b>
13.1	Introduction	151
13.2	Demand management	151
13.3	Environmental obligations	154
13.4	Conclusion	155
<b>Appendix 1</b>	<b>Final Price Direction</b>	<b>157</b>
	<b>Attachment: Adjustment mechanism after year two</b>	<b>169</b>
<b>Appendix 2</b>	<b>Terms of Reference</b>	<b>178</b>
<b>Appendix 3</b>	<b>List of submissions</b>	<b>181</b>
<b>Appendix 4</b>	<b>Compliance with the Terms of Reference</b>	<b>183</b>
	<b>Glossary and abbreviations</b>	<b>185</b>

# 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 final decision and price direction fulfils that obligation and represents the Commission's views regarding ACTEW's water and wastewater charges.

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. This review has taken place against a background 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.

In recent years 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:

- enlargement of the Cotter Dam from 4 GL to 78 GL at a capital cost of approximately \$145 million (in 2006–07 dollars)
- transfer of water from the Murrumbidgee River to the Googong Reservoir at a capital cost of \$96.5 million
- design of a demonstration water treatment plant at a cost of \$6 million
- a pilot smart metering project at a capital cost of \$2.4 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 \$100 million.

The water security measures, when added to ACTEW's other capital expenditure obligations, result in a significant increase in ACTEW's capital program. The Commission has some reservations about ACTEW's capacity to complete such a large program on time. However, it has decided to approve the majority of ACTEW's proposed capital expenditure. It will be ACTEW's

responsibility to ensure that the capital program, which ACTEW customers are ultimately funding, is delivered in an efficient and cost-effective manner.

This final decision provides for significantly higher revenues to be earned by ACTEW to recover its costs, in a period when sales of water are relatively lower compared to historical experience. This combination of higher costs and lower water sales has placed upward pressure on prices. ACTEW's capital expenditure profile, in which 71% of its total capital expenditure is incurred within the first two years, has contributed to increases in combined water and wastewater bills in the first year of the regulatory period ranging between 8% and 16%. Prices will then increase by 1% for water and 4.76% for water, plus the rate of CPI, for each subsequent year of the regulatory period.

## 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 ICRC 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.

The Act requires the Commission 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 of not only territory laws and policies, but also 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
- 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 its 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 about the increasing cost associated with the supply of this service. Thus, the Commission has revised downwards the operating and capital margins that ACTEW has proposed to pay to ActewAGL over the next regulatory period.

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 securing future water supplies.

## Pricing outcomes

The pricing outcomes provided for in this final decision have been determined after an extensive and rigorous review. The ACT Government, ACTEW, and the general public have been given a number of opportunities to comment on the key factors that will determine water and wastewater tariffs. The Commission must balance the need for prices to recover efficient expenditure and ensure a reliable service with the impact on customers of any associated price increases.

The Commission has also spent a substantial amount of time assessing not just the overall price charged to customers, but the underlying tariff structure to be adopted. The Commission has received a number of submissions regarding tariff structures, ranging from proposals to simplify the current structure to other requests that would significantly increase the complexity of the current tariff structure.

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

- Water and wastewater tariffs for 2008–09 are specified in the price direction.
- Water tariffs for 2009–10 through 2012–13 will increase annually by 1% in addition to changes in the consumer price index (CPI).
- Wastewater tariffs for 2009–10 through 2012–13 will increase annually by 4.76% in addition to changes in the consumer price index.
- Water tariffs will contain only two steps with the second step beginning at 200 kilolitres a year.
- Daily pricing has been introduced.
- The structure of wastewater tariffs will remain unchanged.

- The Commission expects ACTEW to develop more cost-reflective wastewater tariffs to be implemented in the next price review.

The Commission has granted ACTEW's request to pass through \$49.5 million of unexpected costs and forgone revenue during the current regulatory period to prices in the forthcoming regulatory period. A significant proportion of this pass-through amount is related to the ongoing drought, including the preparation of water strategy documents, increased pumping costs and lower than expected water sales.

The Commission has approved these pass-throughs even though ACT water customers are already facing high and increasing water bills. To attempt to moderate the impact on customers during the forthcoming regulatory period and provide some certainty of prices going forward, the Commission has implemented a pass-through mechanism with the following features:

- Any changes in the WAC charged to ACTEW will be incorporated into prices on an annual basis.
- Any other unforeseen costs, or revenue shortfalls (or over-recoveries) more than +/-3% of that provided for in this price determination in the first four years of the regulatory period will be aggregated and considered at the time of the next price review, for the regulatory period beginning 1 July 2013.
- X factors for 2011–12 and 2012–13 may be varied on a once-off basis to account for contingent project pass-throughs and reforecasts of demand in the last two years of the period.

## 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.

While acknowledging the benefits of the UMA, such as economies of scale and scope, any potential costs of the agreement must also be considered. For the forthcoming regulatory period, ACTEW proposed to pay ActewAGL a margin based on operating and capital expenditure, in addition to the costs incurred by ACTEW as a result of managing the contract between ACTEW and ActewAGL. In total, these costs associated with the UMA average approximately \$10 million per annum (further discussed in chapters 6 and 7).

The Commission has undertaken extensive analysis of ACTEW's proposed costs associated with the UMA. The Commission has considered each of the arguments put forward by ACTEW in support of its proposed UMA costs, including managing risk, economies of scale and scope, improved asset management and benchmarking analysis. ACTEW's arguments did not satisfy the Commission that the costs of managing the UMA were reasonable. In particular, the margins sought on operating and capital expenditure were deemed excessive.

The Commission has therefore approved a 3% margin on both operating and capital expenditure, and has approved ACTEW's proposed contract management costs, as outlined in table ES1.

Table ES1 Final decision—ACTEW's costs associated with the ACTEW/ActewAGL relationship (\$'000, 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
3% operating expenditure margin	2,309	2,323	2,327	2,345	2,368
3% capital expenditure margin	2,702	2,082	871	1,666	686
<b>Total payment</b>	<b>7,034</b>	<b>6,432</b>	<b>5,283</b>	<b>6,186</b>	<b>5,324</b>

## Expenditure forecasts

ACTEW's forecasts of expenditure over the next five 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. As foreshadowed in the draft decision, the Commission has reviewed the expenditure related to phase 1 of the recently announced water security measures, with the assistance of consultants Halcrow Pacific.

The Commission has made several changes to the operating and capital expenditure forecasts as set out in the draft decision. In its response to the draft decision, ACTEW provided a significant amount of commentary and supporting evidence for its proposed expenditure and this has informed much of the Commission's subsequent analysis.

Although the Commission largely accepted ACTEW's capital expenditure forecast, some changes have been made. The key differences between ACTEW's proposed expenditure and the final decision are:

- a reduction in the margin paid by ACTEW to ActewAGL from 4% of capital expenditure to 3%
- revised capital escalation factors based on updated information for the water and sewerage sector
- adjustments to the capital expenditure required for phase 1 water security measures, including an additional \$27.5 million for the Murrumbidgee to Googong transfer.

The Commission's final decision in relation to capital expenditure is summarised in table ES2.

**Table ES2 Final decision summary table—capital expenditure (\$'000, 2006–07 dollars)**

	Final 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
Amendments					
Adjustment to capital margin	–326	–571	–168	–423	–101
Total original proposal with amendments	33,608	58,841	17,278	43,600	10,440
Adjustment for capital escalation	–996	–1,470	–187	195	158
Final decision—original program	32,611	57,371	17,091	43,795	10,598
Phase 1 water security measures—original proposal	76,200	97,199	40,000		
Adjustment to Cotter Dam	–9,400	12,800	1,600		
Adjustment to Googong transfer	–7,400	20,100			
Adjustment to smart metering pilot	1,000				
Transfer purification plant design to wastewater	–3,000	0			
Final decision—Phase 1 water security measures	72,200	130,100	41,600		
<b>Final decision—water</b>	<b>104,811</b>	<b>187,471</b>	<b>58,691</b>	<b>43,795</b>	<b>10,598</b>
ACTEW original proposal—wastewater	59,727	12,762	12,758	13,741	13,232
Amendments					
Adjustment to capital margin	–574	–123	–123	–132	–127
Total proposal with amendments	59,153	12,639	12,636	13,609	13,105
Adjustment for capital escalation	–1,754	–316	–137	61	198
Final decision—original program	57,399	12,323	12,499	13,670	13,303
Transfer purification plant design from water	3,000				
Final decision—Phase 1 water security measures	3,000				
<b>Final decision—wastewater</b>	<b>60,399</b>	<b>12,323</b>	<b>12,499</b>	<b>13,670</b>	<b>13,303</b>
<b>Total water and wastewater</b>	<b>165,211</b>	<b>199,795</b>	<b>71,190</b>	<b>57,465</b>	<b>23,901</b>

In relation to operating expenditure the Commission has:

- reduced the operating cost margin paid by ACTEW to ActewAGL from 4% of operating expenditure to 3%
- reduced the forecast costs associated with operation of the Water Conservation Office
- reduced forecast nominal wage growth from 5.45% per annum to 4.7% per annum
- held expenditure allocated to research and development at 2007–08 levels, allowing for an annual increase in labour costs
- reduced the operating costs associated with phase 1 water security measures.

The Commission's final decision in relation to operating expenditure is shown in table ES3:

Table ES3 Final decision—operating and maintenance expenditure (\$'000, 2006–07 dollars)

	Final decision				
	2008–09	2009–10	2010–11	2011–12	2012–13
ACTEW original proposal—water	49,444	47,322	47,922	47,923	50,014
Water security measures phase 1	2,300	2,300	3,001	3,000	3,000
<b>Total ACTEW proposal</b>	<b>51,743</b>	<b>49,622</b>	<b>50,923</b>	<b>50,923</b>	<b>53,014</b>
Amendments					
Adjustment to water conservation office	-103	882	-141	-146	-1,447
Adjustment to operating margin	-648	-901	-913	-913	-953
Adjustment to contractor management	-74	-60	-69	-89	-114
Adjustment to wages	-391	-711	-930	-1,036	-1,273
Adjustment to R&D	-176	-292	-516	-724	-1,007
Adjustment to phase 1 operating costs	-2,100	-490	-70	-710	-740
<b>Final decision—water</b>	<b>48,251</b>	<b>48,050</b>	<b>48,285</b>	<b>47,306</b>	<b>47,480</b>
ACTEW proposal—wastewater	45,208	47,909	47,780	9,478	51,282
Amendments					
Adjustment to contractor management	-74	-60	-69	-89	-114
Adjustment to operating margin	-639	-613	-647	-670	-651
Adjustment to wages	-356	-720	-927	-1,071	-1,307
<b>Final decision—wastewater</b>	<b>44,139</b>	<b>46,515</b>	<b>46,138</b>	<b>47,648</b>	<b>49,211</b>

## Value of the regulatory asset base

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:

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

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 (that is, 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.<sup>2</sup> These are:

- Water prices need 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 has found that revaluing assets to the replacement cost of assets is not consistent with efficient investment incentives and does not represent the true economic cost of providing the regulated service. In addition, the Commission cannot find examples where other regulators regularly revalue assets. The Commission's view is that there is no merit in these claims.

The Commission's final 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

The terms of reference require 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

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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.

margin, were measured as of 14 March 2008. Based on these parameters the pre-tax real WACC calculated by the Commission is 7.27%.

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

Parameter	Value
Risk-free rate	6.256%
Real risk-free rate	2.639%
CPI	3.533%
Market risk premium	6.0%
Debt margin	3.024%
Gearing	60%
Gamma	0.50
Tax rate	30%
Equity beta	0.90
WACC (pre-tax real)	7.27%

Given the recent turmoil in international capital markets and the reduction in liquidity there have been significant increases in the corporate bond rates. This has resulted in the debt margin, which is based on the difference between benchmark corporate bond rates and the risk-free rate, rising from 1.7% to just over 3%. This accounts fully for the increase in the WACC from 6.55% in the draft decision to 7.27% in the final decision. The Commission has not changed its approach to calculating the WACC or its approach to determining any of the parameters used in the calculation of the WACC. This is consistent with the recent draft decision in New South Wales on Sydney Water.

## 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 of 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 cited declining water mains performance and continuing high levels of sewer main chokes as examples of this.

ACTEW disputed the Technical Regulator's claims about its water mains performance, arguing that comparisons with water suppliers in Sydney and Melbourne were simplistic and did not account for differing pipe material and age. Although ACTEW conceded that its sewer main chokes were high compared to other utilities, it advised that its asset management program was attempting to address this.

The Commission highlights ACTEW's performance relative to its comparable water utilities in regards to sewer main breaks, when in recent years ACTEW's performance on this indicator has been worse than its comparable entities. ACTEW showed improvement in the recently released National Performance Report 2006-07; however, it was still the seventh best among 10 reporting utilities. The Commission expects ACTEW to (efficiently) devote greater resources to its sewer

mains monitoring and replacement program in order to reduce the number of sewer chokes. The Commission notes ACTEW's performance in the water mains breaks indicator has improved in 2006-07 and will continue to monitor this and other indicators.

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. An efficiency carryover mechanism aims to allow the regulated business to retain any efficiency savings achieved over and above the efficient expenditure allowance provided to it.

In the draft decision, the Commission outlined its views on a service standard incentive scheme and an efficiency carryover mechanism. The Commission advised that it had not received any robust proposals for either mechanism, and that the current regulatory arrangements provided outcomes that were similar to the aims of each scheme.

Although ACTEW supported the Commission's view that a service standard incentive scheme was not required, it called on the Commission to provide further guidance on how ACTEW was able to be rewarded for efficiency gains outside an efficiency carryover mechanism. The Commission indicated on several occasions that it would consider efficiency carryover proposals as part of its review of projected operating costs and capital expenditure. ACTEW did not, however, propose any such mechanism by which it should be rewarded or any specific projects or expenditures which should be considered for efficiency carryover purposes. The Commission therefore reiterates its view in the draft decision that since no compelling argument has been made in favour of a service standard incentive or efficiency carryover scheme, the Commission will not implement either mechanism in the forthcoming regulatory period. In terms of individual expenditures or projects, the Commission will remain open to proposals

## Impact on customers and ACTEW

This final 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
- the relatively higher increase in prices in the first year of the regulatory period, in part due to the profile of ACTEW's capital expenditure program.

There will be nominal increases in customers' combined water and wastewater bills from 2007-08 to 2008-09 from 8% to 16% depending on the volume of water consumed. For an average household, this should result in an increase of \$3 per week for combined water and wastewater services. Thereafter, water prices will increase by 1% per annum and wastewater prices will increase by 4.76% per annum, plus the rate of the CPI. Large commercial customers should expect increases in their bills from 2007-08 to 2008-09 from 8% to 15%.

The Commission is aware that price increases of this magnitude will have greater impact on those suffering financial difficulty. To address this issue, the Commission has structured the tariff arrangements such that the assistance available to these consumers under existing government support programs should be maximised.

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. Furthermore, under provision for a midterm adjustment to address unexpected supply volume issues ACTEW's financial position is safeguarded while still providing a strong incentive for ACTEW to improve its overall efficiency and to deliver on the major new investment works that are intended to improve the ACT's overall water security.



# 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) 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.

## 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
- 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
- have regard to the achieved efficiencies in service delivery and appropriate incentives for both ACTEW and the operator, currently ActewAGL, to ensure ongoing efficiencies.

## 1.4 Outline of this report

This report sets out the Commission's final decision on ACTEW's water and wastewater prices for the 2008–09 to 2012–13 period. It 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 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 final 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

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.

This third paper followed a major submission on prices for water and wastewater services by ACTEW, which was provided to the Commission on 31 July 2007 (hereafter referred to as ACTEW's 'original submission').

The Commission then 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 original submission and response to the discussion papers.

In December 2007, the Commission released a draft report and price determination that outlined the draft position in relation to all of the matters relevant to the price of water and wastewater services in the ACT over the forthcoming regulatory period. The Commission invited all interested stakeholders to make submissions for consideration in the final decision.

A public hearing was held on 14 February 2008 to discuss the draft decision. Presentations were made by eight parties, including ACTEW. Most of the presentations focused on the subjects of the water pricing structure, restrictions and ACTEW's capital works program.

Copies of all reports issued by the Commission, submissions made, and a transcript of the public hearing are all available on the Commission's website [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
- 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)
- 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>3</sup>

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 *Urban water charging stocktake*, which summarised approaches to pricing across the country. One of the findings of the stocktake 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 that are intended to assist governments to achieve consistency in water charging and cost recovery practices. While the Commission understands that draft papers and pricing principles have been prepared, at the date of this final decision they have not been made publicly available.

## 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 the 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>4</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
- protection of groundwater
- adoption of the integrated catchment management approach

<sup>3</sup> National Water Commission, *2005 National Competition Policy assessment of water reform progress*, April 2006, pp. 8.16–8.22.

<sup>4</sup> [www.mdbc.gov.au/about/murraydarling\\_basin\\_initiative\\_\\_overview](http://www.mdbc.gov.au/about/murraydarling_basin_initiative__overview)

- 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>5</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 overallocation 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 new Australian Government's policy provides for maintaining the integrity of the National Plan for Water Security, while bringing forward some expenditure proposals. The new government has also committed to restructuring national water administrative arrangements.

## 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* (TAWW) strategy document released in April 2004.<sup>6</sup>

The aims of the TAWW 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.

<sup>5</sup> [www.nwc.gov.au/nwi/index.cfm](http://www.nwc.gov.au/nwi/index.cfm)

<sup>6</sup> *Think water, act water* and related documents are available from Environment ACT or from the website [www.thinkwater.act.gov.au](http://www.thinkwater.act.gov.au).

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 (PWCM), 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>7</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>8</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 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. The proposed projects include increasing the size of the Cotter Dam, installing infrastructure to transfer water from the Murrumbidgee River to the Googong Reservoir, and possibly purchasing long-term secure water to be stored in the Tantangara Dam.<sup>9</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

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<sup>7</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>8</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.

<sup>9</sup> Chief Minister Media Release, No. 481/07, 23 October 2007.

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 required. 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.

In response to issues raised prior to the draft decision the Commission sought advice from the Department of Territory and Municipal Services regarding environmental releases. The Department advised that water released by ACTEW was consistent with the minimum required by the environmental flow guidelines. Where 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.

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 with its water requirements. The actual quantum of the cap for the ACT 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 \$340 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 expenditure has been between 15% and 34% higher than forecast.

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, the 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
- increased costs associated with the management of the Cotter catchment and its remediation
- increased emphasis on planning and modelling in response to the ongoing drought and climate change.<sup>10</sup>

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

	2004–05	2005–06	2006–07	2007–08
<b>Water</b>				
Operations and maintenance	28,727	28,756	28,971	29,108
Major maintenance	767	922	1,448	1,418
Directions	4,439	2,783	6,019	6,362
Contractor management and strategic direction	8,249	6,752	10,736	15,519
<b>Total water</b>	<b>42,181</b>	<b>39,213</b>	<b>47,174</b>	<b>52,407</b>
<b>Wastewater</b>				
Operations and maintenance	33,546	32,775	33,386	33,821
Major maintenance	1,363	2,576	710	1,801
Directions	0	45	196	517
Contractor management and strategic direction	4,053	4,206	4,772	4,922
<b>Total wastewater</b>	<b>38,962</b>	<b>39,601</b>	<b>39,064</b>	<b>41,061</b>
<b>Total water and wastewater</b>	<b>81,143</b>	<b>78,815</b>	<b>86,238</b>	<b>93,468</b>
Divergence from 2004 Price Determination (%)	15	15	25	34

Source: ACTEW. Note that ACTEW has updated figures for 2006–07 and 2007–08 since the draft decision was released

A number of these operating costs increases are '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.

<sup>10</sup> ACTEW Corporation, *Submission: investigation into prices for water and wastewater services in the ACT*, 31 July 2007, p. 134.

## 2.6.2 Capital expenditure

Over the course of the current regulatory period ACTEW anticipates delivering \$169 million in capital works, excluding the water security program projects in 2007–08. 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:

- 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
- 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, excluding water security projects)

	2004–05	2005–06	2006–07	2007–08	Total
Actual capital expenditure					
Water	34,689	26,072	17,070	39,078	116,909
Wastewater	9,707	6,343	11,586	24,438	52,074
<b>Total</b>	<b>44,396</b>	<b>32,415</b>	<b>28,656</b>	<b>63,516</b>	<b>168,983</b>
Forecast capital expenditure					
Water	35,434	7,928	3,638	5,172	52,172
Wastewater	19,344	14,411	12,344	12,149	58,248
<b>Total</b>	<b>54,777</b>	<b>22,340</b>	<b>15,982</b>	<b>17,321</b>	<b>110,420</b>
Variance	-10,381	10,075	12,674	46,195	58,563

Source: ACTEW. Note that ACTEW has updated figures for 2006–07 and 2007–08 since the draft decision was released.

## 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.

Among other things, the UMA sets out the roles and obligations of each party and the manner in which payments are made between ACTEW and ActewAGL. It also 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 the following:

- Water Resource Management 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—ensures processes are developed and implemented to assist with the identification, quantification and management (wherever possible) of risks which pose, or may be likely to pose a threat to the efficient management of the Water business
- Asset Management 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.

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

The current UMA expires shortly and the Commission understands that following the release of this final decision ACTEW and ActewAGL will be renegotiating the UMA for the coming regulatory period.

Further discussion of the costs and benefits of the UMA is set out in chapter 6 of this final decision.

## 3 Regulatory methodology

### 3.1 Services to be regulated

#### 3.1.1 Draft decision

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

In the draft decision, the Commission proposed to continue with the existing regulatory arrangements, whereby the Commission directly regulates prices for water, wastewater and miscellaneous services. Services relating to the provision of reuse water and trade waste services are not directly regulated by the Commission.

The price charged by ACTEW to Queanbeyan City Council (QCC) for the provision of bulk water is not directly regulated by the Commission. In the Draft Decision, the Commission noted that no agreement between the ACT and NSW governments had been entered into that would enable the Commission to directly regulate this service.

The Commission's approach to regulating the bulk water price charged to QCC is therefore to require ACTEW to demonstrate, on an annual basis, that the bulk water charge is set according to appropriate pricing principles.

#### 3.1.2 Comments on draft decision

The Commission received no submissions in response to its draft decision on the services to be regulated.

#### 3.1.3 Discussion and final decision

The Commission confirms its approach, as outlined in the draft decision, that direct price regulation of existing urban water and wastewater services should continue, and that the provision of reuse water and trade waste services should continue to not be directly price regulated.

On the matter of bulk water, the Commission notes that until such time as an agreement has been reached between the ACT and NSW governments, it is unable to directly regulate the bulk water price charged by ACTEW to QCC. The Commission will continue to require ACTEW to demonstrate that the bulk water charge is consistent with the following pricing 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.
- Prices should be set according to a well-defined and clearly explained methodology.

The Commission reiterates its position that, should ACTEW and QCC agree, the Commission is willing to act as a mediator to ensure that any issues regarding the transparency or reasonableness of the bulk water pricing process are resolved.

## 3.2 Building block method

### 3.2.1 Introduction

The Commission is required to adopt a regulatory methodology for assessing ACTEW's required revenue over the regulatory period.

### 3.2.2 Draft decision

In the draft decision, the Commission adopted the 'building block' methodology to regulating ACTEW. Under this approach ACTEW's total efficient cost is calculated as follows:

Total efficient cost = return on capital *plus*  
return of capital (depreciation) *plus*  
operating and maintenance costs

where the return on capital = weighted average cost of capital (WACC) *multiplied by*  
regulated asset base.

### 3.2.3 Comments on draft decision

The Commission received no submissions in response to the use of the building block methodology in the draft decision.

### 3.2.4 Discussion and final decision

The Commission confirms its approach of using the building block methodology to determine ACTEW's revenue requirement over the regulatory period.

## 3.3 Working capital

### 3.3.1 Introduction

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.

### **3.3.2 Draft decision**

In the draft decision, the Commission agreed that the regulated business should receive a return on working capital. The Commission noted, however, that the regulatory model used in determining ACTEW's revenue requirement included an allowance for a return on working capital, through the manner in which cash flows are modelled. The Commission's draft decision was therefore to not include a specific allowance for a return on working capital under the building block approach.

### **3.3.3 Comments on draft decision**

The Commission received no submissions in response to the exclusion of a specific allowance for working capital. As noted in the draft decision, ACTEW had previously agreed that such an allowance was not required.

### **3.3.4 Discussion and final decision**

The Commission confirms its decision not to include a separate allowance for a return on working capital in the building block calculation.

## **3.4 Length of the regulatory period**

### **3.4.1 Introduction**

The Commission is required to establish the length of the regulatory period for which its decisions regarding ACTEW's costs and prices will apply.

A number of trade-offs must be weighed when determining the length of the regulatory period. A shorter period is more likely to result in forecast expenditure and demand more closely matching actual expenditure and demand than a longer period. A smaller variance between forecast and actual has the advantage of reducing the likelihood that actual revenue earned will deviate from the revenue requirement. On the other hand, longer regulatory periods reduce the time and money spent on regulatory reviews and can provide for greater stability and certainty for both customers and the regulated business.

### **3.4.2 Draft decision**

Reflecting the view outlined in its working conclusions paper, the Commission's draft decision was to adopt a five-year regulatory period, a position supported by ACTEW and the ESCC. The Commission recognised that a five-year regulatory period may increase the risk of unforeseen events having an impact on revenue required by ACTEW and had designed a number of mechanisms to mitigate this risk.

### **3.4.3 Comments on draft decision**

The Commission received no submissions in response to its draft decision to implement a five-year regulatory period. ACTEW's submission highlighted a number of concerns it had about dealing with revenue risk over a five-year regulatory period with predetermined prices. These arguments, however, related not to the length of the regulatory period, but to the pricing mechanisms and risk mitigation instruments implemented by the Commission during the period.

### **3.4.4 Discussion and final decision**

The Commission confirms its draft decision to implement a five-year regulatory period for the purposes of determining the prices to be charged by ACTEW for regulated services. A discussion regarding ACTEW's concerns about the revenue risk inherent in the regulatory period is contained in chapter 10.

## 4 Service standards

### 4.1 Introduction

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.

#### 4.1.1 Establishing service standards

Service standards can be grouped into the two categories:

- customer-oriented service standards, such as those relating to disruptions to supply
- ‘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<sup>11</sup>. 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 original submission, ACTEW noted that the current 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.

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<sup>11</sup> 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's original 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.
- The recurring sewer blockage rate is down from 5% to 2%.

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 Draft decision

### 4.2.1 The Commission's performance monitoring regime

Each year the Commission, in accordance with the *Utilities Act 2000*, 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.

The Commission noted that the most recent compliance report of 2005–06 contained no material breaches of licences or other requirements by ACTEW.

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.

The Commission's most recent performance report, for the 2004–05 year, showed that ACTEW's performance for most customer service standard indicators was comparable with its peers. The Commission noted, however, that:

- ACTEW performed substantially poorer than its peers in relation to water network breaks and leaks as well as sewer chokes and breaks and sewer spills.
- In 2004–05, 339 of a total 663 complaints received by ACTEW 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 set out in Schedule 9 of the UMA. A number of these KPIs have more than one target or requirement.

The draft decision noted that consultants McLennan Magasanik Associates (MMA) and WorleyParsons were in general agreement the comprehensive set of KPIs will drive efficiency

within the business and that ActewAGL is meeting the KPIs. However, the consultants were concerned that:

- Qualitative measures for assessing efficiency improvements achieved within the business were not available.
- Measures and processes within the business to establish network operations efficiency with regard to reactive maintenance, planned maintenance and renewals were not evident.

#### **4.2.3 Submission from the Technical Regulator**

Prior to the draft decision 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 draft decision highlighted a number of views expressed by the Technical Regulator in its submission. These included:

- ACTEW's submission lacked a strategic overview section addressing the trends and direction in asset performance.
- The focus on efficiency within the accepted existing analysis framework, and the lack of a mechanism to focus on asset performance had potentially blinkered parties to the possibility that aggregate performance measures may mask an emerging major renewals problem
- Data purported to show that the performance of the water supply network, in terms of mains failures, has been worsening for some years.
- ACTEW had performed poorly in relation to sewer main breaks and chokes, particularly when expressed on a per kilometre basis
- The price determination needed to provide for sufficient investment in asset renewals and maintenance to maintain network reliability and compliance requirements.

The Commission explained that it would examine the issues raised by the Technical Regulator in more detail prior to the release of the draft decision, which would also give ACTEW the opportunity to comment.

#### **4.2.4 Service standard mechanism**

The draft decision reiterated the Commission's view from the working conclusions paper 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.

#### **4.2.5 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.

The draft decision reiterated the Commission's view in the working conclusions paper, which was not to adopt an efficiency carryover mechanism on the basis that:

- Efficiency mechanisms that had been developed to date were sufficiently flawed that the benefits of the mechanisms were unlikely to exceed the costs.
- ACTEW had not offered an alternative proposal with a specified approach to efficiency carryovers.

### 4.3 Comments on draft decision

The Commission received the following submissions following the release of its draft decision:

- ACTEW's response to the Commission's draft decision
- ACTEW's response to the Technical Regulator's report
- a further submission from the Technical Regulator.

#### 4.3.1 ACTEW's response to the draft decision

The Commission noted in its draft decision that ACTEW performs substantially worse than its peers in relation to sewer chokes and breaks and sewer spills. In its response, ACTEW noted that the indicator 'performs substantially worse' refers to the incidents' occurrence, rather than the effectiveness with which ACTEW deals with them. ACTEW accepted the fact that sewer chokes and breaks occur with greater frequency in Canberra's sewers than in some comparable sewer networks.

ACTEW indicated that it has responded to this problem by increased use of closed-circuit television (CCTV) camera inspections and preventative maintenance using root foaming and jet-rodding. ACTEW has also embarked on a campaign to replace the worst performing sewers, to respond more quickly to incidents and to improve the efficacy of repairs in order to reduce recurrence rates.

ACTEW were disappointed that the draft decision did not refer to the consultant's view that the KPIs in the UMA showed a 'generally high ranking in service quality achieved by ActewAGL in benchmarking.' ACTEW argued that the Commission instead focused on the consultant's opinion regarding the shortcomings of the KPI framework in terms of qualitative measures for assessing efficiency improvements.

ACTEW refuted the consultant's finding that the measures and processes within the business to establish network operations efficiency with regard to reactive maintenance, planned maintenance and renewals were not evident and have been the subject of concern by the Technical Regulator. ACTEW believes that it has sufficient measures and processes in place to address these issues.

Regarding the Technical Regulator's submission, ACTEW noted the comments of the Technical Regulator and agreed on the importance of asset performance measures and of ensuring that network serviceability is maintained by a least cost mix of maintenance and renewals. ACTEW provided a more detailed response to the Technical Regulator's report, presented in the next section.

ACTEW supported the Commission's stance in the working conclusions paper that the need for a service standard incentive scheme was not required. ACTEW noted the Commission would give further consideration to such a scheme following the Technical Regulator's submission. However, it believed that the Technical Regulator provided no evidence of the need for an incentive scheme.

ACTEW noted that the Commission had not provided guidance on how ACTEW would be rewarded for achieving economic efficiencies in the absence of an efficiency carryover mechanism and sought the Commission's view on this issue for the next regulatory period.

#### **4.3.2 ACTEW's response to the Technical Regulator's report**

In January 2008, ACTEW provided the Commission with a formal response to the Technical Regulator's submission to the Commission. ACTEW and ActewAGL noted that assessing the asset management performance of any utility required a detailed and complete understanding of:

- the assets involved
- their performance
- the asset management strategy adopted.

ACTEW and ActewAGL submitted that, partly due to insufficient consultation between the Technical Regulator and ACTEW and ActewAGL, the Technical Regulator's submission reflected an insufficient understanding of these issues.

ACTEW provided commentary on its asset management systems and responded to each of the specific issues raised by the Technical Regulator. ACTEW also made a number of criticisms of the Technical Regulator's report.

##### ***Water supply reticulation network***

ACTEW presented a number of arguments in support of its asset management practices with regard to its water supply reticulation network. ACTEW noted that:

- The majority of its network was constructed in the 1960s and 1970s, which is relatively recent in water industry terms. Although some localised areas with sub-optimal soil composition are experiencing high failure rates, the network as a whole is in good to very good condition.
- The Technical Regulator's views displayed a lack of understanding of both standard industry practice with regard to water reticulation management and benchmarking data provided to the Water Services Association of Australia (WSAA).
- The common industry approach with respect to water reticulation management was to simply repair failures as they occurred (so long as failure rates comply with service standards), rather than to obtain ongoing condition assessments.
- A monitoring program was in place to ensure maintenance strategies were effective. Although at present the failure rate was increasing, the overall failure rate was below the current industry average.
- ActewAGL's current asset management process included a combination of asset criticality, whole-of-life costs and impacts on customer service levels, which it believed were superior to a management system focusing on a threshold of 20 breaks per 100 km, as advocated by the Technical Regulator.

- In its view, the Technical Regulator's comparison of water mains renewals in Canberra, Melbourne and Sydney was simplistic and did not take into account reasons for lower renewals in Canberra, such as a lower age profile and superior pipe material compared to the other cities.

### *Sewerage reticulation network*

ACTEW presented a number of arguments in support of its asset management practices with regard to its sewerage reticulation network. ACTEW noted that:

- Most of the sewerage network, like the water reticulation network, dates back to the 1960s and 1970s, so the network is relatively new. Therefore, only a small proportion of the network has been replaced.
- Interruptions caused by tree root intrusion are the largest single cause of interruptions in the sewerage network, and the Technical Regulator has classified this as the major issue of concern for ActewAGL's sewerage asset management.
- Although the Technical Regulator's recommendation for increased maintenance may not reduce sewer chokes due to tree roots when performed in isolation, a broader program of maintenance, root foaming and pipe renewals would reduce the occurrence of sewer chokes.
- As in the water reticulation network, the preferred and more economical approach to sewer main asset management is 'run to failure', so long as repairs are economical, effective and do not result in adverse customer impacts.
- Where failure rates are high, CCTV inspections are carried out to assess pipe condition and preventative maintenance may be undertaken.
- Failure rates in the entire system, as well as individual sections, are continuously monitored to improve the inspection and preventative maintenance program. Failures that cause surcharges to houses or buildings result either in repairs or system replacement to minimise the risk of a repeat.
- Its sewerage system has one of the highest blockage rates in the country, with the highest percentage caused by tree roots. According to ACTEW the reasons for this 'are not fully understood', but are perhaps due to a combination of the location of the sewers, the materials used (concrete and clay pipes) and the fact that a large part of the network was constructed in the 1960s and 1970s during a boom period when construction standards were not rigorously enforced.
- ActewAGL's management approach uses a combination of preventative maintenance, such as planned jet-rodding, CCTV inspections, and cleaning and root foaming, together with an increasing program of sewer pipe replacement.

### **4.3.3 Further submission from the Technical Regulator**

The Commission received a further submission from the Technical Regulator in February 2008, which responded to comments made by ACTEW. The Technical Regulator has requested that details of its submission be kept confidential. In broad terms the submission responded to the criticisms made by ACTEW. It also expressed concern about the lack of powers it has under the Utilities Act and further advised that part 5 of the Act is currently being reviewed to make technical regulation of utilities more effective and efficient.

## 4.4 Final decision

Service standards are a key component of ACTEW's submission for the forthcoming regulatory period. ACTEW must demonstrate that its proposed expenditure is sufficient to maintain an appropriate level of service and includes allowances for improvement in service where required. It must also demonstrate customers' willingness to pay for any improvements above and beyond agreed upon targets.

At the outset the Commission notes that service standards have not been raised as a key issue by submitters during this review. Customers have not expressed any particular concerns about existing service levels, or a desire for higher service standards in any areas. This suggests to the Commission that ACTEW's service standards are broadly consistent with customer expectations.

However, the Commission's deliberations have benefited from the Technical Regulator's input and from the data available in the NWC's recently released National Performance Report for 2006–07.<sup>12</sup> Based on this input the Commission considers that ACTEW's performance in respect of water network breaks and leaks and sewer breaks and chokes needs to be highlighted.

Comparisons with similar water utilities indicate that ACTEW's relative performance is acceptable and not significantly different from its comparable utilities. ACTEW appears to have relatively low levels of customer complaints within this reference group.<sup>13</sup> The one area where there may be some concern is the number of sewer main breaks where ACTEW's number of breaks per 1,000 properties has been relatively high. For example, from 2000 through 2006, ACTEW averaged around 25 sewer main chokes per 1,000 properties, while the Hunter Water Corporation averaged approximately 14 sewer main chokes per 1,000 properties.<sup>14</sup> Part of the difference can be explained by the higher percentage of sewer main chokes caused by tree roots in the ACT.

The Commission accepts that ACTEW's response time to sewer blockages is better than its peers and notes ACTEW's arguments that sewer blockages are not necessarily problematic unless they adversely affect customer service levels or result in surcharges to properties or houses. However, while ACTEW has described its plans to address the problem, on its own forecasts the number of blockages will continue to increase over time. Further, breaks and chokes can adversely impact the environment even if they do not affect customer service levels or have direct property impacts. The Commission believes that ACTEW needs to devote relatively greater attention to reducing sewer breaks and chokes, where it is cost efficient to do so, in order to prevent performance from worsening further. Further, the Commission considers that the target set by ACTEW of less than 35 breaks/chokes per 1000 properties is clearly too high given its recent performance.

In relation to ACTEW's relative performance compared to other utilities, where ACTEW is seventh best among 10 reporting large water utilities in respect of water mains breaks per 100 km in 2006–07, the Commission recognises ACTEW's argument that, since the WSAA definition has changed, it is possible that other utilities have incorrectly reported their mains breaks under the old definition.

With regard to a service standard incentive mechanism, the Commission is of the view that the effectiveness of such a mechanism has not been demonstrated. The current regulatory framework allows for the recovery by ACTEW of efficient expenditure, part of which is used by ACTEW to

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<sup>12</sup> National Water Commission, *National performance report 2006–07: urban water utilities*, April 2008.

<sup>13</sup> NWC, *National performance report 2006–07: urban water utilities*, p. 24.

<sup>14</sup> National Water Commission, *National performance report 2005–06: major urban water utilities*, April 2007.

ensure the ongoing reliability and efficiency of its assets. Notwithstanding the above concerns, on the whole, ACTEW's performance in relation to customer service standards appears to be satisfactory. The Commission's decision is therefore not to implement a service standard incentive mechanism in the forthcoming regulatory period. However, the Commission will review this position when undertaking its next price review in 2012–13, particularly if water and sewer breaks result in deteriorating customer performance over the forthcoming regulatory period.

In the draft decision, the Commission indicated that ACTEW had not proposed an efficiency carryover mechanism that overcame the shortfalls of existing schemes. In its response, ACTEW called upon the Commission to provide guidance on its approach to forecasting capital and operating expenditure, and how the Commission will ensure ACTEW will be rewarded for any economic efficiencies realised. ACTEW's response did not, however, include any new details of how an efficiency carryover mechanism may overcome the limitation of current schemes.

The Commission has decided at this time to take a case-by-case approach to efficiency carryovers. As the Commission has indicated on a number of occasions, it is open to proposals from ACTEW that some allowance should be made for an efficiency carryover relating to some particular items of capital or operating expenditure. No proposal has been made. Furthermore, given the way in which the regulatory arrangements operate, any immediate benefits from efficiency savings in terms of operating and capital expenditure are captured by ACTEW and ActewAGL and arguably do not need to be carried over into the next regulatory period.

For reasons outlined in the working conclusions paper and the draft decision, the Commission will therefore not implement an efficiency carryover mechanism in the forthcoming regulatory period. Should any compelling argument for a formal efficiency carryover mechanism be made during the next regulatory period, the Commission will give it consideration at the next price determination.

Finally, the Commission welcomes advice from the Technical Regulator that part 5 of the Utilities Act is currently being reviewed to make technical regulation of utilities more effective and efficient.

# 5 Demand forecasts

## 5.1 Introduction

Forecasts of demand (including customer numbers, the volume of water abstracted and sold, and the volume of wastewater treated) are important because they influence 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
- 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 for reasons including:

- The current level of restrictions has not previously been experienced in the ACT and hence there is limited historical data on 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 climate change on future rainfall 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.
- The impact of a greater penetration of water savings devices and measures, such as rainwater tanks and recycling, is unknown.

The Commission engaged consultants McLennan Magasanik Associates (MMA) 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.

In its draft report of 27 November 2007, MMA prepared a detailed forecast of customer numbers and likely water use taking into account the probability of restrictions over the forthcoming regulatory period.

## 5.2 Draft decision

In the draft decision the Commission considered that ACTEW's forecasts of customer numbers were low and agreed with MMA that they should be increased. On the other hand, ACTEW's forecast of water sales appeared high and the Commission reduced ACTEW's forecasts accordingly. The Commission's draft decision on customer numbers and water sales volumes is set out in tables 5.1 and 5.2. The draft decision figures for sales to customers are equal to the MMA recommended volumes adjusted downwards by 3% to reflect concern expressed by ACTEW that it may experience a revenue shortfall as the probability of forecast usage exceeding actual usage exceeded the probability of the alternative position.

Table 5.1 Draft decision—customer numbers and wastewater fixtures, 2007–08 to 2012–13

	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
Water customer numbers	139,567	141,921	144,304	146,552	148,868	151,183
Wastewater customer numbers	135,659	137,948	140,264	142,449	144,700	146,950
Wastewater fixtures	52,594	53,719	54,845	55,970	57,095	58,220

Table 5.2 Draft decision—forecast volume of water sold by customer type, ML, 2007–08 to 2012–13

	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
Direct sales to customers	42,316	44,879	48,455	49,778	50,171	50,032
Standpipe sales	250	250	250	250	250	250
Sales to Queanbeyan	3,979	4,255	4,634	4,822	4,918	4,951
Total	46,545	49,384	53,339	54,850	55,339	55,233

## 5.3 Comments on draft decision

The Commission has received no public comments on the specific demand forecasts used in the draft decision. ACTEW's public comments were limited to noting that 'there is enormous uncertainty associated with forecasting over such a long time horizon, particularly with regard to the expected impact of water restrictions.'<sup>15</sup>

However, on 17 March 2008 ACTEW provided a commercial-in-confidence paper prepared by ActewAGL, which provided updated forecasts of demand for water during the next regulatory period. The main reasons for the update were to reflect:

- the planned inclusion of the phase 1 water security projects announced in October 2007
- the 10% improvement in storage levels since the preparation of the previous forecast.

On 17 March 2008 the Commission also received a final report from MMA. This final report generally confirmed MMA's draft projections with only minor changes being made to the forecasts.

<sup>15</sup> ACTEW, *Response to the draft decision on prices for water and wastewater services in the ACT*, February 2008, pp. 10-11.

Table 5.3 compares the ‘most likely’ forecast prepared by ActewAGL with MMA’s forecast. The MMA figures are consistently 12–14% lower than those proposed by ActewAGL. Note that both sets of figures exclude sales to Queanbeyan and include standpipe sales.

Table 5.3 Comparison of demand forecasts, ML, 2007–08 to 2012–13

	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
ActewAGL		53,300	58,100	59,800	60,100	60,300
MMA	43,881	46,525	50,216	51,582	51,987	51,843
% difference		12.7%	13.6%	13.7%	13.5%	14.0%

## 5.4 Discussion and final decision

As discussed in chapter 10 the Commission has decided to adopt a form of price control that forecasts usage for five years and to discontinue the practice of annually reforecasting volumes. One reason for this approach is that, as noted by ActewAGL, estimates over a period of several years are, on average, likely to be more accurate than estimates made for a single year.<sup>16</sup>

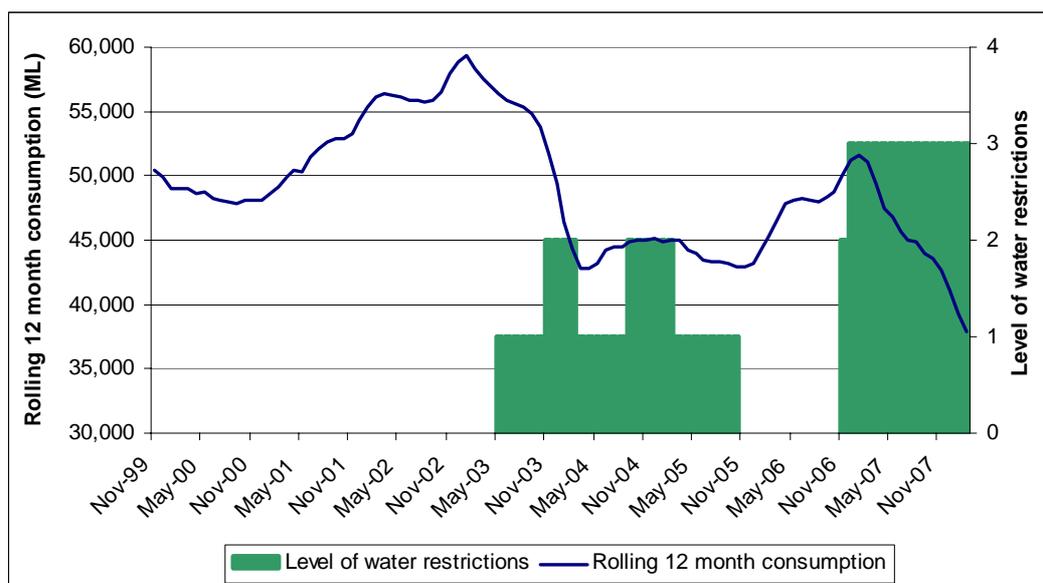
At the same time, as also discussed in chapter 10 of this final decision, the Commission has put in place a deadband mechanism so that if forecast water use differs from actual use such that volumetric water revenue is more than 3% different from forecast across the first 4 years of the regulatory period, ACTEW will be compensated or will have to return revenue to customers in the next regulatory period. This substantially reduces the impact of the uncertainty surrounding water use in the forthcoming regulatory period, which is primarily a function of:

- the fact that storages are currently at approximately 47.5% full and future restriction levels are uncertain
- there is uncertainty about when the augmentations to ACTEW’s supply will be completed and the influence they will have on storage volumes in the regulatory period.

Historical usage has varied from year to year according to weather and restriction levels. This is shown in figure 5.1. Usage for the 12-month period ending February 2008 was the lowest for many years, the result of a combination of Stage 3 restrictions with a relatively cool, wet summer. Usage in January and February 2008 was just 6,017 ML—this compares with, for example, 9,341 ML in the corresponding months in 2007 (also under Stage 3 restrictions) and 13,135 ML in 2002.

<sup>16</sup> ActewAGL, *ACT water demand projections 2008/09–2012/13* (updated March 2008), 2008, p. 10.

Figure 5.1 Water consumption and restrictions, 2007–08 to 2012–13



At the time of writing, ACTEW’s storage levels are at approximately 47.5%. Following rain in late 2007 and cool temperatures in early 2008, ACTEW announced on 11 February 2008 that it was very likely that Stage 4 restrictions would be avoided altogether in 2008.<sup>17</sup>

The Commission has considered the forecasts prepared by MMA and ActewAGL. Ultimately usage will depend primarily upon rainfall, runoff, and decisions made by ACTEW and the government regarding restriction levels. While these can be modelled using statistical techniques, as both ActewAGL and MMA have done, ultimately forecasts represent sophisticated estimates. However, on balance the Commission is concerned that ActewAGL’s forecasts appear high, particularly given the latest information on usage. For example, ActewAGL’s 2008–09 forecast of 53,300 ML represents a level not seen since 2002–03, a year which contained only two months of Stage 1 restrictions, and for the remainder of the year no restrictions were in place. Given that it is likely that the ACT will enter 2008–09 at Stage 3 restrictions, the Commission considers the MMA forecasts are likely to be more accurate than the ActewAGL projections.

In the draft decision, noting ACTEW’s concerns regarding probability of forecasts exceeding outcomes, the Commission adjusted the MMA projections down by 3%. However, it has not done this for the final decision as the Commission has provided mechanisms which will protect both ACTEW and customers should usage be significantly different from forecast. This includes both a within-period mechanism to reset prices in the last two years of the regulatory period if different usage appears likely in these years, and an end of period ‘deadband’ adjustment factor to provide compensation for ACTEW or customers if revenue is different from that forecast in this final decision. In this final decision the Commission has reduced the ‘deadband’ range from 10% of total revenue to 3% of water revenue to provide both ACTEW and customers with less exposure to changes in volumes. These mechanisms are discussed further in chapter 10.

The Commission’s final decision regarding customer numbers, fixtures and sales volumes is set out in table 5.4. The Commission has used the figures provided by MMA to allocate sales volumes into the 0–200 kL and 200 kL+ pricing bands adopted in this final decision.

<sup>17</sup> ACTEW Media Release, 11 February 2008.

**Table 5.4 Final decision—volumes and customer numbers 2008–09 to 2012–13**

	2008–09	2009–10	2010–11	2011–12	2012–13
Water customer numbers	141,921	144,304	146,552	148,868	151,183
Wastewater customer numbers	137,948	140,264	142,449	144,700	146,950
Wastewater fixtures	53,719	54,845	55,970	57,095	58,220
Standpipe sales	255	256	257	258	259
Sales to Queanbeyan	4,255	4,634	4,822	4,918	4,951
Direct sales 0–200 kL	22,269	23,547	23,993	24,301	24,523
Direct sales 200+ kL	23,602	26,415	27,335	27,432	27,066

Note: For the purposes of calculating prices the Commission has adjusted the direct sales numbers to reflect the lag between the time that water is consumed and the price at which it is billed.

## 5.5 Achievement of usage reduction targets

The Commission is required 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.

The manner in which this reduction should be calculated is discussed in volume 2 of the *Think water, act water* report.<sup>18</sup> This report notes that average per person use from 1992 to 2001 was 174 kL. To meet the target the climate-adjusted per capita usage in 2013 needs to be 153 kL or less. This equates to total consumption of around 63 GL.

This figure is substantially higher than the forecast of approximately 51.5 GL assumed by the Commission in this final decision. On balance it appears likely that the target will be comfortably achieved. However, this will ultimately depend on whether customers continue to curb their usage as restrictions are lifted. It is impossible to definitively state that this will occur; however, the volumetric prices set out in this final decision are likely to provide customers with strong incentives to continue to conserve water and achieve the target.

<sup>18</sup> ACT Government, *Think water, act water*, vol. 2, explanatory document, 2004, pp. 14–15.



## 6 Operating expenditure

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. 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
- 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.

## 6.1 Draft decision

ACTEW provided the Commission with two separate expenditure proposals. The first, submitted to the Commission on 31 July 2007, excluded the impact of potential water security projects under consideration by the ACT Government at the time. Subsequent to the ACT Government's announcement on 23 October 2007 of a range of water security measures, ACTEW provided the Commission with forecast operating and capital expenditure for the phase 1 water security projects on 14 November 2007.

ACTEW's operating expenditure forecast totalled approximately \$498 million across the regulatory period and is summarised in table 6.1.

Table 6.1 ACTEW original forecast operating expenditure 2008–09 to 2012–13 (\$'000, 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
<b>Total original forecast</b>	<b>94,652</b>	<b>95,231</b>	<b>95,703</b>	<b>97,401</b>	<b>101,297</b>
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
<b>Total expenditure</b>	<b>96,952</b>	<b>97,531</b>	<b>98,703</b>	<b>100,401</b>	<b>104,297</b>

The Commission engaged consultants McLennan Magasanik Associates (MMA), in conjunction with WorleyParsons, to assist it to review ACTEW's original operating (and capital) expenditure forecasts. Due to the timing of the announcement of the phase 1 water security measures, MMA did not review these projects.

In the draft decision, having regard to the MMA report, the Commission:

- noted that ACTEW's operating expenditure appeared higher than comparable water utilities, based on the 2005–06 National Performance Report
- accepted that cost allocation methodologies were sound and no adjustments were required
- expressed concern that forecast wage increases of 5.45% per annum were high given that the current ActewAGL Enterprise agreement allows for a 12.5% increase in salaries over three years. The Commission's draft decision therefore reduced ACTEW's forecast salary increase to 4.5% per annum

- accepted the consultants' recommendations that forecast operating costs at Mt Stromlo treatment plant and Lower Molonglo Water Quality Control Centre were overstated
- reduced the increases in ACTEW's finance and administration expenses by half the difference between the average 2005–06 to 2007–08 expenditure and ACTEW's proposal
- expressed concern that estimates of expenditure by the Water Conservation Office were high and reduced ACTEW's forecasts by \$2.8 million
- removed the proposed 5% margin payment between ACTEW and ActewAGL on the basis that it represented significant increases over current payment levels and had not been justified
- considered that increases in the cost of managing the UMA agreement were not prudent
- considered that ACTEW had not justified its \$8.3 million research and development expenditure and removed its forecasts in this area.

The Commission's draft decision regarding ACTEW's forecast operating expenditure is shown in table 6.2. The draft decision reflected a reduction of approximately 8% compared to ACTEW's proposal.

**Table 6.2** Draft decision—operating and maintenance expenditure, 2008–09 to 2012–13 (\$'000, 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>

## 6.2 Summary of comments on draft decision

Submissions relating to the Commission's draft decision on operating expenditure were received from Dr Christopher Dorman and ACTEW.

Dr Dorman made a number of comments regarding the costs associated with the demonstration water purification plant (WPP). These included:

- The design of a WPP appeared not to have been recommended by ACTEW to the government.
- The cost of water from the WPP is likely to be substantially higher than from other sources.
- Given the decision to proceed with the enlarged Cotter Dam and Murrumbidgee to Googong transfer project, sufficient water will be available to service the Canberra population until 2029. Therefore any expenditure on the WPP (including design expenditure) is entirely premature and unnecessary.
- There should be an extension of timelines for the 2008 determination to enable proper examination of the WPP.

ACTEW provided considerable commentary on the Commission’s draft decision on its operating expenditure, in particular, with respect to the 5% margin it sought on payments to ActewAGL. In support of its arguments, among other things, ACTEW submitted a paper prepared by economic consultants CRA International, which purported to show that the benefits of the UMA exceeded the costs (including the 5% operating margin).<sup>19</sup>

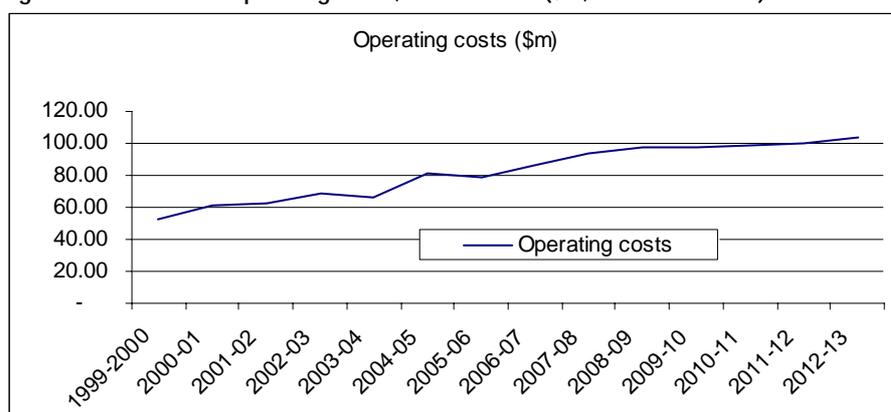
Each of the issues raised in the draft decision, as well as other relevant matters considered by the Commission, is discussed below.

## 6.3 Forecast costs

### 6.3.1 Operating cost trends

ACTEW’s operating costs have increased significantly in recent years and ACTEW has forecast the trend will continue. ACTEW has forecast that, in real terms (that is, after adjusting for the effects of inflation) operating costs will have more than doubled between 1999–2000 and 2012–13. This is shown in figure 6.1.

Figure 6.1 ACTEW operating costs, 2000 to 2013 (\$m, 2006–07 dollars)



There are a number of reasons for the cost increase. Firstly, ACTEW’s customer base has grown by around 25% since 1999–2000. Secondly, the combined effect of drought and bushfires and the need to take actions to address these events has imposed additional costs on ACTEW.

<sup>19</sup> CRA International, *Efficiency gains from the Utilities Management Agreement*, 2008.

It is impossible to entirely separate those cost increases that are entirely due to external factors from those that are within ACTEW's control. Nevertheless, the Commission is concerned about both the absolute level of operating costs and their continued increase. In the draft decision, the Commission noted that benchmarking at a national level showed ACTEW's operational expenditure was generally higher than other comparable utilities, and in some cases significantly so.

In recent years, customers have experienced significant price increases and have also had to endure a number of negative effects from the restrictions. This includes the cost of purchasing water savings devices, the loss of lawns and shrubs, the time involved in manually watering plants and a general loss of enjoyment and amenity from their gardens. This final decision provides for continuing real price increases for the next five years, primarily due to the implementation of the phase 1 water security measures. Given these circumstances, the Commission considers it is only reasonable to expect ACTEW to make operating cost savings and undertake a degree of 'belt tightening' across the next regulatory period. This might occur in areas of discretionary expenditure or where costs can be deferred with little economic cost. The Commission has borne this in mind when considering ACTEW's forecasts.

### **6.3.2 Margins and other costs under the UMA**

#### ***Introduction and draft decision***

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 known as the 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.

Under the UMA as it is currently structured ACTEW makes payments to ActewAGL as follows:

- a fixed price payment to cover the cost of providing specified operating and maintenance activities. This amount is set at the level determined by the Commission in its 2004 review
- the direct costs of undertaking the capital expenditure program
- an at-risk fee for planning and undertaking the capital expenditure program (subject to meeting performance indicators). This is known as the painshare/gainshare arrangement. If the total program is delivered under (or over) budget then the difference between actual cost and budget

is split equally between ACTEW and ActewAGL, with total painshare/gainshare payments capped at 5% of the total capital expenditure budget

- the costs of undertaking major maintenance
- other payments including for defined abnormal operating events and for services outside the agreed operating and maintenance activities.

The existence of the UMA and the contractual relationship between ACTEW and ActewAGL creates a number of categories of costs that would not exist if all activities were undertaken in-house by ACTEW and the relationship did not exist. As discussed in the draft decision, ACTEW has proposed that these costs will increase significantly in the forthcoming regulatory period and has sought that these costs be recovered through water and wastewater tariffs. The proposed costs for which ACTEW is seeking recovery through tariffs in the next regulatory period include:

- the cost to ACTEW of negotiating, managing and monitoring the contract with ActewAGL
- a proposed 5% margin on operating expenditure
- a proposed 4% margin on capital expenditure, excluding the phase 1 water security projects.

These costs are set out in table 6.3.

**Table 6.3 ACTEW's costs associated with the ACTEW/ActewAGL relationship (\$'000, 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 cost incurred by ACTEW	9,164	8,446	6,937	8,206	7,025
ActewAGL's contractor management costs	1,000	1,000	1,000	1,000	1,000
Total cost of contractual arrangements	10,164	9,446	7,937	9,206	8,025

ACTEW has indicated that the margin payments shown in table 6.3 are maximum amounts; that is, they will only be paid in full if ActewAGL meets its key performance indicators. The maximum payments average approximately \$5.8 million per annum over the next regulatory period—this compares with an average of approximately \$1.3 million over the current regulatory period.

ACTEW's forecast cost of managing the relationship between the parties averages \$9.0 million per year.

The other costs associated with the contractual arrangement are those incurred by ActewAGL in managing the relationship with ACTEW. In response to the draft decision ActewAGL has estimated these costs at \$1.0 million per annum.

In the draft decision the Commission did not include any amounts for margin payments between ACTEW and ActewAGL. Although the Commission indicated that it had no in-principle objections to the application of operating and capital margins on expenditure, the Commission expressed concern that:

- ACTEW had not quantified the benefits of the relationships.
- The proposed margins were substantially higher than currently apply.

The Commission also considered that in aggregate ACTEW's forecast costs of managing the relationship between ACTEW and ActewAGL were not prudent. The Commission reduced forecasts of expenditure on consultants in relation to the UMA by a total of \$650,000 across the regulatory period.

### ***Response to the draft decision***

ACTEW objected to the Commission's removal of the margins and reductions in contractor management costs. In summary, ACTEW stated that:

- The proposed margins are in line with benchmarked margins in similar industries.
- The margin needs to increase to reflect the greater level of risk imposed upon ActewAGL. This risk arises both from a transfer of risks from ACTEW to ActewAGL, plus the more complex operating environment created by drought, climate change and catchment degradation.
- The Commission's draft decision fails to address the information provided by ACTEW, which shows that the contractor margin is less than the average of those paid to comparable contracting companies.
- The high-powered incentives under the UMA have delivered efficiencies in the current period, including economies of scale and scope, improved scrutiny of programs, specialisation of functions and more appropriate risk allocation.
- The ActewAGL partners are entitled to a return on the capital invested in the business and the risks assumed by the business.
- Since ACTEW is one of the partners in the ActewAGL joint venture, it has no incentive to inflate margins as it retains cost savings in full while receiving only half on the profits.

ACTEW reminded the Commission of a statement by NERA that margin payments made in excess of a contractor's direct expenses can be considered prudent if:

The contractor's expenses are lower than those that would be incurred by providing the service in-house or through an alternative contractor.<sup>20</sup>

In relation to the Commission's decision to reduce third party contractor costs associated with the UMA, ACTEW argued that the Commission's decision does not take into account the costs to manage the UMA which were not fully realised/budgeted in 2006–07. According to ACTEW, the primary reason for the increase in costs is for auditing UMA compliance. To date ACTEW has not conducted an audit of ActewAGL's compliance with the requirements of the UMA since the agreement has only been in place for a relatively short period.

ACTEW provided a copy of a report prepared by CRA International, which it said demonstrated that the benefits of the UMA arrangement exceeded the costs.

### ***Analysis***

#### ***Status of the UMA***

ACTEW has put forward a number of propositions regarding margin payments and other matters based on arrangements it says will be in place under the UMA for the next regulatory period. For example, ACTEW has indicated that the UMA will continue to provide for risk transference to

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<sup>20</sup> NERA, *Treatment of outsourcing arrangements: Multinet gas distribution partnership*, October 2007.

ActewAGL and that payments between the parties will depend on key performance indicators being met.

However, the Commission notes that the UMA for the next regulatory period has not been agreed between ACTEW and ActewAGL and these matters are subject to negotiation pursuant to the Commission’s final decision. The Commission has not been provided with a draft copy of the document and has no certainty regarding, for example, performance targets and other key clauses in the UMA. Although the Commission is satisfied that information has been provided by ACTEW and ActewAGL in good faith, for the purposes of this final decision the Commission must treat any assurances provided by ACTEW and ActewAGL about how the UMA might operate in the knowledge that actual outcomes may vary from those currently foreseen.

### *Margins*

The Commission broadly agrees with the premise put forward by ACTEW that, all other things being equal, the costs of contracting activities to a third party may be considered to be efficient if they are lower than the cost of in-house provision or the cost of provision through an alternative contractor. At the same time the Commission needs to ensure that some of the benefits are shared with customers.

ACTEW has put forward the CRA International report as evidence that the benefits of the ACTEW/ActewAGL arrangements exceed the costs. The report attempts to quantify the costs that would be incurred by ACTEW if it was a stand-alone water and wastewater business, and then compares this with the proposed ACTEW/ActewAGL costs under the UMA. These benefits are then compared with the total cost of the relationship. The results are shown in table 6.4.

**Table 6.4** ACTEW/CRA International assessment of costs and benefits of the UMA (\$m 2006–07 dollars)

	2008–09	2009–10	2010–11	2011–12	2012–13
Costs (as per table 6.3 above)	10.19	9.47	7.96	9.23	8.05
Benefits					
Benefits of scale and scope efficiencies	8.20	8.38	8.51	8.65	8.78
Tighter focus on asset management	1.61	1.42	1.03	1.32	1.00
Transfer of risk	1.01	1.03	1.04	1.08	1.08
Total benefits	10.82	10.83	10.58	11.05	10.86
Net benefits	0.62	1.35	2.62	1.81	2.81

Source: CRA International report, p. 6. Note that the costs shown vary slightly from those in table 6.3

The report also identified a number of other non-quantified benefits of the arrangement—improved operating practices, sufficient scale to retain technical skills, better governance and accountability, better customer focus and single point of contact for customers, and a better focus on water security.

The Commission has reviewed the CRA International report. The Commission recognises that the exercise undertaken by CRA International is a difficult one and will be subject to a level of uncertainty. It is impossible to precisely estimate the benefits of the arrangements. Nevertheless the Commission has a number of concerns about the analysis undertaken.

### *Economies of scale and scope*

First, the basis of the analysis is a comparison of current costs compared to those that would be incurred by ACTEW as a stand-alone water and wastewater entity. However the Commission notes that at the time the ACTEW/ActewAGL arrangements were first entered into ACTEW was a combined water, wastewater and electricity service provider. The main change in functions was the addition of gas retail and distribution activities. It is likely that a substantial proportion of the economies of scale and scope identified by CRA International would already have been being achieved under the structure that existed at the time.

Second, the approach undertaken in the CRA International report is to assume that, for most activities, there is a relatively high amount of fixed costs associated with middle-level management. For example, the CRA report assumes that exactly the same number (five) of HR management staff will be required under the stand-alone ACTEW model as for an integrated entity. The Commission does not support this position and believes that a much greater reduction in middle-level management could occur under a stand-alone model.

The Commission therefore considers it likely that the benefits of scale and scope estimated in the CRA report are overstated.

### *Risk*

The CRA International report values the benefits of increased risk being placed on ActewAGL (as distinct from ACTEW) at approximately \$1 million per year. This figure was estimated by CRA based on 1.4% of costs. CRA selected this figure on the basis that it is equal to the original contractor margin for operating costs when the UMA was established. The Commission has severe concerns about this figure as it essentially represents the original proposed margin, which itself is an arbitrary figure and for which no substantiation has been provided. CRA's estimate does not represent an attempt to make an unbiased and rigorous estimate of the true benefits of risk transfer. However, leaving the method of calculation aside, the Commission has more fundamental concerns regarding the treatment of risk transfer as a 'benefit' of the UMA. These are discussed below.

According to CRA International and ACTEW, there are two sources of this additional risk.

The first is a transfer of risk from ACTEW to ActewAGL. ACTEW has provided documentation to demonstrate that a key objective when establishing the UMA in 2004 was to transfer greater operational risk from ACTEW to ActewAGL. ACTEW has argued that this additional risk is not properly reflected in the current margin payments.

The Commission notes ACTEW's views, but is strongly of the view that customers should not be required to pay higher prices simply because risk has been transferred from ACTEW to ActewAGL. Any transfer of risks between the parties that has occurred (or may occur in future) does not change the overall level of risk associated with operating the water and wastewater system. It is only where some risk has been transferred away from customers to either ActewAGL or ACTEW that higher prices might be justified. In discussions with the Commission ACTEW has indicated that this might occur, for example, where a constructed new asset does not meet its intended purpose. ACTEW has suggested that under the UMA ActewAGL will bear the risk of additional costs associated with adjusting the asset to ensure it meets its requirements. Under alternative arrangements, costs incurred by ACTEW in adjusting the asset might be added to the RAB, such that customers ultimately pay the additional price. Hence there has been a risk transfer from customers to ActewAGL.

The Commission notes this argument but considers that:

- The events described by ACTEW are likely to be rare.
- It is extremely difficult to estimate the value of this benefit of this risk transfer.
- In any case, if the asset does not meet its original purpose the Commission may review the expenditure and, depending on the circumstances, not allow the adjustment costs to enter the RAB on the basis that the original expenditure was not prudent. Thus customers would be shielded from the risk in any case.
- As the detailed workings of the UMA have not been finalised, the Commission cannot be sure that this risk transference will occur in any case.

The second is that ActewAGL faces greater risks due to an uncertain operating environment. ACTEW noted that:

Greater complexity in water harvesting and treatment, for example, has occurred as a result of the persistent hotter and drier conditions across Canberra's water catchments and the severe degradation of the historically pristine and reliable Cotter River catchment during the 2003 bushfires.

...

These developments necessitated major additions to infrastructure, including:

- the new treatment plant at Mt Stromlo
- the Cotter-Googong bulk water transfer facility
- the augmented Cotter Pump Station and associated facilities to allow water to be drawn from the previously mothballed Cotter Dam
- the Murrumbidgee Pump Station, off-take facilities from the Murrumbidgee River and associated ultra-violet treatment facilities at Mt Stromlo
- the augmented Googong Water Treatment Plant, now capable of meeting average summer demand.<sup>21</sup>

The Commission agrees that ACTEW's operating environment is more uncertain than in previous years, notably in terms of water sales, operating costs (particularly pumping costs) and capital expenditure. It is true that system optimisation decisions are not as straightforward as they may previously have been. However, several points are worth making.

First, the Commission has allowed extensive pass-throughs in the current regulatory period to provide ACTEW with substantial compensation for both the additional expenditure and the revenue shortfalls it has incurred as a result of the drought. The pass-throughs, including those approved as part of this final decision, have totalled around \$70 million. This has had the effect of eliminating a substantial proportion of ACTEW's risk. The Commission notes that its arrangements for ensuring ACTEW is not adversely affected by unexpected costs and other events is considerably more generous than provided by any other Australian water industry regulator.

Second, as ACTEW has itself identified, the operational issues are no more complex than those faced by many other water authorities with different supply options and associated costs.

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<sup>21</sup> Correspondence from ACTEW dated in response to questions from the Commission on 20 February 2008.

Third, in order to reduce the revenue risk faced by ACTEW in the next regulatory period, as discussed in chapter 5 the Commission has adopted conservative forecasts of sales volumes. The Commission has also accepted in their entirety ACTEW's pumping cost forecasts and provided for a review of prices in the event that the contingent water security projects proceed.

The Commission therefore considers it unlikely that there have been any net 'benefits' from a risk viewpoint. There is no plausible case that customers should pay a premium to ActewAGL for the additional risk that it may take on.<sup>22</sup> Indeed, the Commission notes that ACTEW and ActewAGL are free to negotiate arrangements for the next regulatory period that allocate risk in a different manner. For example, if pumping costs are considered to be materially uncertain, ACTEW and ActewAGL could agree to quarantine these costs from the fixed price contract so that ActewAGL does not bear undue risk. The Commission notes that ACTEW receives compensation through the WACC for the non-diversifiable risks associated with its business.

#### *Tighter focus on asset management*

CRA International has argued that the UMA has resulted in a greater focus on asset management and that this has created benefits for customers. CRA has pointed to a report by the US General Accounting Office (GAO) which identified there were benefits from comprehensive asset management for drinking water and wastewater services. This report cited cost reductions from comprehensive asset management approaches adopted by US water utilities.<sup>23</sup>

CRA has estimated the benefits of ActewAGL's management of assets via the UMA at 1% of operating expenditure. CRA International considers that this estimate of benefits is 'extremely conservative'.

The Commission acknowledges that asset management planning and project delivery has improved over the current regulatory period. However, it could be argued that this has simply been to bring procedures up to commonly accepted standards in the industry. As the Commission's consultants noted when reviewing asset management procedures at the time of the 2004 price review:

ACTEW Corporation accepts that its overall asset management planning process is still under development and may have a way to go to meet best practice.<sup>24</sup>

CRA International has not provided any evidence that these benefits are as a result of the UMA and the ACTEW/ActewAGL contractual arrangements. It is likely that asset management would have improved had ACTEW remained as a joint water and electricity business.

Further, the GAO report cited by CRA International does not contain any suggestion that the benefits of comprehensive asset management can only be achieved by contracting out these functions to a third party.<sup>25</sup>

The CRA report identified a number of other benefits from the UMA, some of which were discussed in the report and some of which were not. However, in general the Commission is not

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<sup>22</sup> The Commission notes that the UMA is to be renegotiated for the next regulatory period after the release of this final decision. The assignment of risk between ACTEW and ActewAGL for the next period has not been finalised.

<sup>23</sup> GAO-04-461 *Water utility asset management*.

<sup>24</sup> Burns and Roe Worley, *Review of expenditure, demand, forecasts, and cost attribution for the electricity and water services in the ACT, final report*, October 2003, p. 225.

<sup>25</sup> The report also noted that in Australia 'water utilities have used comprehensive asset management for about 10 years'.

convinced that a number of these benefits could not have been achieved by ACTEW remaining as a combined water and electricity business.

The final element of ACTEW's test provides that margin payments made in excess of a contractor's direct expenses can be considered prudent if the contractor's costs are less than that of an alternative contractor.

However, ACTEW has provided no evidence to suggest that the proposed costs are less than those of an alternative contractor. The contractual arrangement between ACTEW and ActewAGL has never been subject to any market testing and ACTEW is not proposing that the contract be open to the market in the future. The Commission is therefore not able to conclude that the proposed costs of outsourcing to ActewAGL are less than that of an alternative contractor.

In support of its proposal ACTEW has also noted that the 5% operating expenditure margin and the 4% capital expenditure margin are maximum amounts that will be paid from ACTEW to ActewAGL. Actual payments will be determined according to ActewAGL's performance. It may be the case that ActewAGL is paid less than the full margins. However, ACTEW is still seeking recompense for the full margin amounts in its prices. This means that regardless of the amount of the payment that is made customers will have to pay the full cost—the only variable is the relative amounts taken by ACTEW and ActewAGL.

#### *Benchmarking contract margins*

In support of its proposed margins, ACTEW cited a report prepared by NERA on behalf of Envestra entitled *Benchmarking contractor's profit margins*. NERA's report analysed the profit margins of 25 businesses (or business units) operating within the infrastructure sector, including a subset of eight businesses operating within the 'distribution infrastructure' sector.

NERA's report concluded that the average margin<sup>26</sup> across the 25 infrastructure businesses was 5.7% and among the distribution businesses, the margin was 8.2%. ACTEW argued that the margin implied under its current UMA was 4.3%, less than the overall average margin and much less than the distribution sector margin, as calculated by NERA.

NERA's report was used by Envestra in its submission to the Victorian Essential Services Commission's Gas Access Arrangement Review (GAAR). The ESC engaged the Allen Consulting Group (ACG) to review NERA's assumptions. While ACG broadly agreed with NERA's approach, in addition to some minor edits to ensure data consistency, it had some material issues with NERA's findings.

First, ACG identified material anomalies with the underlying financial data of two of the 25 businesses benchmarked by NERA—Fluor Australia and WorleyParsons' Power business unit. These two businesses were excluded from ACG's own analysis.

Second, and more important, ACG noted that three of the businesses, all of which were in the distribution sector, were unlikely to have margins that represented truly 'arm's length' contracts. The business units AGL Agility, Alinta Asset Management and Origin Energy Networks all received a 'substantial share' of their income from parent or related companies. ACG commented:

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<sup>26</sup> Measured by EBIT (earnings before interest and tax) divided by total revenue.

a margin that is earned on joint venture activities may not be indicative of the margin that the firm would earn when undertaking its principal activities... It follows that such projects may be different to the normal projects that any of those firms may undertake.<sup>27</sup>

When ACG excluded Fluor Australia, WorleyParsons Power, AGL Agility, Alinta Asset Management and Origin Energy Networks from the benchmarking analysis, it found the revised average margins were 4.1% for all businesses and 4.8% for distribution businesses. ACG also noted that NERA was of the view that:

...the mean of the wider “All Infrastructure” sample group...[is]...the most appropriate comparator to be used when assessing the OMA’s implied EBIT margin...it is a better benchmark because it draws from a larger sample.<sup>28</sup>

Further, the ESC provided its view of benchmarking margins in its final decision for the GAAR. The ESC concluded:

While these factors may be relevant, there is likely to be a practical limit to the utility of investigating ‘margins’ and benchmarking those against comparable companies... more fundamentally, the level of a margin does not of itself say whether the overall payments made under an outsource contract are efficient or not.<sup>29</sup>

...margin benchmark analysis has some, but potentially, limited relevance in considering the proposed Access Arrangement revisions. The mere presence of a margin that is consistent with industry benchmarks does not mean that the overall level of expenditure under the contract is itself consistent with the Code.<sup>30</sup>

The Commission shares the concerns of ACG and the ESC. For this determination, the Commission is interested in whether ACTEW’s proposed operating expenditure, and hence its proposed margins, are prudent and efficient. The documentation submitted by ACTEW in support of its margins does not provide firm evidence of this.

### *Conclusions*

In conclusion, the Commission does not accept that the margin payments between ACTEW and ActewAGL are appropriate for two reasons:

- The payments represent a substantial increase in payments over the current period, without any discernible additional benefits for customers.
- The Commission has not been provided with credible evidence from ACTEW that the total proposed costs of the UMA and ACTEW/ActewAGL relationship exceed the benefits. Indeed, it appears that the opposite may be the case.

The Commission therefore needs to decide what an appropriate level of margin payments and contractor management costs for ACTEW might be. In reaching this decision the Commission has borne in mind a number of factors, including the following:

- The benefits of the UMA and the ACTEW/ActewAGL arrangement are likely to be less than \$10 million per annum.

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<sup>27</sup> Allen Consulting Group, *Benchmarking of contractors’ margins: review of NERA and PricewaterhouseCoopers reports*, 2007, p. 8.

<sup>28</sup> Allen Consulting Group, p. 21.

<sup>29</sup> Essential Services Commission, *Gas access arrangement review 2008–2012: final decision—public version*, March 2008, p. 54.

<sup>30</sup> ESC, *Gas access arrangement review 2008–2012*, p. 76.

- Following an exhaustive and comprehensive review in its recent gas decision, the ESC allowed a margin of approximately 2.5% on Envestra’s operating costs as a margin payable to its contractor, Origin Energy Asset Management (OEAM).
- Unlike the Envestra arrangement, where Envestra reimburses OEAM for expenses incurred, ACTEW makes full payment of the fixed operating and maintenance amount to ActewAGL. If ActewAGL is able to deliver the program for less than the fixed amount, it retains the difference as profits. This means that quite aside from the margins, ActewAGL already has strong performance incentives and an ability to retain the benefits of cost reductions.

The Commission has therefore decided that it will:

- allow a margin of approximately 3% to be included in operating cost forecasts
- allow a margin of approximately 3% to be included in capital costs forecasts. However, at the end of the regulatory period the Commission will review the UMA arrangements and its outcomes in terms of capital expenditure risk transfer from customers, the level and structure of performance payments from ACTEW to ActewAGL, and any other relevant matter, to determine what amount of margins, if any, should be included in the RAB going forward
- provide for contractor management costs equal to those forecast to be incurred by ACTEW in 2007–08, plus an adjustment to allow for real wages growth.

The dollar amounts provided for by the Commission relating to the operating and capital margins are presented in table 6.5.

Table 6.5 Final decision—margins included in operating and capital program (\$'000, 2006–07 dollars)

	2008–09	2009–10	2010–11	2011–12	2012–13
Operating expenditure margin (3%)	2,309	2,323	2,327	2,345	2,368
Capital expenditure margin (3%)	2,702	2,082	871	1,666	686
<b>Total</b>	<b>5,011</b>	<b>4,405</b>	<b>3,198</b>	<b>4,011</b>	<b>3,054</b>

### 6.3.3 Wage levels

#### *Draft decision*

In its original submission ACTEW forecast annual (nominal) growth in wages of 5.45%.

In the draft decision the Commission expressed concern that this forecast was too high and noted that:

- The method of calculating the growth rate, being an average of forecast wages growth for water utilities (4.5%) and the engineering and professional sector (6.4%) was inappropriate.
- The approach was backward looking and did not take into consideration future conditions or events.
- Currie and Brown had previously indicated that ACTEW’s wages were higher than industry benchmarks.

As a consequence, in the draft decision the Commission determined that an average nominal wages growth rate of 4.5% was appropriate.

### ***Response to the draft decision***

In response to the draft decision ACTEW disputed the Commission's findings. ACTEW pointed out that its original proposal was based on a weighted (50:50) average of growth in wages under ACTEW's EBA (4.5%) and wage growth for engineers (6.4%). ACTEW noted the strong positive relationship between construction activity and wages movements in the Australian electricity, gas and water supply industry. ACTEW then provided information from the Construction Forecasting Council that showed continued growth in water and sewerage construction activity in the ACT ranging over each of the next five years. ACTEW therefore maintained that its proposed wages growth rate of 5.45% 'represents a conservative estimate of wages growth in the current, highly competitive market'.<sup>31</sup>

### ***Commission's analysis***

The Commission accepts that real wages growth is likely to occur in the water industry over the forthcoming regulatory period. However, it continues to hold concerns regarding ACTEW's forecasts.

The Commission accepts there will be a relationship between wages growth and construction activity in the Australian electricity, gas and water supply industry. However, pointing to the Construction Forecasting Council's forecasts of construction activity in the ACT provides limited support for ACTEW's case, given that:

- As ACTEW is by far the dominant construction agency in the ACT in the electricity and water industries, its link between wages growth and construction activity will be self-fulfilling. That is, higher forecast ACTEW wages will lead to higher construction costs, which will imply higher wages etc.
- In any case the Construction Forecasting Council's forecasts bear very limited resemblance to the Commission's final decision (or ACTEW's proposal) forecast capital expenditure
- Australia-wide factors are more likely to impact on wages growth than ACT-specific factors.

Nevertheless, the Commission has noted ACTEW's concerns with the draft decision and has therefore sought further information on wages growth in the water industry. To this end the Commission has noted:

- In its recent decision on Victorian Gas Access Arrangements, the ESC adopted a forecast of 5.7% growth in nominal real wages (as proposed by the distribution businesses) for the purposes of determining operating expenditure. The ESC also adopted a productivity factor of approximately 2.5% across operating expenditure (of which 62% of costs are attributable to wages).
- In contrast, in its recent draft decision on Victorian non-metropolitan and urban water prices the ESC has adopted a forecast of 1.25% real wages growth (3.75% nominal growth if a 2.5% rate of inflation is assumed), taking into account productivity impacts.
- As part of its *Construction Cost Outlook Report* (discussed further in chapter 7) BIS Shrapnel has forecast an increase in the labour price index (LPI) for private construction of an average 4.7% from 2008 to 2013.

The Commission has also considered a report prepared by Econtech for the Australian Energy Regulator on wages growth in the Australian utility (electricity, water and gas) sector.<sup>32</sup> While this

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<sup>31</sup> ACTEW, *Response to the draft decision on prices for water and wastewater services in the ACT*, pp. 50-52.

<sup>32</sup> Econtech, *Labour costs growth forecast*, report for the AER, 13 August 2007.

report was prepared primarily for the purposes of electricity price resets in Victoria it provides relatively recent and comprehensive information regarding wages growth in the utility sector. It also provides some useful comparisons of predicted changes in wages and productivity made by other forecasting agencies.

Econtech has forecast national nominal wages growth in the utility sector of 6.3% from 2008 to 2014, and contrasts this with the 5.5% forecast made by BIS Shrapnel in March 2007 (for the five years to 2012–13) and the 4.3% increase forecast by Access Economics in November 2006.<sup>33</sup> Econtech notes that its forecast of nominal wages growth in the utility sector is higher than for the economy as a whole, while that of Access Economics is lower.

Part of the difference in the Econtech and BIS Shrapnel wages growth forecasts appears to be due to differing views taken on productivity growth. Econtech notes that it has forecast national economy-wide productivity to increase by 1.9% per annum, while BIS has forecast growth of 1.5%.<sup>34</sup> However BIS has forecast productivity growth in the utilities industry of 0.8%, only half of that across the economy as a whole. Econtech has also noted that the BIS approach of forecasting nominal wages growth using an LPI may underestimate wage inflation as it does not capture situations where an individual is given a promotion (and higher wage) to retain them in a tight labour market.

Of the reasonable range of forecasts for wages growth that could be adopted, the highest forecast appears to be by Econtech, which (taking into account productivity increases) provides for an increase of 5.5%. This is almost identical to ACTEW's proposal of 5.45%. A lower bound would appear to be given by the recent ESC water decision in Victoria, which provides for an increase of 4% (also taking into account productivity). The Commission has also had regard to the April 2007 report by Currie and Brown which found that ActewAGL labour rates were approximately 5% higher than industry-related market rates. Bearing in mind this benchmark, the Commission considers it is reasonable to adopt the wages growth rates set out in the BIS Shrapnel report which average approximately 4.7% per annum in nominal terms.

### 6.3.4 Research and development expenditure

#### *Introduction and draft decision*

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:<sup>35</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.

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<sup>33</sup> Econtech, table 7.4(a).

<sup>34</sup> Econtech, p. vii.

<sup>35</sup> ACTEW, *Submission: investigation into prices for water and wastewater services in the ACT*, p. 16.

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. This represents a significant increase in existing spending. Because ACTEW did not provide any details of this expenditure the Commission did not include any R&D expenditure in its draft decision, aside from the design expenditure on a demonstration water purification plant as part of the phase 1 water security measures. The Commission indicated that should ACTEW provide details of their proposed research and development projects, the Commission would consider the proposals as part of this final decision

### ***Response to the draft decision***

In response to the draft decision ACTEW provided detailed information on its proposed R&D program including a commercial-in-confidence paper in which it sought to justify its R&D expenditure.

ACTEW indicated that the direct benefits of its R&D program are:

- effective, accurate and reliable tools to assess and monitor drinking, wastewater and recycled water quality
- increased confidence in the risk management system on drinking water supply
- improved understanding of various treatment processes and distribution systems
- identification of and assistance with opportunities for strategic growth for ACTEW.

ACTEW's forecast of R&D expenditure is set out below. Management costs refer to expenses associated with travel and meetings, business and finance management, report preparation and portfolio management. Membership costs include membership fees and in-kind contributions to various organisations.

**Table 6.6 ACTEW proposed R&D program (excluding water purification plant) (\$'000, 2006–07 dollars)**

Financial year	Projects	Management	Memberships	Total
2006–07	550	175	305	1,030
2007–08	527	195	354	1,076
2008–09	571	190	504	1,266
2009–10	715	186	492	1,393
2010–11	861	226	544	1,631
2001–12	1,105	221	530	1,856
2012–13	1,380	259	517	2,156

ACTEW has forecast the yearly increases based on:

- an annual increase of 4% in nominal terms, plus expertise retention costs
- increasing membership costs for the Cooperative Research Centre (CRC) for Water Quality and Treatment (\$50,000 in nominal terms) plus new membership for the Bushfire CRC (\$150,000), WateReuse (\$20,000) and Water Environment Research Foundation (\$20,000)
- changes to project work in 2008–09 focusing on water health issues and catchment management as required under the Australian Drinking Water Guidelines (ADWG). According

to ACTEW the increases in the project budget has its basis in the requirements for gathering the information necessary to implement substantial changes to the approach of the ADWG.

ACTEW provided information on R&D costs that showed that although its R&D expenditure was lower than many other water utilities in dollar terms, as a percentage of operating revenue it was likely to be the highest.

### *Analysis*

As noted above, the Commission has no in-principle objections to 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. However, in a competitive business environment R&D expenditure will occur only 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 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.

ACTEW's R&D expenditure is undertaken in conjunction with Ecowise Environmental Pty Ltd (Ecowise). Actual R&D activities are undertaken by employees of ACTEW, ActewAGL, Ecowise and other external contractors. Ecowise manages the R&D program on behalf of ACTEW. According to ACTEW's website Ecowise is jointly owned by ACTEW and Alinta GCA Pty Ltd. ACTEW's managing director is also Chairman of Ecowise.

Ecowise is a commercial business which offers consulting services in water resources planning and management. Its web site lists a number of water resources assignments undertaken for third parties.

Given that Ecowise is a commercial organisation, it is essential that the Commission can be satisfied that the R&D activities funded through water and wastewater tariffs are provided for the benefit of water and wastewater customers and that all cost reductions and revenue flowing from that expenditure accrues to water and wastewater customers.

In its confidential response to the Commission, ACTEW indicated that Ecowise had won a tender worth \$1.35 million per annum as a direct result of one of its R&D projects. This project has been part-funded by ACTEW and ACTEW noted in its response that 'without Ecowise's unique and innovative R&D program, and ACTEW's investment in it, this opportunity, and the experience gained from it, would never have been realised.' This is of concern to the Commission and suggests that water and wastewater customers have been funding projects for which Ecowise appears to be reaping the rewards. In response to the Commission's questioning on this matter ACTEW indicated that:

Until quite recently, however, there have been no instances of commercial gain from R&D projects apart from the benefits mentioned as accruing to the efficacy of operating the water and wastewater business. [This project] has been the exception where, beyond the direct benefits, an external client has sought to utilise Ecowise's expertise in this area. Though no significant sum is involved in this instance, ACTEW is currently receiving advice as to whether the existing arrangements provide an acceptable framework for the payment of licence fees to ACTEW for use of this technology and any other such instances. Where R&D was funded from regulated revenue, any such income would form part of ACTEW's regulated revenue stream.<sup>36</sup>

The Commission is concerned that this project has proceeded to the point that it has without appropriate arrangements appearing to be in place to ensure that water and wastewater customers, who ultimately funded the research, benefit from its commercial success. Further, the Commission does not agree with ACTEW that 'no significant sum is involved'.

The Commission also has concerns about the overall increase in other elements of ACTEW's R&D program. ACTEW has put a case that additional drinking water testing needs to be undertaken. However, at a time when ACTEW's expenditure and prices are continuing to rise significantly, the Commission believes that ACTEW should fund this expenditure from savings and efficiencies in other areas of the R&D program, the additional revenue to be generated from its recent successful tender, or its overall operating expenditure budget. Further, the Commission considers that expenditure on additional memberships at this time is inappropriate.

Noting the above, as well as the fact that ACTEW's R&D budget is already (in the absence of the proposed increased expenditure) at the high end of utility expenditure in terms of cost per unit of revenue, the Commission does not support ACTEW's proposed R&D budget. This final decision therefore makes provision only for expenditure at 2007–08 levels, with an escalation for real wages growth.

### **6.3.5 Mt Stromlo and LMWQCC costs**

#### ***Introduction and draft decision***

As part of their review of operating expenditure the Commission's consultants reviewed 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 megalitre 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 underway to meet future demand and to increase treatment efficiency with regard to nitrogen and ammonia removal (expected completion 2008–09).

In the draft decision the Commission broadly accepted the consultants' advice regarding both the Mt Stromlo Treatment Plant and LMWQCC. The Commission reduced forecast expenditure by an

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<sup>36</sup> Correspondence from ACTEW in response to questions from the Commission on 20 February 2008.

amount of approximately \$0.9 million over the regulatory period in relation to Mt Stromlo and \$3.6 million for LMWQCC.

### ***Response to the draft decision***

ACTEW did not support the Commission's conclusions in this area.

In relation to the Mt Stromlo treatment plant, ACTEW indicated that current chemical costs were not a good guide to future costs. In particular, ACTEW noted that the poorer quality of water being sourced from the Murrumbidgee River would require additional treatment (ultraviolet disinfection) and handling of sludge, and that as a result additional energy and chemical costs would be incurred.

In relation to the LMWQCC, ACTEW stated:

The Commission's consultants have misinterpreted the nature of the current secondary sewerage treatment system augmentation. They have assumed that the introduction of additional clarifiers and affiliated treatment units is intended to improve chemical efficiency. They are intended, rather, to allow continued compliance with environmental nitrogen and ammonia discharges and will in fact result in higher costs of operation.<sup>37</sup>

### ***Analysis and final decision***

The Commission is satisfied with the explanation for the cost increases provided by ACTEW and has included the expenditure in this final decision.

## **6.3.6 Water Conservation Office costs**

### ***Introduction and draft decision***

ACTEW proposed expenditure associated with its Water Conservation Office (WCO) of some \$9.7 million across the next period. This expenditure covers activities such as participation in community events, advertising, promotion of rebates and water audit services, provision of a hotline service, and the development and review of restriction levels.

In the draft decision, the Commission considered that the forecast costs of the WCO were overstated. The Commission noted the large jump in expenditure between 2006–07 and 2007–08 and expressed concern about the size of the increase given that restrictions were reintroduced in 2006–07. Therefore, the draft decision provided for:

- costs of \$1.2 million in nominal terms in years when permanent restrictions are forecast to be in place
- costs of \$2.0 million in nominal terms in years when both temporary and permanent restrictions are in place.

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<sup>37</sup> ACTEW, *Response to the draft decision on prices for water and wastewater services in the ACT*, p. 47.

Table 6.7 ACTEW proposal and draft decision on WCO costs (\$'000, 2006–07 dollars)

	2006–07 (actual)	2007–08 (estimated)	2008–09	2009–10	2010–11	2011–12	2012–13
ACTEW proposal—PWCM	462	733	717	1,590	1,391	1,396	786
ACTEW proposal—TWR	1,169	1,909	1,886	–	–	–	1,912
ACTEW proposal—total	1,631	2,642	2,603	1,618	1,391	1,396	2,697
Draft decision—total	–	–	1,904	1,114	1,087	1,061	1,725

### *Response to the draft decision*

In response to the draft decision ACTEW maintained its position in relation to WCO costs. In particular, ACTEW noted that:

- ACTEW had been asked by the ACT Government to undertake reviews of both PWCMs and TWRs by the ACT Government. The reviews are expected to involve the recruitment of more staff for extensive national and international research, policy development, government liaison, community consultation and eventually a relaunched public information campaign.
- ACTEW had also been asked to develop a new Stage 5 restriction level.
- 2007–08 and 2008–09 costs include capital costs for workstation fit-outs.
- The assumed re-introduction of PWCMs will require substantial investment in communications and public re-education.
- All forms of published material are due to be updated in 2007–08 and early 2008–09.
- In 2007–08, ACTEW has incurred considerable expenditure in planning for Stage 4 TWRs.
- TWRs operated for only 8 months in 2006–07 compared to 12 months in 2007–08 (hence the increase in costs).

ACTEW also noted that its forecasts are based on an assumption that stage 4 TWRs will be introduced in 2007–08 and will continue into 2008–09. Restrictions are assumed to ease in 2009–10 to PWCM levels, with the reintroduction of TWRs in 2012–13.

### *Analysis and final decision*

The Commission notes that ACTEW’s WCO cost forecasts (and indeed the Commission’s draft decision) are inconsistent with the likely level of restrictions.

In relation to costs, despite ACTEW’s assurances the Commission is concerned that efficient costs are overstated. While the Commission understands the importance of communication to the water conservation effort, again the Commission does not consider that ACTEW is undertaking an appropriate level of ‘belt-tightening’.

Firstly, it is clear that Stage 4 restrictions will not be implemented in 2007–08 as assumed and they are increasingly unlikely to be introduced in 2008–09. Given this, the need for the development of a new Stage 5 restriction level is also questionable. The Commission is also not convinced of the need for ‘extensive national and international research’ in relation to PWCMs and TWRs.

A substantial amount of the costs associated with water conservation have already been incurred. Web sites, advertising material, and communications programs have already been established. Valuable lessons and information can be shared with other water authorities at minimal cost. While the Commission agrees that ongoing promotion of water conservation needs to occur,

community awareness is significantly higher than in the past and maintaining this awareness is likely to be relatively easy to achieve. Again, given the increases in other areas of expenditure, ACTEW needs to be disciplined with its expenditure in this area.

This final decision therefore provides for total expenditure of \$8.75 million for WCO costs. This is based on an assumption of \$2.5 million expenditure in 2008–09 and 2009–10 when temporary water restrictions are in place, and \$1.25 million in each of the remaining years. This is a reduction from the \$9.7 million sought by ACTEW, but an increase from the \$6.9 million provided in Commission’s draft decision.

Table 6.8 Final decision on WCO costs (\$'000, 2006–07 dollars)

	2008–09	2009–10	2010–11	2011–12	2012–13
Draft decision	1,904	1,114	1,087	1,061	1,725
Adjustments	596	1,386	163	189	- 475
Final decision	2,500	2,500	1,250	1,250	1,250

## 6.4 Pass-throughs

The draft decision indicated ACTEW had sought to pass through \$34.0 million in the forthcoming regulatory period. The \$34.0 million represented expenditure related to obligations unforeseen at the time of the last price determination and \$11.6 million of forgone revenue due to lower than expected sales of water. In the draft decision the Commission indicated its intention to accept ACTEW’s proposed pass-through amount.

In its response to the draft decision, ACTEW advised that it was further seeking additional pass-through amounts relating to the 2007–08 year. ACTEW’s revised pass-through in the next regulatory period increased by \$13.5 million to reflect:

- further revenue shortfalls, based on revised estimates of water sales from its original submission
- increased costs of the Future Water Options Stage 2 program
- increased pumping costs.

The Commission has considered ACTEW’s submission and accepted its request for a revised total of \$49.5 million of pass-throughs. This represents the Commission’s final decision on the pass-throughs for the current regulatory period. Although ACTEW’s final costs and revenues for 2008–09 may deviate from those currently forecast it is likely that any differences will not be material. Any changes to the pass-through amounts, either upwards or downwards, will not be considered.

## 6.5 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 is 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>38</sup>

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

Several submissions addressed the issue of the WAC, including submissions 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>39</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>40</sup>

The Commission has held discussions with the ACT Government regarding the WAC and the government, in its submission to the Commission, 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>41</sup>

Under this approach the WAC becomes a separate operating cost which ACTEW needs to recover in its regulated price determination. ACTEW has indicated it will not be included as a separate component of customers' bills.

This reduces the transparency of the WAC. The Property Owners and Ratepayers Associations of the ACT expressed concern with this approach and the general proclivity of the ACT Government to levy charges on water and wastewater services, stating:

It is thus very important to us that accounts for water & sewerage continue to show separately the taxes and charges imposed by the ACT Government. Transparency in pricing distinguishing between water price and Government imposed taxes & charges on accounts to householders is of prime importance. The ICRC having no control over the Government imposed taxes and charges is in itself another good reason for the taxes and charges to be separately itemised on accounts to householders.

The Commission also considers that it would be useful, as a minimum, for the level of the WAC (in cents per kilolitre) to be shown on bills.

Based on advice from the government, the Commission has assumed the WAC will be applied at a rate of 51 cents per kilolitre extracted. Given the Commission's assumptions regarding forecast usage, the Commission has estimated the following payment amounts:

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<sup>38</sup> ACT Treasurer's response to Question on Notice No. 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>39</sup> Queanbeyan City Council, *Water pricing water abstraction charge & utilities network facilities tax*, submission to the Commission, 21 September 2007, p. 1.

<sup>40</sup> ICRC, *Final report: water abstraction charge*, ICRC, Canberra, October 2003.

<sup>41</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 6.9** Forecast WAC payment amounts (\$'000, 2006–07 dollars)

Year	Forecast WAC
2008–09	28,175
2009–10	30,445
2010–11	31,313
2011–12	31,590
2012–13	31,530

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

## 6.6 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 NFT will no longer be identified separately on customer's bills, but will be treated in the same manner as other taxes. The Commission's approach to determining the level of the NFT 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 6.10.

**Table 6.10** Forecast network facilities tax payment amounts (\$'000, 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

## 6.7 Additional operating costs

On 20 March 2008 ACTEW wrote to the Commission advising of proposed increases in operating costs of \$1.8 million per annum associated with the rental of new premises. ACTEW advised the Commission that ActewAGL had sold ActewAGL House (where many ACTEW and ActewAGL staff are currently located) and will lease new premises. The result will be a net increase in operating costs (after savings in water, energy and maintenance costs) of \$1.8 million per annum for ACTEW.

The Commission understands the additional \$1.8 million reflects both the proposed rental charges to be paid by ACTEW to ActewAGL for accommodation for the existing (approximately 26)

ACTEW employees, plus the (more significant) accommodation charges for ActewAGL employees that undertake activities for ACTEW and which are on-charged to ACTEW.

One benefit of the new arrangements will be that ACTEW's share of a proposed capital upgrade to ActewAGL House will be avoided. An amount of \$880,000 is currently included in the capital expenditure forecast, which equates to less than \$100,000 in annual terms.

The Commission has a number of concerns regarding ACTEW's proposal.

First, advice of the cost increase has been provided so late in the price decision process that the Commission has been unable to review the reasonableness of the forecasts. For example, the Commission has not been able to review whether the per unit charges proposed by ActewAGL for ACTEW employees are consistent with market rates, whether ACTEW has considered alternative office accommodation, or whether the proposed allocation of total ActewAGL costs is reasonable, given ActewAGL's other business activities.

Second, the Commission has not been able to subject the additional costs to public scrutiny. The new building will have a 5-star Australian Building Greenhouse Rating (ABGR). The Commission has therefore been unable to determine whether customers are willing to pay higher prices for a building with a high ABGR.

Third, in a more general sense, as noted earlier in this chapter, the Commission is concerned about continuing rises in operating costs at a time when prices are rising significantly and customers are experiencing high water restrictions. As part of this determination, the Commission has reviewed ACTEW's 2007–08 costs, including costs allocated by ActewAGL for facilities management (including accommodation) services and considered that they are generally reasonable. ACTEW's proposal will result in an approximate doubling in ActewAGL allocated facilities management costs.

The Commission therefore does not consider that it is appropriate for it to include an additional \$1.8 million in operating cost forecasts as a result of the proposed move in office locations by ACTEW and ActewAGL. It will, however, include the forecast \$880,000 in the forecast RAB for this regulatory period to reflect the benefits of the avoided costs of upgrading the existing premises. The Commission will reconsider the matter of ACTEW's rental costs at the next price review.

## **6.8 Phase 1 water security projects**

The Commission noted in the draft decision that it had not reviewed ACTEW's forecast capital expenditure on phase 1 water security projects, due to the tight timeframes between the projects' announcement and the draft decision. The Commission foreshadowed that it would review these projects prior to the final decision.

The Commission engaged consultants Halcrow Pacific (Halcrow) to review the major phase 1 water security projects. These included:

- enlarging the Cotter Dam
- transferring water from the Murrumbidgee River to the Googong Reservoir
- designing a demonstration water purification plant
- introducing a smart metering pilot.

Each of these projects is discussed in turn, with the exception of the demonstration water purification plant. As this project is only at the design stage, there is no operating expenditure associated with the project. The review of capital expenditure for the plant is discussed in section 7.4.5.

### 6.8.1 Enlargement of Cotter Dam

The Cotter Dam enlargement, due for completion in late 2011, will raise the dam to 78 metres and incorporate a two-stage spillway. The capacity of the dam will be increased to 78 GL and will supply up to 180 ML per day to the Mount Stromlo Water Treatment Plant through a combination of gravity and pumped transfer.

The project is expected to take 20 months to complete and ACTEW has proposed a total capital cost of \$145 million with associated operating expenditure of \$1 million per year. Halcrow has reviewed ACTEW's proposed expenditure on Cotter Dam and reported that ACTEW had provided a revised estimate of forecast operating expenditure. The new forecast incorporates both expenditure on the Cotter Dam and the Murrumbidgee to Googong transfer.

The revised estimate has resulted in an overall decrease in the amount of operating expenditure associated with the two projects. Halcrow advised, however, that these estimates may vary by up to \$17 million over the regulatory period depending on population growth.

Halcrow found that ACTEW's revised operating expenditure forecasts had been determined in a more appropriate manner than the original estimates and recommended that they be adopted. The Commission has accepted Halcrow's recommendations. Table 6.11 shows the final decision expenditure for both Cotter Dam and the Googong transfer (discussed below).

Table 6.11 Operating expenditure—Cotter Dam enlargement and Googong transfer (\$'000, 2006–07 dollars)

	2008–09	2009–10	2010–11	2011–12	2012–13
ACTEW proposal—Cotter Dam			1,000	1,000	1,000
ACTEW proposal—Murrumbidgee to Googong transfer		2,000	2,000	2,000	2,000
Revisions		-390	-70	-710	-740
Final decision		1,610	2,930	2,290	2,260

### 6.8.2 Transfer of water to Googong Reservoir

The Googong Reservoir project involves transferring water from the Murrumbidgee River to the Googong Reservoir. Each year, up to 20 GL of water that would otherwise flow into New South Wales will be transferred. A number of routes for the transfer were investigated, with an offtake point at Angle Crossing considered the best option. ACTEW is also undertaking a health risk assessment to investigate the possible need to upgrade the Googong Water Treatment Plant.

The transfer will involve a weir on the Murrumbidgee River at Angle Crossing and a pump station to lift the water from the river to a new 13 km pipeline that will transfer the water to Burra Creek, 7 km upstream of the Googong Reservoir. ACTEW's original proposal included a \$70 million allowance for capital expenditure and an operating expenditure allowance of \$2 million per year.

The previous section (section 6.8.1) summarises the finding by consultants Halcrow with respect to the forecast operating expenditure for this project. The Commission accepted Halcrow's recommendation, as set out in table 6.11.

### 6.8.3 Smart metering pilot

ACTEW, at the ACT Government's request, is planning to implement a smart metering pilot program. 'Smart' meters will be real-time, digital meters located within a residence that will allow a water customer to readily see the level of their water use at any given time. The meters will also be connected to the customer's electricity meter and, where applicable, gas meter. The objectives of the pilot include promoting sustainability, increasing operational efficiency and improving water accounting and reporting.

Halcrow reviewed ACTEW's assumptions underpinning its forecast operating expenditure on the smart metering pilot and provided the following analysis:

- ACTEW's Information Paper reported the operating expenditure associated with the project to be \$3.3 million (including \$0.7 million in 2007–08), which has since been revised to \$1.0 million, as per the project's Feasibility Business Case document.<sup>42</sup>
- Smart meters are expected to be installed at 1,000 residential properties, extended from the original number of 500 with an associated increase in cost.
- Detailed expectations of the program have not yet been fully defined.
- ACTEW advised during the course of the review that it proposed to allocate 70% of the total costs of the program to water customers and 30% to electricity customers. It made no allocation for gas customers.
- Potential benefits of the project may include fewer customer complaints, improved response times to interruptions, reduced meter reading costs and increased customer confidence in water conservation.

Halcrow raised a number of issues with the smart metering pilot. First, Halcrow noted that there appears to have been no assessment of the economic value of the expected benefits derived from smart metering. It is therefore difficult to determine if the costs of the project will be outweighed by its benefits. However, Halcrow believes that the information provided to it suggests that this will not be the case (that is, the economic gains would not exceed the economic costs). Halcrow therefore suggested that the costs of the program may be better incorporated into water savings expenditure, or provided by external sources (for example, government).

Second, the proposed allocation of 70% water and 30% electricity was not accompanied by any detailed justification. Halcrow argued that an allocation of 40% to water, 40% to electricity and 20% to gas was more appropriate, but conceded that there was little science behind the formulation of its allocation methodology. Halcrow observed, however, that the potential benefits of a smart metering system are likely to accrue to the energy side of the business, where customers are subject to variable pricing (for example, peak and off-peak) and are more likely to change their consumption behaviour than they are with water.

Finally, Halcrow cited recent experience within the water and electricity industries that called into question the efficacy of smart metering in reducing consumption. Anecdotal evidence suggests that

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<sup>42</sup> ACTEW, *Project MIMI (multi-utility integrated metering infrastructure): feasibility business case*, 2008.

the forecast reduction in energy consumption in Victoria due to smart meters may be as little as 0.03%, at a cost of \$1.4 billion. Further, there is again anecdotal evidence that suggests smart metering in the energy industry may change only the pattern of use (that is, time of use), not the quantity of use.

The Commission shares Halcrow’s concerns relating to the smart metering pilot. It considers that the benefits of the project are more likely to be in relation to electricity use than water. While the pilot has ACT Government support and has the potential to improve the current understanding of water use in the ACT, it is not appropriate to allocate a high proportion of costs to the water business. The Commission has therefore adopted Halcrow’s recommended allocation methodology.

Table 6.12 Operating expenditure—smart metering pilot (\$’000, 2006–07 dollars)

	2008–09	2009–10	2010–11	2011–12	2012–13
ACTEW proposal	2,300	300			
Revisions	-2,100	-100			
Final decision	200	200			

## 6.9 Final 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.

While the Commission considers that ACTEW’s forecast expenditure in a number of more peripheral activities (such as the Water Conservation Office, contractor management, research and development, and margins) is overstated, aside from reducing wages increases to more reasonable levels the Commission has few adjustments to ACTEW’s forecast of key operational expenditure. For example, and despite reservations expressed by the Commission’s consultants, the Commission has accepted in full ACTEW’s forecasts of pumping costs, chemicals and other treatment costs, and projections of capital expenditure.

The Commission also wishes to emphasise that, unlike the current period, there will be no pass-throughs for unforeseen increases in expenditure in operational areas. Pass-throughs will be limited to a small number of changes in taxes and external events such as major natural disaster or a reduction in the subvention payment. As with other water authorities, ACTEW must manage its expenditure within the environment which it faces. This may mean that it will need to reprioritise or defer certain non-essential expenditure or seek additional funding sources (for example, from government, particularly where additional expenditure results from a new government requirement). Future pass-through arrangements are discussed further in chapter 10.

The Commission’s final decision in relation to operating expenditure is set out in table 6.13.

**Table 6.13 Final decision—operating and maintenance expenditure (\$'000, 2006–07 dollars)**

	Final decision				
	2008–09	2009–10	2010–11	2011–12	2012–13
ACTEW original proposal—Water	49,444	47,322	47,922	47,923	50,014
Water security measures phase 1	2,300	2,300	3,001	3,000	3,000
<b>Total ACTEW proposal</b>	<b>51,743</b>	<b>49,622</b>	<b>50,923</b>	<b>50,923</b>	<b>53,014</b>
Amendments:					
Adjustment to water conservation office	-103	882	-141	-146	-1,447
Adjustment to operating margin	-648	-901	-913	-913	-953
Adjustment to contractor management	-74	-60	-69	-89	-114
Adjustment to wages	-391	-711	-930	-1,036	-1,273
Adjustment to R&D	-176	-292	-516	-724	-1,007
Adjustment to phase 1 operating costs	-2,100	-490	-70	-710	-740
<b>Final decision—Water</b>	<b>48,251</b>	<b>48,050</b>	<b>48,285</b>	<b>47,306</b>	<b>47,480</b>
<b>ACTEW proposal—Wastewater</b>	<b>45,208</b>	<b>47,909</b>	<b>47,780</b>	<b>49,478</b>	<b>51,282</b>
Amendments					
Adjustment to contractor management	-74	-60	-69	-89	-114
Adjustment to operating margin	-639	-613	-647	-670	-651
Adjustment to wages	-356	-720	-927	-1,071	-1,307
<b>Final decision—Wastewater</b>	<b>44,139</b>	<b>46,515</b>	<b>46,138</b>	<b>47,648</b>	<b>49,211</b>



## 7 Capital expenditure

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 projects proposed by the regulated business are necessary. If this is the case, the expected costs of the projects are examined to verify that they are efficient. When ascertaining the prudence of capital works the consultants consider:

- the existing infrastructure and renewals requirements
- the demographic circumstances
- service standards
- asset utilisation
- 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.

The Commission engaged MMA and WorleyParsons to review the efficiency and prudence of ACTEW's original capital expenditure program prior to the draft decision. 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.

Subsequent to the draft decision, the Commission engaged consultants Halcrow Pacific (Halcrow) to review ACTEW's expenditure forecasts for the phase 1 water security measures announced by the ACT Government in October 2007. Having reviewed Halcrow's report and submissions in response to the draft decision, the Commission has made its final decision on the capital expenditure requirements for ACTEW in the forthcoming regulatory period.

## 7.1 Draft decision

### 7.1.1 Expenditure in the current period

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

In the draft decision, the Commission noted that actual capital expenditure for the period 2004–05 to 2007–08 is expected to be substantially higher than the \$110.4 million approved in the 2004 price determination. The majority of the variance is explained by pass-throughs approved by the Commission totalling \$48.1 million, primarily relating to projects undertaken in response to drought and the Canberra 2003 bushfires.

ACTEW's actual expenditure, as revised since the draft decision, is presented in table 7.1.

Table 7.1 Capital expenditure 2004–05 to 2007–08 (\$'000, 2006–07 dollars, excluding water security projects)

	2004–05	2005–06	2006–07	2007–08	Total
Actual capital expenditure					
Water	34,689	26,072	17,070	39,078	116,909
Wastewater	9,707	6,343	11,586	24,438	52,074
<b>Total</b>	<b>44,396</b>	<b>32,415</b>	<b>28,656</b>	<b>63,516</b>	<b>168,983</b>
Forecast capital expenditure					
Water	35,434	7,928	3,638	5,172	52,172
Wastewater	19,344	14,411	12,344	12,149	58,248
<b>Total</b>	<b>54,777</b>	<b>22,340</b>	<b>15,982</b>	<b>17,321</b>	<b>110,420</b>
Variance	-10,381	10,075	12,674	46,195	58,563

Source: ACTEW. Note that ACTEW has updated figures for 2006–07 and 2007–08 since the draft decision was released.

MMA assessed the prudence and efficiency of ACTEW's capital expenditure over the current regulatory period. Having regard to the MMA report and after undertaking its own analysis, the Commission's draft decision considered that it was appropriate to roll all capital expenditure undertaken by ACTEW during the period July 2003 to June 2007 into the opening RAB for the next regulatory period.

In making its draft decision, the Commission noted that:

- The process adopted to incorporate additional capital expenditure in the capital program was deemed appropriate by MMA.
- The painshare/gainshare agreement between ACTEW and ActewAGL, whereby capital cost savings or cost overruns are equally shared between the two parties, resulted in an additional \$372,000 being rolled into the RAB.
- Given the likely improvements in the on-time delivery of capital projects and the incentives for cost containment under the painshare/gainshare agreement, the additional \$372,000 was appropriate.

Due to uncertainty about whether the contingent projects would proceed, as well as their cost, the Commission did not include any allowance for expenditure on these projects in the draft decision.

### 7.1.2 Proposed capital expenditure

Table 7.2 shows that ACTEW has forecast total capital expenditure over the forthcoming regulatory period of \$491.0 million, including \$213.4 million on phase 1 water security measures. Of this amount ACTEW has forecast that \$339.2 million, or 69% of the total capital program, will be spent in the first two years of the regulatory period.

Table 7.2 ACTEW original forecast capital expenditure 2008–09 to 2012–13 (\$'000, 2006–07 dollars)

	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
<b>Total water</b>	<b>33,934</b>	<b>59,412</b>	<b>17,446</b>	<b>44,023</b>	<b>10,541</b>
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
<b>Total wastewater</b>	<b>59,727</b>	<b>12,762</b>	<b>12,759</b>	<b>13,740</b>	<b>13,232</b>
Phase 1 water security measures					
Cotter Dam enlargement	30,000	70,000	40,000	–	–
Murrumbidgee to Googong Transfer	42,000	27,000	–	–	–
Demonstration water purification plant	3,000	–	–	–	–
Smart metering pilot	1,200	200	–	–	–
<b>Total phase 1 water security measures</b>	<b>76,200</b>	<b>97,199</b>	<b>40,000</b>	<b>–</b>	<b>–</b>
<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>

Included within ACTEW's forecast is a capital margin of 4% and a painshare/gainshare mechanism, although this mechanism was not accompanied by any detailed explanation. ACTEW's forecast of capital expenditure did not include an additional \$50 million for the contingent water security projects (refer to section 7.4.5).

MMA assessed ACTEW's forecast capital expenditure over the forthcoming regulatory period. As noted in chapter 6, due to the timing of the announcement of the phase 1 water security projects, MMA's review was confined to the non-phase 1 capital program.

In reaching its draft decision, the Commission had reference to MMA's observations and recommendations, as well as its own analysis of ACTEW's forecast capital expenditure. In summary, the Commission:

- removed \$65.7 million from ACTEW's forecast relating to probable maximum flow (PMF) upgrades to Corin and Bendora dams
- proposed not to approve ACTEW's proposed 4% margin on all capital expenditure, payable to ActewAGL, unless more detailed information regarding the margin was provided to the Commission
- revised ACTEW's proposed 2007–08 capital escalation factor downwards, from 7.9% to 5.5%.

The Commission's draft decision regarding ACTEW's forecast operating expenditure is shown in table 7.3. The draft decision, excluding the water security measures, represented a reduction of 26% compared to ACTEW's original proposal.

**Table 7.3 Draft decision summary table—capital expenditure (\$'000, 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	59,727	12,762	12,758	13,741	13,232
Less amendments					
Capital margin payable to ActewAGL	2,297	491	491	529	509
Total proposal with amendments	57,430	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>56,153</b>	<b>11,998</b>	<b>11,995</b>	<b>12,919</b>	<b>12,440</b>

Note: The figure for wastewater capital expenditure was reported as \$59,351,000 in the draft decision due to a discrepancy between ACTEW's original submission and its submitted template. ACTEW has since confirmed that \$59,727,000 is the correct wastewater capital expenditure for 2008–09.

## 7.2 Summary of comments on draft decision

As with operating expenditure, in response to the Commission's draft decision the Commission received comments from Dr Christopher Dorman, the Essential Services Consumer Council and ACTEW.

Dr Dorman's comments, which relate primarily to the demonstration water purification plant, are summarised in chapter 6.

A submission from the ESCC urged caution in relation to the rollout of smart meters from water and noted that:

The current proposal for a national roll out of electricity smart meters is in serious trouble (financial and technical) and these problems should be resolved before a roll out is considered for water meters.<sup>43</sup>

ACTEW's response to the Commission's draft decision relating to its capital expenditure forecast was two-fold. Firstly, ACTEW's main submission included its counterarguments for each of the areas that the Commission revised in its draft decision, namely:

- the removal of costs associated with PMF upgrades to Corin and Bendora dams
- the decision not to approve ACTEW's flat 4% margin on capital expenditure

<sup>43</sup> Essential Services Consumer Council, *Response to report 11 of 2007*, 5 March 2008, p. 2.

- the reduction in the capital escalation factor.

To support its arguments with respect to the final point above, ACTEW provided a report from BIS Shrapnel on the outlook for construction costs in the forthcoming regulatory period.

Each of the issues raised in the draft decision, as well as other relevant matters considered by the Commission, are discussed below.

### 7.3 Current period expenditure

Subsequent to the release of the draft decision, ACTEW provided updated capital expenditure totals for 2006–07 and 2007–08. The Commission has generally accepted these revisions, noting that the revised actual expenditure in 2006–07 and estimated expenditure in 2007–08 is lower than previously advised by ACTEW.

The one amendment made by the Commission is that it considers that design expenditure on the wastewater purification plant should be considered to be part of wastewater expenditure rather than water.

Taking into account these revisions, the Commission’s final decision regarding ACTEW’s prudent capital expenditure in the current regulatory period is shown in table 7.4.

Table 7.4 Final decision, capital expenditure, 2003–04 to 2007–08 (\$’000, 2006–07 dollars)

	2003–04	2004–05	2005–06	2006–07	2007–08	Total
Water	39,606	34,689	26,072	17,070	39,078	156,515
Wastewater	8,233	9,707	6,343	11,586	27,438	63,306
<b>Total</b>	<b>47,838</b>	<b>44,396</b>	<b>32,415</b>	<b>28,656</b>	<b>66,516</b>	<b>219,821</b>

### 7.4 Forecast costs

This section discusses each of the key outstanding issues in relation to ACTEW’s proposed capital program.

#### 7.4.1 Probable maximum flow upgrades to Corin and Bendora dams

##### *Draft decision*

MMA’s review of ACTEW’s capital expenditure program largely supported ACTEW’s forecast of its capital program and MMA made no recommendations to adjust capital expenditure in the forthcoming regulatory period.

However, MMA advised the Commission that \$65.7 million of proposed expenditure relating to probable maximum flow (PMF) upgrades to Corin and Bendora Dams should be reassessed. MMA cited the outcomes of recent studies into the upgrades and the ‘significant risk that the scope and cost of this project will change with further project development’ as reasons to re-evaluate the project.

In relation to the recent studies into the upgrades, MMA quoted correspondence from ActewAGL which referred to the studies' findings that the PMF work was not required unless the top water level of the dams is increased.

Given this uncertainty about whether the projects would proceed, the Commission removed \$65.7 million from ACTEW's forecast.

### ***Response to the draft decision***

In its submission in response to the Commission's draft decision, ACTEW argued that its forecast capital expenditure relating to the PMF upgrades should be reinstated in full. ACTEW contended that the works were required to manage risks associated with the dams and to comply with Australian National Committee on Large Dams Inc. (ANCOLD) guidelines.

In support of its view, ACTEW cited a number of reports that have been commissioned to investigate the need for upgrades to Corin and Bendora dams. The majority of the planned expenditure, ACTEW argued, was to mitigate the risk of floods at both dams and earthquake at Bendora Dam. Further capital expenditure was required to maintain appropriate ANCOLD risk ratings at both dams due to changes in downstream conditions.

ACTEW submitted that the changes in downstream conditions were likely to occur due to the construction of the Cotter Dam, and the associated recreational facilities that will increase the number of people and buildings downstream of Corin and Bendora dams. ACTEW further cited the work undertaken for it by Mr Len MacDonald, an expert on such risk assessments, whose conclusion was summarised by ACTEW:

...in terms of both ANCOLD standards and risk-based guidelines, the Corin and Bendora dams could become deficient in flood capacity. Furthermore, increased development in the Cotter Reserve could adversely affect the flood safety of Corin and Bendora Dams. This potential is high enough to warrant inclusion of the projects in the [Asset Management Plan].<sup>44</sup>

ACTEW noted that ActewAGL will be recommending that ACTEW undertake a component of the PMF works as a matter of urgency and undertake further risk studies and designs for new spillways at Corin and Bendora dams.

### ***Commission's analysis***

The Commission has considered ACTEW's arguments for the reinstatement in full of the capital expenditure relating to PMF upgrades at Corin and Bendora dams.

The Commission reiterates its concerns outlined in the draft decision with respect to the risk of the scope and cost of the project changing and ActewAGL's observation that the PMF works may not be required if the top water level is not increased. The timing of the forecast capital works, when seen in the light of ACTEW's already large capital program, is also a concern.

Notwithstanding these concerns, the Commission is satisfied that ACTEW has provided sufficient justification for the PMF capital expenditure to be included in the forthcoming regulatory period. The Commission is particularly persuaded by the project's importance for maintaining an acceptable risk rating under ANCOLD guidelines and notes that MMA, while outlining its concerns with the project, did not recommend adjusting the expenditure program.

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<sup>44</sup> ACTEW, *Response to the draft decision on prices for water and wastewater services in the ACT*, p. 56.

The Commission has therefore approved the proposed capital expenditure for PMF upgrades at Corin and Bendora dams as per ACTEW's original proposal.

## 7.4.2 Capital margin

### *Draft decision*

In the draft decision, the Commission discussed ACTEW's proposal to replace the current capital margin and painshare/gainshare arrangements with a flat 4% margin on all capital expenditure.

The Commission noted that, had current arrangements continued, ACTEW would likely pay ActewAGL approximately \$3 million over the forthcoming regulatory period. Under ACTEW's proposed flat 4% margin, payments to ActewAGL were forecast to be \$10.5 million.

The Commission did not approve ACTEW's proposed 4% flat margin on the basis that ACTEW had not provided sufficient information justifying the margin, including the KPIs that were to be agreed between ACTEW and ActewAGL.

### *Response to the draft decision*

As discussed in chapter 6, ACTEW provided a lengthy response to the Commission's draft decision on the margin paid to ActewAGL. In summary, ACTEW argued that:

- The proposed margins were in line with benchmarked margins in similar industries.
- The UMA delivers improvements in economies of scale and scope, improved scrutiny of programs, specialisation of functions and more appropriate risk allocation.
- The ActewAGL partners are entitled to a return on the capital invested in the business and the risks assumed by the business.
- Since ACTEW is one of the partners in the ActewAGL joint venture, it has no incentive to inflate margins, since it retains cost savings in full while receiving only half on the profits.

Chapter 6 contains a more detailed discussion of ACTEW's arguments in support of its proposed margin payments to ActewAGL.

### *Commission's analysis*

The Commission has provided extensive analysis of the proposed margins in chapter 6. As set out in chapter 6, the Commission has decided to include a 3% margin in forecast capital costs for the purposes of this final decision. However, at the end of the regulatory period the Commission will review whether the margin should be included in the RAB for roll-forward purposes.

## 7.4.3 Capital escalation factor

### *Draft decision*

In the draft decision, the Commission noted ACTEW's observation that construction cost increases in the current regulatory period had been significantly higher than that assumed in the 2004 price determination. ACTEW cited both the Reserve Bank of Australia (RBA) and the Australian Institute of Quantity Surveyors, who had reported that annual building costs had increased by 5% or higher for each of the past three years.

ACTEW proposed to adopt forward looking estimates of construction costs devised by BIS Shrapnel for Envestra, for the purposes of the Victorian 2008 Gas Access Arrangement Review (GAAR) by the Essential Services Commission. BIS Shrapnel assumed that construction would peak in 2006–07 and remain at this peak in 2007–08, before moderating over the forthcoming regulatory period.

The Commission provided two alternative views of capital escalation factors in the draft decision, one from the Construction Forecasting Council (CFC) and the other from the Pacific Economics Group (PEG). These alternative views, compared with BIS Shrapnel’s assumptions, are presented in table 7.5.

**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 (%)	7.90	5.50	4.00	3.20	3.60	3.80
PEG forecast (%)	5.15	5.15	4.78	4.40	2.65	2.50
CFC forecast (%)	3.30	4.20	3.50	3.10	3.50	3.80

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

As part of the GAAR, the Essential Services Commission engaged PEG to provide an analysis of the distribution network providers’ capital escalation factors. PEG criticised BIS Shrapnel’s forecasts as:

- being inconsistent with long-run behaviour
- exaggerating the importance of cherry picked observations
- not accurately conveying the engineering cost information available from the ABS
- not representing a best estimate because they are based on input price indices only and do not include any adjustment for productivity.

The Commission noted PEG’s concerns with the BIS Shrapnel escalation factors. However, the Commission also noted that BIS Shrapnel’s figures in the years 2008–09 to 2012–13 were broadly consistent with the figures compiled by PEG and CFC. The Commission’s draft decision was therefore to retain the 2008–09 to 2012–13 capital escalation factors proposed by ACTEW, but to reduce the 2007–08 factor to 5.5%. This rate was both the equivalent of ACTEW’s 2008–09 factor and an approximate average of the three estimates in table 7.5.

### ***Response to the draft decision***

ACTEW, in its submission to the draft decision, encouraged the Commission to adopt the BIS Shrapnel index for the entire regulatory period. ACTEW argued that recent observations by the Australian Industry Group showed that the construction sector had continued strong growth to January 2008. ACTEW further stated that it was possible that water and sewerage price indices could possibly increase at a higher rate than engineering construction costs—the basis for BIS Shrapnel’s index. ACTEW therefore called upon the Commission to accept its proposed capital escalation factors.

In support of its arguments, ACTEW provided a February 2008 report by BIS Shrapnel that contained new capital escalation forecasts for the water and sewerage construction sector, using updated information that became available subsequent to the initial forecasts. BIS Shrapnel estimated that water and sewerage construction activity would increase for the first three years of the next regulatory period, before declining in 2011–12 and 2012–13. This decline, however,

would still result in high levels of activity and would take place at the same time as a ‘re-accelerating’ of civil construction activity, including large oil and gas projects and another minerals cycle.

According to BIS Shrapnel, this phenomenon would cause:

...water and sewerage construction costs to rise at a weaker rate than the engineering construction IPD [Implicit Price Deflator] over 2007–08 and 2008–09, but at a *faster* pace than overall engineering costs through the rest of the forecast period given our particularly strong outlook for water and sewerage construction activity around this time and the price for key inputs such as labour.<sup>45</sup>

BIS Shrapnel’s updated cost escalation factors are shown in table 7.6. BIS Shrapnel noted that cost increases in the ACT water and sewerage sector were at risk of exceeding the revised factors, given the strong construction outlook in New South Wales. This has the potential to make it relatively more difficult to attract construction firms to the ACT, in which case margins on ACT contracts may have to be increased.

Table 7.6 BIS Shrapnel—forecast percentage changes in engineering and construction costs and water and sewerage costs, 2007–08 to 2012–13

	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
Engineering and construction (%)	6.2	5.5	4.5	3.7	4.5	4.4
Water and sewerage (%)	5.2	5.0	4.5	4.7	5.2	4.9

BIS Shrapnel refuted each of PEG’s criticisms and reiterated that its forecast escalation factors were based on an accurate and robust methodology. The Commission’s decision to use an assumed CPI of 2.5% to convert PEG’s real cost escalation factors to nominal was also questioned, with BIS Shrapnel suggesting that a rate of 3% or above would be more appropriate for most of the forthcoming regulatory period.

### ***Commission’s analysis***

The Commission has reviewed ACTEW’s submission and BIS Shrapnel’s updated cost escalation factors for the water and sewerage industry. The Commission accepts that construction activity in general and in the water industry in particular has been very strong in recent years and is likely to remain strong, particularly for the initial years of the forthcoming regulatory period.

The Commission has some concerns about BIS Shrapnel’s forecast of capital escalation costs in the last two years of the regulatory period. BIS Shrapnel is forecasting that water and sewerage construction activity will decrease by approximately 22%<sup>46</sup>, however construction unit costs are predicted to increase by 10.3% in the same period.

While ACTEW argued that its original capital escalation factors should be reinstated, the more recent BIS Shrapnel report would seem to suggest otherwise, particularly in 2007–08. ACTEW’s original submission provided for a 7.9% increase in costs in 2007–08, which BIS Shrapnel has now revised to 5.2%. Given the importance of accurately predicting growth in the first year, as any error is compounded over the regulatory period, the Commission has decided not to accept ACTEW’s proposed capital escalation factors.

<sup>45</sup> BIS Shrapnel, *Construction cost outlook report: report for ACTEW Corporation*, February 2008, p. i.

<sup>46</sup> Based on a visual interpretation of the chart on p. 18 of BIS Shrapnel’s *Construction cost outlook report*.

The Commission's draft decision on capital cost increases accepted the original BIS Shrapnel figures with the exception of the 2007–08 increase of 7.9%. Instead, the Commission applied the 2008–09 increase of 5.5% and noted that it was approximately the average of the BIS Shrapnel, PEG and CFC 2007–08 forecasts. It should also be noted that the BIS Shrapnel, PEG and CFC figures all related to the broader engineering construction sector.

Although the Commission has reservations regarding BIS Shrapnel's updated estimated cost increases later in the regulatory period, the revised figures have the advantage of:

- being more recently calculated and therefore having reference to recent observations and likely future outcomes
- being confined to forecast increases in the water and sewerage sector only, rather than the broader engineering construction sector, as adopted by ACTEW in its original forecast.

The Commission therefore has decided to apply the capital escalation factors forecast by BIS Shrapnel in February 2008 for the water and sewerage sector in 2007–08 and over the forthcoming regulatory period.

#### **7.4.4 Phase 1 water security projects**

##### ***Draft decision***

The Commission noted in the draft decision that it had not reviewed ACTEW's forecast capital expenditure on phase 1 water security projects, due to the tight timeframes between the projects' announcement and the draft decision. The Commission foreshadowed that it would review these projects prior to the final decision.

##### ***Commission's analysis***

The Commission engaged consultants Halcrow to review the major phase 1 water security projects. These included:

- enlarging the Cotter Dam
- transferring water from the Murrumbidgee River to the Googong Reservoir
- designing a demonstration water purification plant
- introducing a smart metering pilot

A brief background for each of the projects, with the exception of the demonstration water purification plant, was presented in the discussion of operating expenditure in section 6.8. The capital expenditure requirements of each of these projects is now discussed in turn.

##### ***Enlargement of Cotter Dam***

Halcrow has reviewed ACTEW's proposed capital expenditure on Cotter Dam and reported that:

- The capital expenditure forecast of \$145 million has not changed from ACTEW's original proposal.
- ACTEW had provided a revised timeline of the capital expenditure profile, which was based on updated expectations.
- Capital expenditure costs include a contingency allowance of approximately 20%, which is considered reasonable.

- A final estimate of the costs of the project will be prepared by the Bulk Water Alliance<sup>47</sup> in late 2008 or early 2009 and could result in a final cost of up to 30% greater than the current estimate.
- The process used to estimate the capital expenditure for the project is deemed robust.

Halcrow therefore recommended that no changes be made to the capital expenditure estimates for the Cotter Dam, with the exception of the timing adjustments advised by ACTEW. The Commission has accepted Halcrow's recommendations, as outlined in table 7.7.

Table 7.7 Capital expenditure—Cotter Dam enlargement (\$'000, 2006–07 dollars)

	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
ACTEW proposal	5,000	30,000	70,000	40,000	–	–
Revisions	-5,000	9,400	12,800	1,600	–	–
Final decision	–	20,600	82,800	41,600	–	–

#### *Transfer of water to Googong Reservoir*

Halcrow has reviewed ACTEW's proposed expenditure on the Googong transfer option and reported that:

- ACTEW has provided a revised estimate of capital expenditure related to the project of \$105 million in nominal dollars. This is due to an increase in the maximum transfer capacity from 60 ML/day to 100 ML/day, and would further increase to \$133 million if the pipeline was extended to transfer the water directly to Googong Reservoir.
- Capital expenditure costs include a contingency allowance of approximately 25%, which is considered reasonable.
- A final estimate of the costs of the project will be prepared by the Bulk Water Alliance.
- The updated estimate in real (2006–07) dollars is \$96.5 million. The assumptions underpinning this estimate, including the works required and unit cost applied, are robust.

Halcrow therefore accepted the updated estimate of \$96.5 million, with the majority of the increase in expenditure occurring in 2009–10. The Commission has accepted Halcrow's recommendations, as outlined in table 7.8

Table 7.8 Capital expenditure—Murrumbidgee to Googong transfer (\$'000, 2006–07 dollars)

	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
ACTEW proposal	1,000	42,000	27,000			
Revisions	-1,000	7,400	20,100			
Final decision	–	49,400	47,100			

#### *Demonstration water purification plant*

The demonstration water purification plant (WPP), if constructed, will treat wastewater discharged from the Lower Molonglo Water Quality Control Centre (LMWQCC). The WPP will be designed to demonstrate that wastewater can be treated to a suitable standard so that it can be reused for indirect potable substitution, although the actual adoption of indirect potable reuse is not currently being considered.

<sup>47</sup> The Bulk Water Alliance will comprise ACTEW, ActewAGL, a design consultant and a constructor.

The WPP would provide the ACT with a source of water that, unlike current sources, is not dependent on rainfall. ACTEW has been requested by the ACT Government to commence the design phase of the WPP, to be located at the LMWQCC. Halcrow has reviewed ACTEW's proposed expenditure on the WPP option and reported that:

- The design of the WPP was initially estimated to cost \$6 million, which was 6% of the total estimated cost to build the plant (\$100 million), which was signed off by the Board of ACTEW and considered reasonable by Halcrow.
- A more recent estimate of the capital cost for the design work provided to Halcrow was \$9.8 million, although this seemed excessive and was not supported by documentary evidence, nor approved by the Board.
- Treated wastewater discharged from the current LMWQCC is predicted to soon exceed some EPA limits with respect to salt and nitrogen.
- The treatment technology to be used at the WPP is currently being implemented at various sites around the world, lessening the case for a demonstration plant to be constructed in Canberra to test the technology.
- The ACT Government has submitted an application to the Commonwealth Government for 50% funding of the total capital cost of building the WPP, amounting to \$50 million in funding
- Increasing the capacity of the WPP to 25 ML/day is currently estimated to result in a capital cost of \$180 million.

Based on the review of ACTEW's information, Halcrow recommended that the \$6 million for the design of the WPP be approved, with \$3 million to be spent in both 2007–08 and 2008–09. The Commission has accepted Halcrow's recommendation. However, given the Commission's general concern with the WPP (see section 7.4.5) it will not permit ACTEW to roll more than \$6 million into the RAB at the time of the next price review, even if the actual costs exceed \$6 million.

Table 7.9 Capital expenditure—Demonstration water purification plant (\$'000, 2006–07 dollars)

	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
ACTEW proposal	3,000	3,000				
Revisions	–	–				
<b>Final decision</b>	<b>3,000</b>	<b>3,000</b>				

### *Smart metering pilot*

Halcrow has reviewed ACTEW's assumptions underpinning their forecast expenditure on the smart metering pilot and provide the following analysis, in addition to that presented in section 6.8:

- ACTEW's Information Paper reported the capital expenditure associated with the project to be \$1.7 million, which has since been revised to \$6.0 million, as per the project's Feasibility Business Case document.
- The contingency allowance for the project was 12.5%, which was considered low given the early stage of the project.
- A significant proportion of the capital costs related to the project may be eligible for research and development rebates.

For reasons discussed in section 6.8, the Commission therefore accepts Halcrow's recommendations regarding the smart metering pilot, as presented in table 7.10.

Table 7.10 Capital expenditure—Smart metering pilot (\$'000, 2006–07 dollars)

	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13
ACTEW proposal	300	1,200	200			
Revisions	-300	1,000	0			
Final decision	-	2,200	200			

#### 7.4.5 Contingent water security projects

##### *Draft decision*

In October 2007, the ACT Government made an announcement regarding two ‘contingent’ water security projects. These are:

- the construction of the demonstration water purification plant, the design of which was allowed for in the phase 1 capital expenditure
- the purchase and transfer of water from the Tantangara Reservoir.

Both of these projects are subject to further investigation.

As with the phase 1 projects, the Commission did not have sufficient time to review the contingent projects prior to the release of the draft decision. The Commission advised that these projects would be reviewed prior to the final decision.

##### *Commission’s analysis*

The Commission has reviewed the contingent projects and provides the following commentary.

##### *Demonstration water purification plant*

As discussed in the previous section, the WPP will be located at the Lower Molonglo Water Quality Control Centre. Should the ACT Government approve the construction of the WPP, it will have the capacity to produce 8 ML of purified water a day, with additional scope to increase production to 25 ML/day if required.

Construction of the WPP is forecast to cost approximately \$100 million in capital expenditure in the forthcoming regulatory period and approximately \$4 million in operating costs per annum. The Commission understands that ACTEW is seeking funding from the Commonwealth Government for approximately half the capital cost.

Along with submitters such as Dr Christopher Dorman, the Commission has strong reservations about the prudence of construction of a WPP.

Firstly, the Commission does not believe that it has been demonstrated that a WPP is needed to solve the problem of ACTEW’s long-term water supply needs. The Murrumbidgee to Googong project and the enlarged Cotter Dam will provide a substantial increase in water security for the ACT under all likely future climate scenarios. Further, the additional supply capacity provided by the WPP is relatively minimal at only 3 GL per annum based on an 8 ML/day plant.

Secondly, the cost of water to be produced by the plant needs careful consideration. The Cotter Dam enlargement is expected to cost \$145 million to build and to incur \$1 million in ongoing operating costs, while supplying up to an additional 180 ML/day. The Murrumbidgee to Googong

transfer has capital and operating costs of \$96.5 million and \$2 million respectively, while adding up to 55 ML/day to the ACT water supply. The WPP, by comparison, will cost \$100 million to build and \$4 million to operate each year, while adding 8 ML/day.

Modelling the costs and expected benefits in terms of water delivered from each project over a 25 year time horizon indicates that the cost per kilolitre of water delivered by the WPP may be more than twenty times more expensive than enlarging the Cotter Dam, and more than eight times more expensive than the Googong transfer option. There would therefore be a significant increase in customers' bills as a result of proceeding with the WPP project. As the Commission has already noted, the outcome of this price decision is that ACTEW's prices will already be substantially higher than anywhere else in Australia. In such circumstances water and sewerage customers' willingness and capacity to pay even higher prices for construction of a WPP needs to be seriously questioned.

**Table 7.11** Water augmentation projects—cost per kilolitre, over 25 years

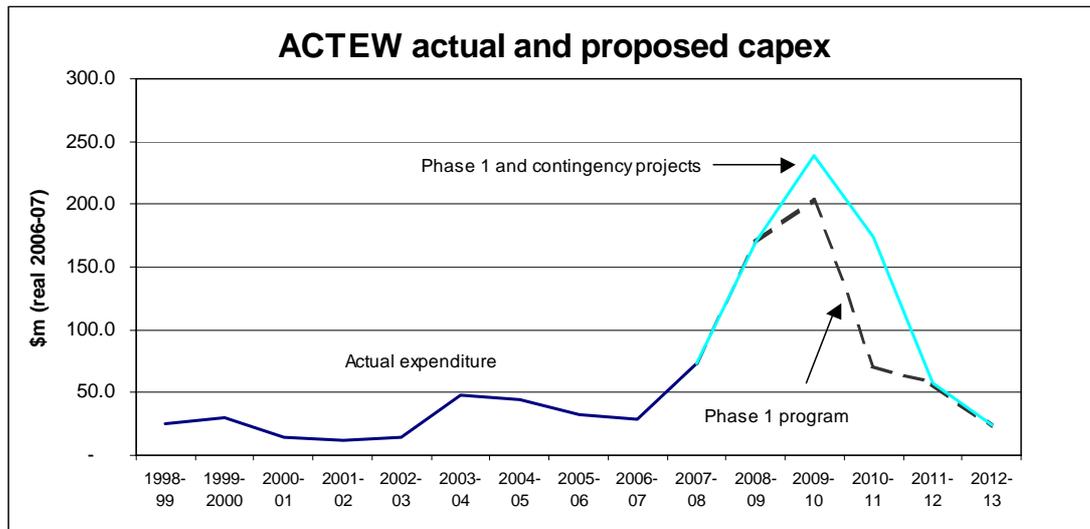
	Water purification plant	Cotter Dam enlargement	Murrumbidgee to Googong
Net present cost (\$ million)	139	133	114
Additional water produced (ML)	33,424	728,103	225,415
Cost per kilolitre (\$)	4.16	0.18	0.51

Source: Commission's calculations

The Commission accepts that there may be a need to upgrade the LMWQCC to provide for additional treatment of salts. However, this can be achieved as a stand-alone project at a far cheaper cost than that for the WPP.

The Commission is also concerned that given ACTEW's capital works program over the coming period, ACTEW may not have the resources to deliver the WPP in a timely and cost-efficient manner in any case. Figure 7.1 shows that ACTEW has already proposed a significant increase in its capital program, particularly in 2008–09 and 2009–10. The addition of the contingent projects is likely to extend the peak expenditure period for at least another year. Despite the measures being put in place to deliver the program, the Commission is concerned that sufficient resources may not be available both within ACTEW and ActewAGL, as well as in the private sector, to complete the program.

Figure 7.1 Increase in capital works program



Note: for the purposes of this figure the Commission has assumed the purification plant is constructed in 2009–10 and 2010–2011 and expenditure on the Tantangara project occurs in 2010–11.

In summary, while the Commission understands that ultimately the construction of the plant will be a government decision, given the level of expenditure involved, the Commission expects that the government will subject the proposal to a full cost–benefit analysis. The Commission would expect the cost–benefit analysis to address matters including:

- whether, given the projects already underway and the minimal additional water created, the project provides a materially higher level of security for customers
- whether, instead of constructing a demonstration plant, a closer examination of the benefits and costs from other similar purification plants elsewhere in Australia and overseas can provide ACTEW with a similar level of understanding of purification processes
- the efficiency of the proposed expenditure
- whether the project can be completed within a reasonable budget and timeframe given ACTEW’s significant capital program, and the risks that other necessary projects would need to be deferred
- customers’ capacity to pay.

If the need for the plant and its benefits for customers compared to other alternatives cannot be conclusively established, yet the government still decides to proceed, the Commission would expect a high level of government funding, either directly from consolidated revenue or through other means (such as reductions in ACTEW’s dividend). Further, the Commission would expect that elements of the project that do not have direct benefits to customers—for example, the Commission notes that ACTEW’s ‘Demonstration Water Purification Plant’ fact sheet refers to the plant comprising a ‘visitors/education centre to provide educational resources to engage the public on water purification issues’—will not be funded from water and wastewater tariffs.

### *Tantangara Reservoir*

The Tantangara Reservoir project comprises a proposal to buy water rights from irrigators downstream of the ACT in New South Wales, Victoria or South Australia, or from Snowy Hydro. Under the plan, between 20 GL and 25 GL a year would be transferred, probably via the Tantangara Reservoir, to either Corin or Googong reservoirs.

The Tantangara plan should face the same tests as the WPP. The ACT Government must demonstrate:

- the prudence and efficiency of expenditure
- comparison with other water augmentation projects
- community acceptance of the likely impact on water bills and taxation
- the ability of ACTEW to deliver an increased capital program.

### *Funding*

Due to the uncertainty surrounding the contingent projects, the Commission has not included any costs associated with construction of the demonstration WPP or the Tantangara transfer in its final decision. As discussed in chapter 10, the Commission has, however, provided a mechanism that will allow the costs of the projects to be included in tariffs for the remainder of the current regulatory period in the event that:

- government approval for the projects is granted following completion of a cost–benefit analysis
- ACTEW has already spent all of its forecast capital expenditure program (up to the relevant year) as per the Commission’s price determination.

The specific approach to adjust prices for any contingent project that is approved in the forthcoming regulatory period is discussed in chapter 10.

To assist in this process, ACTEW will be required to provide information to the Commission under a capital monitoring program which is discussed below.

## **7.5 Final decision**

After considering submissions received by ACTEW and others, and after undertaking its own analysis, the Commission has made a number of changes to its draft decision. These are:

- reinstating the costs of PMF upgrades at Corin and Bendora Dams as per ACTEW’s original proposal
- adopting the revised BIS Shrapnel capital escalation factors for the water and sewerage sector
- including in the revenue requirement a 3% capital margin for the next regulatory period, which will be reviewed at the end of the regulatory period to determine whether it should be included in the rolled-forward RAB.
- revising the capital expenditure related to the Murrumbidgee to Googong transfer from \$70 million to \$96.5 million
- revising the capital expenditure related to the smart metering pilot from \$1.7 million to \$2.4 million
- adjusting the timing of expenditure relating to the Cotter Dam enlargement
- providing for contingent water security projects that are approved in the forthcoming regulatory period through a price control mechanism set out in chapter 10.

The Commission’s final decision on ACTEW’s forecast capital expenditure is shown in table 7.8. The Commission has provided for a total program of some \$518 million over the period. The Commission has some concerns regarding ACTEW’s capacity to complete its capital program,

particularly in the first two years, when ACTEW is forecast to spend \$365 million, or 71% of its five-year capital program. However, following assurances from ACTEW, the Commission has decided to approve the timing of the capital expenditure program and expects ACTEW to complete the projects on time and within budget.

Given the Commission's concerns regarding ACTEW's capacity to deliver its capital program, the Commission requires ACTEW to comply with a capital monitoring program. Under the program, ACTEW must, prior to 1 October each year, provide the Commission with details of the actual capital expenditure incurred in the previous financial year. ACTEW's submission must include:

- the total amount of capital expenditure incurred over the previous financial year for water and wastewater
- commentary on the capital expenditure undertaken in the previous financial year, including any major differences (in terms of level of expenditure and projects undertaken) from the forecast expenditure contained in this final decision and the reasons for the differences
- expenditure on each of the water security projects in aggregate and in the previous financial year
- any revised information relating to forecast changes in the timing or level of the capital expenditure program.

The Commission will consider ACTEW's submission and will use this information as an input to its pass-through mechanism in relation to the phase 2 water security projects

**Table 7.12 Final decision summary table—capital expenditure (\$'000, 2006–07 dollars)**

	Final 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
Amendments					
Adjustment to capital margin	-326	-571	-168	-423	-101
Total original proposal with amendments	33,608	58,841	17,278	43,600	10,440
Adjustment for capital escalation	-996	-1,470	-187	195	158
Final decision—original program	32,611	57,371	17,091	43,795	10,598
Phase 1 water security measures—original proposal	76,200	97,199	40,000		
Adjustment to Cotter Dam	-9,400	12,800	1,600		
Adjustment to Googong transfer	7,400	20,100			
Adjustment to smart metering pilot	1,000				
Transfer purification plant design to wastewater	-3,000				
Final decision—Phase 1 water security measures	72,200	130,100	41,600		
<b>Final decision—water</b>	<b>104,811</b>	<b>187,471</b>	<b>58,691</b>	<b>43,795</b>	<b>10,598</b>
ACTEW original proposal—wastewater	59,727	12,762	12,758	13,741	13,232
Amendments					
Adjustment to capital margin	-574	-123	-123	-132	-127
Total proposal with amendments	59,153	12,639	12,636	13,609	13,105
Adjustment for capital escalation	-1,754	-316	-137	61	198
Final decision—original program	57,399	12,323	12,499	13,670	13,303
Transfer purification plant design from water	3,000				
Final decision—Phase 1 water security measures	3,000				
<b>Final decision—wastewater</b>	<b>60,399</b>	<b>12,323</b>	<b>12,499</b>	<b>13,670</b>	<b>13,303</b>
<b>Total water and wastewater</b>	<b>165,211</b>	<b>199,795</b>	<b>71,190</b>	<b>57,465</b>	<b>23,901</b>

## 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 has been 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>48</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.

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<sup>48</sup> An adjustment also needs to be made for the difference between estimated and actual expenditure in 2003–04.

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 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.

There are therefore two key issues that are addressed in this chapter. The first is whether the Commission should revalue the asset base as requested by ACTEW in its original submission. The Commission is guided in this issue by those conditions the Commission needs to have regard to as stated in the TOR. The second key issue in this chapter is the consolidated RAB figures.

## 8.2 Revaluation of the RAB

In its original submission ACTEW proposed that the opening RAB (that is, 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 also proposed that the Commission should increase the RAB to reflect the reinstatement of Cotter Dam.

### 8.2.1 ODRC valuation

#### *Original submission*

In its original submission 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 contended that such a valuation was a good proxy for a commercial value of the assets in a competitive market place. ACTEW stated:<sup>49</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 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 for the necessity of a revaluation.<sup>50</sup>

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

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<sup>49</sup> ACTEW, *Submission: Investigation into prices for water and wastewater services in the ACT*, p. 164.

<sup>50</sup> ACTEW, *Submission: Investigation into prices for water and wastewater services in the ACT*, pp. 161–165.

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

### ***Draft decision***

In the draft decision, and consistent with the Commission's consideration of the matter in its working conclusions paper, the Commission did not adopt ACTEW's proposal to revalue the RAB on an ODRC basis. Revaluing the RAB on an ODRC basis would have had a significant impact on prices, which in any event will increase as a result of this final decision. In addition, the Commission considered each of ACTEW's arguments and found that none had merit.

Firstly, the Commission considered that an ODRC valuation would not assist in ensuring better future investment decisions by ACTEW because existing assets in the RAB are effectively sunk assets that typically have no alternative uses. The Commission was not persuaded by ACTEW's argument that an ODRC valuation would provide benefits in terms of more appropriate signals for new entrants into the sector. Further, the Commission noted the uncertainties and disadvantages associated with calculating an ODRC value.

In relation to ACTEW's arguments that it should earn a return on the assets purchased from the Commonwealth Government, the Commission pointed out that the RAB already provided ACTEW with a return on an asset value of more than double the rolled-forward purchase cost of the assets.

Finally, the Commission did not accept ACTEW's claim that there were regulatory precedents to support the adoption of an ODRC valuation.

### ***ACTEW response***

In response to the draft decision, ACTEW suggested that the Commission had not considered two of its arguments:

- The current RAB valuation results in a disconnect between water prices and the economic cost of service provision. Hence new or innovative water sources or uses of wastewater will be at a considerable cost disadvantage to that provided by existing infrastructure.
- The ODRC valuation approach has been widely applied by regulators when determining asset values for regulated businesses.

### ***Discussion and final decision***

The Commission considered ACTEW's first argument, about the economic benefits of an ODRC valuation, in its working conclusions paper and summarised its view in the draft decision. The Commission has made it clear that it does not agree that an ODRC revaluation would help ACTEW make better investment decisions. The RAB relates to sunk assets for which investment decisions have already been made. Further, in the water sector these assets typically have no alternative use. The Commission's approach of allowing prudent and efficient new investment to enter the RAB at cost ensures that ACTEW will make appropriate future investment decisions, regardless of the basis upon which the opening RAB is set. An ODRC valuation of existing assets will not have any influence on ACTEW's ability to sustain a high level of standard of service to customers.

Similarly, the Commission is not persuaded by ACTEW's argument that an ODRC valuation would provide benefits in terms of more appropriate signals for new entrants into the sector. The Commission accepts that an ODRC valuation is likely to result in prices that will be consistent

with those faced by a potential new entrant. However, in the real world the possibility of a large-scale network bypass is negligible. Replacement cost would be valid as a method of valuing the assets only if the assets could easily be sold and transferred to an alternative use or if an alternative network could be built providing potential competition in the provision of the regulated services. As both of these conditions fail in the case of water and wastewater services in the ACT, replacement cost has no place in determination of the RAB.

Any innovative investment by potential competitors, particularly in relation to new water sources, is likely to exist only at the margin, and in most cases the investment decision will involve a choice between alternative future investments. For example, choices about a new water source for the ACT should take into account the future costs associated with recycling water versus construction of a new dam versus the installation of rainwater tanks at customers' premises. A revaluation of the existing RAB will not impact upon this decision. The Commission therefore sees little benefit in 'artificially' increasing the RAB and raising prices for the sole purpose of potentially encouraging private sector innovation.

The Commission also considers that it addressed ACTEW's second argument, regarding regulatory precedent, in the draft decision. It 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'. While regulators have adopted an ODRC approach for certain regulated gas and electricity businesses, this methodology has not been used generally by regulators for purposes of regulating the water industry in Australia. The Commission is aware of only one instance of its application for the water industry—in the initial RAB for Gladstone Area Water Board (a relatively small bulk water provider in central Queensland). Certainly the Commission is not aware of any circumstances in the water industry where an initially established RAB has been revalued on an ODRC basis.

In addition, the Commission has also made clear its other concerns regarding the application of an ODRC valuation, including:

- the somewhat subjective nature of ODRC valuations
- the impact of ODRC valuations on customers. In the working conclusions paper the Commission noted that an ODRC valuation would lead to customers paying extra annual charges of approximately \$800 per annum. While ACTEW has proposed that price rises could be phased in, customers would ultimately be paying substantially higher prices, against which there would be very little, if any, broader economic benefit.

Therefore, while the Commission has, as required by its terms of reference, had regard to the optimised depreciated replacement cost valuation of past investment undertaken by ACTEW or predecessor bodies, its final decision is that it will not revalue the RAB on an ODRC basis as sought by ACTEW.

Further, the Commission notes that it has now exhaustively considered the issue of a potential revaluation of the RAB in both its 2004 price decision (where ACTEW sought a revised valuation based on updated cash flows) and as part of this 2008 decision. In both cases the Commission has unambiguously reached the conclusion that the arguments for a revaluation are not well founded. Further, the Commission considers it extremely unlikely that future circumstances will change

such that there is merit in a revaluation. It therefore does not expect to be required to address this matter in subsequent price reviews.<sup>51</sup>

## 8.2.2 Inclusion of Cotter Dam

In its original submission, ACTEW proposed 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 requested 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.

### *Draft decision*

In its draft decision, the Commission did not adopt ACTEW's proposal. The Commission noted that in its initial valuation of the RAB all of ACTEW's assets were valued regardless of whether they were in service or not. 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 underutilised 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. 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 was not based on an ODRC approach.

Most importantly, as with its proposal to revalue the RAB, the Commission considered that ACTEW had not put forward sound economic arguments to support the case for an increase in the RAB to reflect the value of Cotter Dam.

### *ACTEW response*

In its response to the draft decision, ACTEW argued that the Meritec ODRC valuation was in fact relevant to the value of the RAB as ACTEW had also sought a complete revaluation of the RAB on an ODRC basis.<sup>52</sup> Therefore, to the extent that Meritec optimised Cotter Dam out of the valuation it was now relevant to bring it back in so that a complete ODRC valuation could be attained.

ACTEW also expressed surprise at the Commission's view that its original valuation included 'excess capacity contained in assets which...were...not used at all'. ACTEW considered that a valuation of an asset base would rarely include assets that were 'not used at all'.

ACTEW therefore considered that, pending the approval of an ODRC valuation, Cotter Dam should be reinstated at its ODRC value from the time it was put back in service.

### *Discussion and final decision*

As set out above, the Commission's final decision is not to revalue the RAB on an ODRC basis as sought by ACTEW. ACTEW's argument that an ODRC valuation of the Cotter Dam should be

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<sup>51</sup> Unless specifically mandated to revalue the RAB as part of its terms of reference.

<sup>52</sup> ACTEW, *Response to the draft decision on prices for water and wastewater services in the ACT*, p. 72.

included in the RAB in order to be consistent with the overall asset valuation approach is therefore moot.

The Commission also stands by its view that its initial economic valuation implicitly reflected the excess capacity contained in ACTEW's assets, regardless of whether they were in use at the time. This is the nature of a return on asset test of the type that the Commission applied to derive the initial asset value, in that it seeks to determine the value of the business based on the projected turnover less projected operating costs of the business assuming that there is no additional capital investment. Thus, to the extent that the Cotter Dam had capacity to meet this future demand and generate a higher net turnover, it was included in the initial valuation adopted by the Commission. Further, ACTEW's cash flow forecasts at the time reflected forecast maintenance and other costs associated with the Cotter Dam (despite the fact that it was not in service); these will have been reflected in the initial valuation. As set out in the draft decision, ACTEW has failed to convince the Commission that there are sound economic arguments to support the case for an increase in the RAB.

Therefore, while the Commission has, as required by its terms of reference, had regard to the reinstatement of assets returned to service during the current regulatory period, its final decision is not to adjust the RAB to include the ODRC value of the Cotter Dam.

### 8.3 Other matters

In the draft decision the Commission also considered two additional matters associated with the RAB.

Firstly, the Commission's draft decision was that it would not include any allowance for the net present value loss incurred by ACTEW because current taxation arrangements required tax to be paid up-front on gifted assets but ACTEW's depreciation allowance was only provided over the full life of the asset. The Commission considered that to do so would be inconsistent with the Commission's pre-tax approach and would permit ACTEW to 'cherry pick' elements of the pre-tax approach which did not work in its favour, and retain those that did.

Secondly, the Commission agreed with ACTEW that it was appropriate 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 Commission did not receive any comments on these matters, either from ACTEW or any other parties. The Commission therefore has adopted the approaches discussed above in this final decision.

### 8.4 Opening value of the RAB

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

$$\text{Opening RAB}_{2008-09} = \text{Opening RAB}_{2003-04} + \text{Capital Expenditure}_{2004-05 \text{ to } 2007-08} - \text{Regulatory Depreciation}_{2004-05 \text{ to } 2007-08} - \text{Disposals}_{2004-05 \text{ to } 2007-08} + \text{Indexation}$$

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.

When actual data on capital expenditure for 2003–04 became available the opening value of the RAB for 1 July 2004 was recalculated using these actual values. This produced a revised value for the RAB at 1 July 2004 of \$414.5 million for water and \$435.0 million for wastewater.

The Commission 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. Actual capital expenditure amounts and ACTEW’s reported disposals were used to roll forward the value of the RAB to 1 July 2007. As data on actual capital expenditure for 2007–08 is not yet available the Commission has used ACTEW’s most recent forecasts of capital expenditure to roll forward the 1 July 2007 RAB value 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 regulatory period commencing in 2013.

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 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 RAB should be revalued.

As shown in tables 8.3 and 8.4, the Commission has determined an opening value of the RAB at 1 July 2008 of \$537.9 million for water and \$495.7 million for wastewater. These values are different from those in the draft decision (\$16 million less in the case of water assets) because, as identified in section 7.3, since the release of the draft decision ACTEW has provided updated figures for actual expenditure in 2006–07 and forecast expenditure in 2007–08.

**Table 8.3** Commission’s final decision on the opening value of the RAB at 1 July 2008—Water (\$’000, 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	17,070	40,055
Disposals/assets written off	–	–	–	–	–
Depreciation	8,649	10,205	10,852	11,255	11,606
Indexation	9,313	10,508	14,712	14,073	12,915
Closing value of RAB	414,511	447,481	476,679	496,567	537,931

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

	2003–04	2004–05	2005–06	2006–07	2007–08
Opening RAB	428,712	435,031	444,526	454,052	467,501
Capital expenditure (net of capital contributions)	7,568	9,141	6,164	11,586	28,124
Disposals/assets written off	–	–	–	–	–
Depreciation	11,429	10,368	10,950	11,474	11,954
Indexation	10,180	10,722	14,311	13,338	12,039
Closing value of RAB	435,031	444,526	454,052	467,501	495,710

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

Having determined an opening value for the 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 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 above, 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 final 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 final decision on the rolled-forward value of the RAB—Water (\$'000s, nominal)**

	2008–09	2009–10	2010–11	2011–12	2012–13
Opening RAB	537,931	648,420	852,816	921,029	974,168
Depreciation adjustment	1,013	–	–	–	–
Capital expenditure (net of capital contributions)	110,118	201,886	64,784	49,550	12,290
Disposals/assets written off	–	–	–	–	–
Depreciation	13,465	16,225	18,701	20,056	21,038
Indexation	14,850	18,734	22,130	23,645	24,508
Closing value of RAB	648,420	852,816	921,029	974,168	989,928

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

	2008–09	2009–10	2010–11	2011–12	2012–13
Opening RAB	495,710	559,658	573,479	587,626	603,236
Depreciation adjustment	–	–	–	–	–
Capital expenditure (net of capital contributions)	63,457	13,271	13,797	15,466	15,427
Disposals/assets written off	–	–	–	–	–
Depreciation	12,695	13,608	14,158	14,740	15,348
Indexation	13,186	14,157	14,509	14,884	15,274
Closing value of RAB	559,658	573,479	587,626	603,236	618,589



# 9 Return on capital

## 9.1 Introduction

The return on capital is the financial return that investors seek when considering and assessing an investment decision. It 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 be sufficient to ensure its 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 final decision on the Victorian Gas Access Arrangements<sup>53</sup>, its draft decision on Victorian water prices<sup>54</sup>, and IPART's draft decision on Sydney Water Corporation's prices.<sup>55</sup> In arriving at this final decision, the Commission has taken into account the discussions and views presented by other regulators, including in particular the ESC and IPART.

The Commission's decision on the appropriate level of the return on capital is guided by the terms of reference (TOR) and the ICRC Act. Section 5 d of the TOR requires that the Commission 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, section 20(A)(d) of the ICRC Act 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>56</sup> This paper provided a thorough discussion of possible approaches to determining the weighted average cost of capital (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 intended to apply in the draft decision.

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<sup>53</sup> ESC, *Gas access arrangement review: final decision*,

<sup>54</sup> ESC, *Water price review: draft decision*, March 2008.

<sup>55</sup> IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services*, March 2008.

<sup>56</sup> ICRC, *Water and wastewater discussion paper 2: return on capital*, March 2007.

## Methodology for determining the WACC

The 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 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>57</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.

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<sup>57</sup> RR Officer, ‘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.

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
- $R_m$  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 about how the value of the variable should be determined. In this situation, the Commission must make a decision about 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 Draft decision and overview of ACTEW’s response

The terms of reference require the Commission to determine an appropriate level for the cost of capital. Table 9.1 shows the values of the parameters the Commission determined in the draft decision as providing ACTEW with an appropriate return on capital. Those elements of the WACC calculation that can be observed from market data, which include the risk-free rate, the real risk-free rate and the debt margin, were measured as of 2 November 2007. The pre-tax real WACC calculated by the Commission for the purposes of the draft decision was 6.55%.

ACTEW was the only party to respond to the draft decision in relation to the WACC. ACTEW submitted that the pre-tax real WACC set out in the draft decision was too low. However, noting that ‘the Commission is showing a clear unwillingness to move on certain parameters of the WACC’,<sup>58</sup> ACTEW’s revised submission was consistent with the draft decision in respect of many of the WACC parameters. Nevertheless ACTEW made strong representations on a number of matters, including:

- the calculation of forecast inflation and the real risk free rate
- the equity beta
- the inclusion of equity raising costs.

ACTEW proposed a pre-tax real WACC of 7.60%, with parameter values as shown in table 9.1.

Table 9.1 Draft decision and ACTEW response—weighted average cost of capital calculation

Parameter	Draft decision	ACTEW response
Nominal risk-free rate	6.187%	6.044%
CPI	3.405%	2.53%
Real risk-free rate	2.682%	3.428%
Market risk premium	6.0%	6.0%
Debt margin	1.705%	1.705%
Gearing	60%	60%
Gamma	0.50	0.50
Tax rate	30%	30%
Equity beta	0.90	1.0
WACC (pre-tax real)	6.55%	7.60%

## 9.3 Discussion

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

<sup>58</sup> ACTEW, *Response to the draft decision on prices for water and wastewater services in the ACT*, p. 59.

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

#### *Background and draft decision*

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 (TFCB) 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 TFCBs with maturities closest to either side of 10 years. In Discussion Paper 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 also used the yield on the TFCBs published by the Reserve Bank of Australia (RBA) and available on its website.<sup>59</sup> To reduce the variability that may be experienced due to short-term fluctuations in yields, the Commission has historically adopted an average of yields for the 20 business days up to the day the WACC is calculated.

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 (TCIBs). TCIBs are adjusted for inflation and therefore represent the real 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 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 has historically been 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:

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

In its original submission, ACTEW noted recent analysis by the RBA that suggested that the yield on both indexed and nominal Commonwealth Government securities (CGS) represented a

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<sup>59</sup> [www.rba.gov.au/Statistics/indicative.html](http://www.rba.gov.au/Statistics/indicative.html)

downward biased estimate of the true CAPM risk-free rate. ACTEW pointed to analysis undertaken by the RBA and, in particular, Grundy and Hird, to state that:

- Since 1999, the supply of CGS has dramatically declined 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 nominal risk free rate is in excess of 50 basis points above the nominal CGS yield and expected inflation is at least 20 basis points less than implied by application of the 'Fisher equation' difference in nominal and indexed CGS yields.

ACTEW was clear that it did not propose that the Commission adjust its approach in the draft decision. However, ACTEW proposed that this evidence be taken into account when dealing with uncertainty in other WACC parameters.

In the draft decision the Commission noted ACTEW's concerns about potential biases in the risk-free rate and the real risk-free rate. However, the Commission did not accept that this potential downward bias should be addressed by making compensatory adjustments to the values of the other WACC parameters as ACTEW suggested. It therefore calculated the nominal and real risk-free rates, and forecast inflation, using the method set out above.

### *ACTEW's response*

In summary, ACTEW's response to the draft decision<sup>60</sup> proposed that:

- the risk-free rate be measured directly using nominal CGS; however, to correct for the downward bias, a premium of 50 basis points should be added
- due to evidence regarding a downward bias in the indexed CGS, inflation be estimated directly based on the average of forecasts of well-respected Australian forecasters
- the real risk-free rate be estimated using the Fisher equation and the values for the risk-free rate and inflation determined as set out above.

In support of its proposal ACTEW provided the Commission with a paper prepared by Competition Economists Group (CEG).<sup>61</sup> This paper discussed the approach to measuring inflation and risk-free rates adopted by the Commission in its draft decision. The paper reiterated the evidence to support the proposition that indexed bond yields are downward biased and cited sources such as the RBA, previous work by Grundy and Hird, professional forecasters and the conclusions of the Australian Energy Regulator (AER) and ESC. The paper proposed that the best and least arbitrary approach for measuring the real risk-free rate is to start with the nominal yield on CGS (which the paper notes is conservative as these yields are already downward biased) and determine the inflation forecast based on a survey of credible forecasters. CEG thus recommended the Commission adopt an inflation estimate of 2.53%.

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<sup>60</sup> ACTEW, *Response to the draft decision on prices for water and wastewater services in the ACT*, pp. 61–64

<sup>61</sup> Competition Economists Group, *A methodology for determining expected inflation: a report for ACTEW*, 17 January 2008.

## *Discussion and final decision*

### *Nominal risk free rate*

In relation to whether nominal CGS yields accurately reflect the nominal risk-free rate, the Commission has considered ACTEW's proposal but ultimately cannot accept ACTEW's position that there is an 'absolute bias' and therefore that it is necessary to add a premium to the observed yields to reflect this bias. In particular the Commission notes views expressed by the Commonwealth Treasury and the RBA, as cited in the ESC's final decision on Victorian gas access arrangements.<sup>62</sup>

In its letter to the ACCC, Treasury made the following points:

- the nominal CGS market, in contrast to the index bond market, displayed the attributes of a 'well functioning market'. In particular, Treasury identified that the 2003 policy decision to continue to issue nominal CGS would continue to maintain sufficient liquidity to support the market.
- the reduction in the yield on nominal CGS was likely to be attributable to increased macroeconomic stability in the economy and increased demand for long-term bonds from pension funds and Asian central banks. Both of these factors were considered likely to have led to a lowering of the financing cost for all entities seeking investment capital.
- the methodology employed by NERA to estimate the potential bias was flawed, in that 'the analysis errs by treating banks that issue CDS contracts as if they had the same credit risk as CGS, with the consequence that the bias calculated by the analysis actually describes the credit and liquidity risk of CDS issuers'.

On these grounds Treasury saw 'no compelling reason' to change the methodology for estimating the nominal risk-free rate.

Similarly, the RBA acknowledged the potential for a bias in index-linked bonds, as indicated by the measure of inflation derived from the yield on a nominal bond and an indexed bond of a similar maturity. However, the RBA did not 'believe there are distortions in the CGS market and hence the CGS bond yield remains the best proxy for a risk-free rate', pointing to macroeconomic variables similar to those considered by Treasury.

The Commission therefore confirms the approach adopted in its draft decision and has calculated the risk-free rate based on observations of TFCBs for the 20-day period up to 14 March 2008. This results in a risk-free rate of 6.256%.

### *Real risk-free rate and forecast inflation*

The Commission has noted the views expressed by ACTEW, CEG, the RBA and other parties (including the AER and the ESC) that there is evidence suggesting that yields on inflation indexed bonds are downward biased in terms of their ability to reflect the real risk-free rate. Given this evidence, the Commission is faced with two alternatives. The first involves adopting the approach taken by the ESC and the AER and establishing an estimate of inflation, and then 'backsolving' to determine the risk-free rate. If the Commission is to adopt this approach it needs to identify a method for estimating inflation.

The second approach open to the Commission is to maintain its established approach of calculating the real risk-free rate from indexed bonds and using the Fisher equation to calculate forecast inflation. This is the approach adopted by IPART in its recent decision on Sydney Water's prices.

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<sup>62</sup> ESC, *Gas access arrangements review 2008–2012: final decision*, p. 454

The approach adopted by the ESC and the AER has some appeal. However, it is based on the presumption that the approach used to determine forecast inflation will ultimately result in a 'better' and less arbitrary assessment of the real risk-free rate than from observing indexed bonds. CEG has suggested that an approach of adopting an average of inflation forecasts from respected forecasters. The Commission has a number of concerns with this approach

Firstly, the Commission notes that CEG's own paper suggests that certain forecasts (notably the BIS Shrapnel forecast) should be excluded from the assessment of future inflation. While there may be sound reasons for this, the need to potentially exclude (or include) certain forecasts raises an issue of consistency and repeatability. An objective of regulatory certainty is not furthered in the situation where it is not clear how the forecast of inflation should be obtained, and where there is scope for debate about which forecasts should or should not be included.

Secondly, CEG has cited statements from the RBA and Treasury dated August 2007 to support its view that an estimated inflation rate of around 2.5% represents a sound estimate of long-term inflation. However, the Commission notes subsequent statements by the RBA in its February 2008 Statement on Monetary Policy, which suggest that inflation could well be higher than this:

Underlying inflation is forecast to be around 3.5 per cent over the year to the December quarter 2008.<sup>63</sup>

... in the near term, it is likely that the year-ended rates of underlying and headline inflation will rise somewhat from current levels, reflecting the succession of large quarterly increases in the three latest quarters. Underlying inflation is expected to fall gradually in 2009, and beyond, to around 3 per cent at the end of the forecast period in mid 2010.<sup>64</sup>

On the current outlook, then, and allowing for the inevitable uncertainties in forecasting, the risk of inflation remaining uncomfortably high for some time is considerable. Absent a further shift in economic risks to the downside, therefore, monetary policy is likely to need to be tighter in the period ahead.<sup>65</sup>

Thirdly, while the Commission notes ACTEW's and CEG's views that there are regulatory precedents for moving away from using indexed bond yields to estimate the real risk-free rate, the AER and the ESC have taken different approaches to measuring inflation. The AER has taken the RBA's forecast for 2008 and 2009 inflation (3.0% and 3.88% respectively), and then adopted the midpoint of the RBA range (2.5%) thereafter. In contrast, the ESC's final gas decision appeared to base the forecast on a broad number of factors, including the 10-year historic compound inflation average of 2.7%. Therefore, it cannot be said that there is regulatory consensus about the approach that should be followed.

Given the above, the Commission is not persuaded that moving from its previously adopted approach will result in an unambiguously 'better' forecast of the real risk-free rate. The Commission notes that this is also the position reached by IPART in respect of Sydney Water's WACC. IPART stated:

NERA's proposal is not empirically established for regulators and finance practitioners to depart from the well established methodology for determining risk free rates and forecasting inflation from observed yields on government bonds. Any deviation from past methodology must be carefully

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<sup>63</sup> Reserve Bank of Australia, *Statement on monetary policy*, February 2008, p. 55

<sup>64</sup> RBA, p. 55.

<sup>65</sup> RBA, p. 4.

evaluated given that determining an appropriate rate of return for regulated entities is already an artificial construct that attempts to approximate market outcomes.<sup>66</sup>

IPART also expressed concern about the use of market practitioners' forecasts and the potential bias, lack of transparency and accuracy, and subjectiveness that might result.

The Commission therefore considers that it is appropriate to retain the use of indexed bonds for measuring the risk-free rate and that inflation should be calculated using the Fisher equation. Using data for the period to 14 March, the Commission has calculated a real risk-free rate of 2.639% and a forecast inflation rate of 3.533%.

### 9.3.2 Equity beta

#### *Background and draft decision*

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.

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 (and Australian regulated water and wastewater providers more generally), 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, thus increasing 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-levering/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.

In its July 2007 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.

Relying on the results of the research undertaken by Fama and French, as well as the report by NERA, which suggested 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—1.05.

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<sup>66</sup> IPART, p. 138. Note that NERA's proposal is consistent with CEG's.

However, in determining ACTEW's WACC for the next regulatory period, the Commission's draft decision applied an equity beta of 0.9.

In deciding upon an equity beta of 0.9, the Commission gave consideration to:

- regulatory precedents, including the approach and decisions it took in the last water price review
- certainty and the current market within which ACTEW operates, particularly the continuing drought and increasing concerns about the sustainability of water resources.

In the draft decision the Commission also noted that recent regulatory decisions have suggested that there is an emerging trend among regulators to adopt lower values of the equity betas. For example, the Commission noted that in its 2007 gas access arrangement draft decision the ESC set an equity beta of 0.7. Equity betas in the gas industry have historically been held to be higher than in the water industry.

### ***ACTEW response***

In response to the draft decision, ACTEW indicated that by setting an equity beta of 0.9 the Commission has overlooked changing market and environmental conditions. Further, ACTEW suggested that given the additional investment in water security measures during the forthcoming regulatory period, there is significant evidence that the equity beta should be set at 1.05. However, appreciating the difficulties in setting an equity beta for unlisted companies, ACTEW indicated it could accept a conservative equity beta of 1.0, implying the risk in ACTEW's operation is commensurate with that of the market.

### ***Discussion and final decision***

The Commission has noted ACTEW's further submission on this matter but does not consider that ACTEW has provided any new information to support its case that the equity beta should be 1.0.

Further, since the release of the draft decision, the Commission notes that several relevant regulatory decisions have applied an equity beta at or below 0.9:

- In its March 2008 final decision on Victorian gas access arrangements, the ESC adopted an equity beta of 0.7.
- In its March 2008 draft decision on Victorian non-metropolitan water prices, the ESC adopted an equity beta of 0.65.
- In its March 2008 draft determination on Sydney Water's water, sewerage and other services IPART applied an equity beta of 0.9.

In its submission to IPART, Sydney Water argued that uncertainty regarding future water use amplified its exposure to systematic risks and that these risks should be reflected in a higher beta. However, IPART did not agree, noting that Sydney Water's revenue and demand risk was business-specific and that CAPM theory prescribes that investors should be compensated only for taking on market-wide risks. IPART also considered that 'an equity beta range of 0.8 to 1.0 is already conservative to the benefit of Sydney Water.'<sup>67</sup>

The Commission agrees with IPART's comments and considers there is no case for an equity beta any higher than 0.9. It has used this value in the final decision.

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<sup>67</sup> IPART, p. 136.

### 9.3.3 Equity (market risk) premium

#### *Background and draft decision*

The market risk premium (MRP) is defined as the difference between the return on the market portfolio and 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).

In its original submission, ACTEW proposed that the market risk premium be increased to 7% from the 6% the Commission adopted in the previous review. 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
- current yields on CGS (both nominal and indexed) at historically low levels

investors would require the return above the risk free rate to be even higher.

In the draft decision the Commission adopted a value for the MRP of 6.0%. In doing so it noted work by the ESC that cast doubt upon the veracity of long-term historic data which have traditionally been used to support relatively higher values for the MRP.

The Commission also noted that the ESC highlighted market observations undertaken by AMP Capital Investors that suggested that a reasonable estimate of the MRP over the next 10 years was 3.8% or between 4.8% and 5.3% if imputation credits were fully valued.

#### *ACTEW response*

In response to the draft decision, ACTEW indicated that it was 'not convinced by the Commission's arguments that a market risk premium of 6% is appropriate over the next ten years'.<sup>68</sup> However, citing the Commission's 'unwillingness to move on certain parameters', ACTEW's calculated WACC incorporated a market risk premium of 6%.

#### *Final decision*

The Commission's final decision is that an MRP of 6.0% appropriately reflects the margin above the risk-free rate of return that investors can expect to earn on a well-diversified portfolio of assets. In reaching this conclusion, the Commission notes that:

- ACTEW has not provided any new evidence to support a move away from a market risk premium of 6%.
- In recent decisions, regulators have almost universally applied an MRP of 6.0%.

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<sup>68</sup> ACTEW, *Response to the draft decision on prices for water and wastewater services in the ACT*, p. 67.

### 9.3.4 Debt margin

#### *Background and draft decision*

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 & 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.

In its original submission ACTEW sought a debt margin of 1.30% including debt raising costs of 12.5 basis points. This also included a 25 basis point increment based on ACTEW's view that CBASpectrum (a source typically used by regulators to estimate the debt margin) underestimated the true cost of debt for long dated and low rated corporate bonds.

In the draft decision the Commission assessed that a debt margin of 1.705% (based on a BBB credit rating) was appropriate, including 12.5 basis points for debt raising costs. This debt margin reflected generally higher yields being sought on corporate bonds since ACTEW's original submission. The Commission used Bloomberg bond data to calculate the debt margin.

#### *ACTEW response*

In response to the draft decision ACTEW indicated that it considered the Commission's approach of using Bloomberg data and applying debt raising costs of 12.5 basis points was reasonable. ACTEW noted that the discontinuation of Bloomberg's 10-year BBB fair-yield index required that its 8-year index be used and that some interpolation was required to estimate the premium required to move to the equivalent BBB 10-year rate. ACTEW requested that in doing so the Commission have regard to the difference between the 6-year and 8-year Bloomberg BBB index, and the 8-year and 10-year A index.

ACTEW's revised WACC was based on a debt margin of 1.705%.

#### *Discussion and final decision*

Since the draft decision there has been a substantial increase in corporate bond rates. This has occurred as a result of global debt markets being affected by the liquidity crisis arising from exposure of financial sector counter parties to non-performing US sub-prime mortgages. Debt margins first moved upwards in June 2007 and have continued to rise, with the increase being particularly rapid since November 2007.

Despite these increases, the Commission considers there is no reason to depart from its established methodology for estimating the debt margin. Based on the Bloomberg BBB 8-year index, and including debt raising costs, the Commission has calculated a debt margin of 3.024%. This includes a small margin to reflect the difference between 8-year and 10-year rates on A-rated bonds. The Commission considers it is more appropriate to make the interpolation based on the difference between 8-year and 10-year A-rated bonds rather than 6-year and 8-year BBB-rated bonds as sought by ACTEW.

### 9.3.5 Equity raising costs

#### *Background and draft decision*

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 reinvestment plans where the costs would be close to zero.

In ACTEW's original proposal it sought inclusion of a margin to compensate for the cost of equity raising. However, in the draft decision the Commission noted that a business has an option over whether it incurs equity raising costs, unlike the position with debt raising costs. If investment is financed through retained earnings rather than the issuance of new shares, few or no additional costs are incurred. The Commission therefore made no allowance for equity raising costs.

#### *ACTEW response*

In response to the draft decision ACTEW argued that during the next regulatory period it will be undertaking significant water security measures which are not be able to be financed through retained earnings. According to ACTEW, 'if the Commission does not take this into consideration when adjusting the equity beta the Commission would fail to follow common market practice'.<sup>69</sup>

#### *Discussion and final decision*

The Commission does not consider it is appropriate to make an allowance for equity raising costs. Firstly, as set out in the draft decision, once raised, equity is perpetual, so it is not correct to imply that there is a continuing transaction cost from raising equity.

Secondly, it is well established that regulatory consideration of the WACC is based on a number of market-based parameters and certain other benchmark assumptions. It is not appropriate to point to ACTEW-specific matters, such as the relative size of the capital program in the next regulatory period. If the Commission was going to have regard to such matters it would be equally appropriate for it to consider other ACTEW-specific matters such as its actual debt and equity portfolio, its actual exposure to interest rates, its actual cost of raising equity (noting that ACTEW is entirely government-owned), as well as its policy on profit retention. In relation to the latter the Commission notes that one reason that ACTEW may not have sufficient funds to internally fund its capital program is that in recent years 100% of its profits have been returned to its owner as dividends.<sup>70</sup>

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<sup>69</sup> ACTEW, *Response to the draft decision on prices for water and wastewater services in the ACT*, p. 60.

<sup>70</sup> NWC, *National performance report 2006–07: urban water utilities*, p. 68.

### 9.3.6 Imputation credits

#### *Background and draft decision*

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>71</sup> The calculation of the return on equity developed by Officer is that generally employed by Australian regulators.

The value of gamma has a significant effect on the final calculation of the WACC. It can range between zero and one and is calculated as:<sup>72</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, which paid \$30 tax and received imputation credits of \$30, would simply be the utilisation rate U, as IC/Tax would equal one.

In its original submission ACTEW submitted a paper by Professor Stephen Gray that suggested that the value of gamma is likely to be zero. However, in the draft decision, having considered substantial empirical evidence, regulatory precedent, and a forthcoming paper by Handley and Maheswaran, the Commission determined that a value for gamma of 0.5 was appropriate.

#### *ACTEW response*

In its response to the draft decision, ACTEW's proposed WACC included a gamma of 0.5. However, ACTEW indicated that it was not particularly convinced by the Commission's arguments and that the draft decision only cited an unpublished article in support of its position.

#### *Discussion and final decision*

The value of gamma was considered in detail in the Commission's draft decision. Since that time the Commission has noted that:

- ACTEW has not provided any new evidence to support a different value of gamma.
- In recent decisions, regulators have almost universally applied a value of gamma of 0.5 (with IPART, which typically uses a range of 0.3 to 0.5, being the key exception)

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<sup>71</sup> RR Officer, 'The cost of capital of a company under an imputation tax system', *Accounting and Finance*, May 1994, pp. 1–18.

<sup>72</sup> M Lally, 'Regulation and the cost of equity capital in Australia', *Journal of Law and Financial Management*, vol. 2, no. 1, November 2003, p. 30.

The Commission's final decision is to adopt a value of 0.5 for gamma.

The Commission also notes that the ESC's recent gas decision undertook an exhaustive analysis of gamma, but that the ESC was ultimately not persuaded that sufficient information existed to change (either upwards or downwards) from its previously adopted estimate of 0.5.<sup>73</sup>

### 9.3.7 Gearing ratio

The proportion of debt to equity is referred to as the level of gearing of the business.

Regulatory convention has been to adopt a 'benchmark' gearing ratio. This has the benefit of ensuring that regulated businesses are given incentives to arrive at the most efficient capital structure.

Regulatory precedent is for a 60:40 gearing ratio to be adopted and ACTEW supported this approach in its original submission and in its response to the draft decision. In the absence of views to the contrary, the Commission has adopted this ratio in the final decision.

### 9.3.8 Taxation

#### *Background and draft decision*

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 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 Australian Competition and Consumer Commission (ACCC) and the 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, the regulated business's effective tax rate might be 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.

In Discussion Paper 2 and the draft decision the Commission took the view that in the absence of evidence to the contrary it 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 in its response to the draft decision.

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<sup>73</sup> ESC, *Gas access arrangement review: final decision*, pp. 499–509.

### ***Final decision***

The Commission's final decision is that it will continue to use the statutory tax rate of 30% to estimate tax liabilities when calculating the real pre-tax WACC.

## **9.4 Final decision**

The Commission's final decision is that pre-tax real WACC for ACTEW, as calculated consistent with market parameters at 14 March 2008, is 7.27%. The Commission considers that this provides optimal incentives for ACTEW to invest in infrastructure and reflects an appropriate return on investments in the water and wastewater industry.

**Table 9.2** Final decision—weighted average cost of capital calculation

<b>Parameter</b>	<b>Value</b>
Risk-free rate	6.256%
Real risk-free rate	2.639%
CPI	3.533%
Market risk premium	6.0%
Debt margin	3.024%
Gearing	60%
Gamma	0.50
Tax rate	30%
Equity beta	0.90
<b>WACC (pre-tax real)</b>	<b>7.27%</b>

# 10 Total revenue requirement and form of price control

## 10.1 Introduction

The previous four chapters have set out the components of the building block costs for water and wastewater services. This chapter brings together these building-block costs into a total revenue requirement. It also discusses the form of price control—the way in which prices will vary across the next regulatory period, including in response to unanticipated costs and different revenue outcomes from that forecast.

In addition to being discussed in the draft decision, the majority of the issues covered in this chapter were addressed in the Commission’s first discussion paper and subsequently in its working conclusions paper.

## 10.2 Building-block costs

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 10.1 and 10.2 to determine ACTEW’s total revenue requirement for its water and wastewater businesses over the next regulatory period.

Table 10.1 Revenue requirement, final decision—Water (\$’000, nominal)

	2008–09	2009–10	2010–11	2011–12	2012–13
Operating costs	50,694	51,745	53,297	53,522	55,062
Return of capital (depreciation)	13,465	16,225	18,701	20,056	21,038
Return on regulated asset base	43,161	54,570	64,479	68,890	71,395
Pass-through of additional costs and revenue shortfalls incurred in previous period	49,543				
Water abstraction charge and network facilities tax	31,126	33,543	34,568	35,009	35,122
<b>Total</b>	<b>187,989</b>	<b>156,083</b>	<b>171,046</b>	<b>177,478</b>	<b>182,617</b>

Table 10.2 Revenue requirement, final decision—Wastewater (\$’000, nominal)

	2008–09	2009–10	2010–11	2011–12	2012–13
Operating costs including network facilities tax	48,797	52,637	53,601	56,718	60,019
Return of capital (depreciation)	12,695	13,608	14,158	14,740	15,348
Return on regulated asset base	38,363	41,190	42,206	43,288	44,413
<b>Total</b>	<b>99,855</b>	<b>107,435</b>	<b>109,966</b>	<b>114,746</b>	<b>119,781</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 provision of water and wastewater service for the national capital
- miscellaneous charges such as special meter reads.

The revenue that ACTEW forecasts that it will derive from these unregulated activities is deducted from the total building block revenue requirements set out in tables 10.1 and 10.2 to determine the net revenue to be obtained from water and wastewater fixed and volumetric charges.

This net revenue is set out in tables 10.3 and 10.4 and has been used by the Commission to determine ACTEW's 2008–09 prices and subsequent 'X factors' set out in chapter 11.

Table 10.3 Net revenue requirement—water (\$'000, nominal)

	2008–09	2009–10	2010–11	2011–12	2012–13
Total revenue requirement from table 10.1	187,989	156,083	171,046	177,478	182,617
Income from unregulated activities	9,051	9,835	10,575	11,334	12,132
Net revenue requirement	178,938	146,248	160,471	166,144	170,485

Table 10.4 Net revenue requirement—wastewater, (\$'000, nominal)

	2008–09	2009–10	2010–11	2011–12	2012–13
Total revenue requirement from table 10.2	99,855	107,435	109,966	114,746	119,781
Income from unregulated activities	9,298	9,493	9,692	9,942	10,198
Net revenue requirement	90,557	97,942	100,274	104,804	109,582

### 10.3 Form of price control

This section addresses both one of the requirements listed in the TOR the Commission received in February 2007, as well as a requirement of the ICRC Act regarding the making of a price direction.

The TOR require 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 ICRC 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 discussed in detail the possible options for determining the form of regulation under the Act available to the Commission.<sup>74</sup> The Commission's view is that a series of decisions need 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

<sup>74</sup> ICRC, *Water and wastewater discussion paper 1: technical regulatory issues*, Report 14 of 2006, November 2006.

whether to make an adjustment after the regulatory period for overcollection or undercollection of revenue needs to be made.

These decisions allow for a wide variety of regulatory outcomes. One possible outcome is for prices to be determined in real terms by the Commission for the duration of the regulatory period with no option for revenue adjustment at the end of 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. Tariffs are 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>75</sup>

### 10.3.1 ACTEW proposal

ACTEW's original submission 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 sought agreement to a proposal whereby it effectively sets the individual tariffs within a maximum allowable average revenue (MAAR) per customer cap set by the Commission. Within this cap ACTEW would have the ability to determine specific prices and tariff structures from year to year. In setting prices to meet the cap ACTEW would use a mutually agreed 'expected demand' model to forecast usage in the forthcoming year.

ACTEW also suggested that an adjustment be applied to revenue in the subsequent regulatory period if actual total usage was +/- 10% from that forecast for the 2008–09 to 2012–13 period.

### 10.3.2 Draft decision

In the draft decision (and reflecting several comments made by the Commission in its working conclusions paper) the Commission 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 usage
- the lack of price certainty for consumers
- the resource-intensive nature of the annual reset process.

The Commission also expressed concern with the proposal that ACTEW be solely responsible for determining the structure of prices during the regulatory period.

The draft decision therefore proposed that prices would be set in advance (in real terms) for the full five-year regulatory period based on the current forecast of likely usage. Prices would not be

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<sup>75</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.

revised on an annual basis either to allow tariff ‘rebalancing’ or to adjust for changes in forecast usage. The Commission also proposed that if revenue across the regulatory period differed significantly from forecasts or that certain unanticipated costs were incurred, these would be passed through at the start of the subsequent regulatory period.

The form of price control proposed in the draft decision can be characterised as a combination of both a price cap and revenue cap.

### 10.3.3 Response to the draft decision

In response to the draft decision ACTEW did not object to the Commission’s proposal to move away from a form of price control based around maximum average revenue. However ACTEW voiced concerns about a five-year price setting arrangement. According to ACTEW:

the proposal to introduce fixed five-year prices for water and wastewater substantially increases risk and uncertainty for ACTEW, when the basis for this change in approach has not been justified and the countervailing net benefits of the proposal have not been demonstrated.<sup>76</sup>

ACTEW also suggested that the Commission’s proposed approach will result in community-wide impacts from a loss of pricing flexibility and pricing reform in the medium term.

ACTEW expressed concern with the Commission’s proposal to provide for cost and revenue pass-throughs at the end of the regulatory period (these are discussed further below).

ACTEW also suggested that a weighted average price cap be applied to miscellaneous fees and charges.

ACTEW’s response on the form of price control, and the Commission’s final decision, is discussed in more detail below.

### 10.3.4 Analysis

#### *Revenue cap, price caps and the annual price reset*

The primary price control 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 (as proposed by ACTEW), or move to an alternative form of price control where the Commission sets real prices for the duration of the regulatory period (as proposed in the draft decision).

ACTEW’s main objection to the approach adopted by the Commission in the draft decision appears to be the additional risk and uncertainty on it as a result of basing prices around five year forecasts of costs and water usage.

ACTEW believes that there is little or no benefit in changing the form of regulation and that any benefits of an advance five year price setting arrangement and a lag for adjustments of legitimate and unforeseen pass-through costs would be clearly outweighed by the significant risks to ACTEW. ACTEW proposes that there is a much stronger case, particularly due to the uncertainty with Water Security Plan costs, for retaining the current practice of annual pass-through adjustments and annual price setting based on the most reliable forecasts available ...

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<sup>76</sup> ACTEW, *Response to the draft decision on prices for water and wastewater services in the ACT*, p. 4.

The form of price control adopted by the Commission will have implications for a number of objectives and factors, including:

- 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
- providing customers with a high level of transparency and certainty regarding tariff structures and prices.

ACTEW’s proposal lies towards one end of a possible spectrum of approaches to price control. Table 10.5 compares three alternative approaches from this spectrum—one where there is full annual adjustment of prices to reflect changes in costs and revenues (which is similar to ACTEW’s proposal), one where there are no adjustments, and one which represents a combination of the two (Commission approach). As a general rule more frequent adjustments reduce risk for the business but increase regulatory costs and decrease incentives for cost containment and revenue maximisation.

**Table 10.5 Costs and benefits of comparative price control approaches**

	Full adjustment approach	Commission approach	No adjustment approach
	<ul style="list-style-type: none"> <li>• annual price adjustments based on reforecast demand</li> <li>• annual cost pass-through arrangements</li> <li>• annual revenue pass-through arrangements (no deadband)</li> <li>• changes to tariff structures permitted during regulatory period</li> </ul>	<ul style="list-style-type: none"> <li>• prices set on basis of 5-year forecasts, with some ability to adjust forecasts in last two years of regulatory period</li> <li>• cost pass-throughs (with the exception of WAC and contingent water security projects) made in the next regulatory period</li> <li>• revenue pass-through outside a deadband in next regulatory period</li> </ul>	<ul style="list-style-type: none"> <li>• prices set on basis of 5-year forecasts</li> <li>• no cost pass-throughs</li> <li>• no revenue pass-throughs</li> </ul>
Ensuring that the regulated business has the opportunity to recover total efficient costs	High level of certainty that business will recover all costs	ACTEW will have the opportunity to recover the efficient costs, but some may not be recovered until subsequent regulatory period	ACTEW may not have the opportunity to recover all costs incurred within the period
Providing incentives for the regulated business to reduce costs	Lower level of incentive to reduce costs compared to 'Commission approach'	Lower level of incentive to reduce costs compared to 'no adjustment' approach	High level of incentive to reduce costs
Promoting the conservation of water	ACTEW not encouraged to sell more water—in fact may be encouraged to be conservative regarding restrictions	Incentive to sell more water limited to within deadband and subject to reduction use targets	May encourage ACTEW to sell more water in order to generate higher revenue, subject to reduction use targets
Ensuring that individual tariffs are cost reflective, that cross-subsidisation is eliminated, and that appropriate signals are provided to customers	Highest likelihood that individual tariffs are cost reflective on an individual yearly basis	Individual tariffs may move broadly in line with major cost changes but over the five years will be cost reflective	Prices may move out of alignment with annual costs over time but ultimately will be cost reflective
Minimising opportunities for regulatory 'gaming'	Greater opportunity for regulatory gaming—eg seeking pass-throughs	Some opportunity for regulatory gaming	No opportunity for regulatory gaming
Minimising the regulatory burden for the regulator and regulated business	Relatively high regulatory burden associated with annual price adjustments and reopenings	Some regulatory burden with annual price adjustments	No regulatory burden with annual price adjustments
Providing an appropriate level of regulatory certainty for the business	High level of regulatory certainty although somewhat reliant on regulator discretion to accept pass-throughs	High level of regulatory certainty although somewhat reliant on regulator discretion to accept pass-throughs	High level of regulatory certainty
Providing customers with a high level of transparency and certainty regarding tariff structures and prices.	Little certainty for customers regarding real prices—potentially large movements from year to year	Some but not full certainty for customers regarding real prices	Full certainty for customers regarding real prices

As it is not possible to quantify the costs and benefits of the different alternatives, the Commission's decision must be made on a qualitative assessment of these factors. In reaching its final decision the Commission has been particularly guided by the following:

- Despite the work undertaken by ACTEW and Dr Rebecca Letcher and Professor Trevor Breusch from the ANU, it is not clear that the resource-intensive procedure of agreeing usage forecasts associated with an annual review can be avoided.
- Where usage volumes are expected to rise (for example, as a consequence of lifting restrictions), it is possible that prices will fall—thus sending confusing signals to customers
- Providing customers with as much certainty as is reasonably possible regarding prices enables them to make rational economic decision about future investments in water-saving devices and fixtures.
- There is a need to provide ACTEW with the maximum level of incentives to manage and reduce expenditure.
- As ActewAGL has noted, estimates of usage for the next years could be quite inaccurate (and are likely to be less accurate than an estimate over a period of several years).<sup>77</sup>
- High costs are associated with existing regulatory arrangements that provide for annual adjustment of prices.

Having weighed up the costs and benefits the Commission's final decision is that a form of price control that has the characteristics set out below represents an appropriate balance of risk and incentives for ACTEW and customers, and at the same time minimised the regulatory burden. Under the Commission's approach:

- Prices will be set based on a five-year forecast of usage and customer numbers. There will be no annual reforecasting of usage or customer numbers.
- Water volumetric revenue shortfalls/over-recoveries outside a 3% band, and certain cost pass-throughs will be recouped/repaid in the subsequent regulatory period, with the exception that:
  - prices in 2011–12 and 2012–13 will be reopened in the event that any of the contingent water security projects proceed, provided that ACTEW's capital expenditure is greater than that set out in this final decision
  - if water usage (and hence volumetric water revenue) is significantly different from forecast in the first two and a half years of the next regulatory period then usage will be reforecast for the remaining two years of the regulatory period and prices adjusted accordingly. This will reduce the risk that forecast revenue varies significantly from forecasts.
  - changes to the WAC will be passed through immediately (that is, as part of yearly price adjustments).

The Commission notes that this approach provides ACTEW with relatively greater certainty and less risk than provided for in its draft decision.

Further details regarding the cost and revenue pass-through arrangements are set out below.

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<sup>77</sup> ActewAGL, *ACT water demand projections 2008/09 to 2012/13* (updated March 2008).

### *Changes to tariff structure*

Another 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 previously noted that it wishes to be able to amend tariff structures in order to respond to changes in circumstances as they arise.

However, in the draft decision the Commission noted that there is much debate over the economic, social and environmental benefits of different tariff structures.<sup>78</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, the Commission noted that:

- 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.
- 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 that draws on broad community input and debate, such as this price determination.

In response to the draft decision ACTEW suggested that the position set out in the draft decision is inconsistent with a view expressed by the Commission in 2004 that 'ACTEW should have the flexibility to adjust relative prices, and potentially steps, during the period'. ACTEW also argued that:

the Commission's proposal prevents ongoing tariff reform and important structural reforms to tariffs, with wastewater charges affected in particular. ACTEW has a long standing plan to reduce the emphasis on fixtures-based charging and incorporate volumetric and strength components, which may now be required sooner ...<sup>79</sup>

The Commission agrees with ACTEW that the wastewater tariff structure needs to be reviewed. However, the Commission retains its view that it is essential that tariff structures be determined through an open and consultative process, rather than by ACTEW alone.

The Commission accepts that its position regarding the merits of changing tariff structures during the regulatory period has changed since its 2004 decision. However the Commission also notes that in its 2004 decision it made clear that any proposed tariff changes would be subject to review and amendment by the Commission. ACTEW was not able to amend the tariff structure unilaterally.

The Commission therefore reaffirms its position that the tariff structure should be determined as part of this price determination and thereafter remain unchanged across the regulatory period. The Commission's decision on the water tariff structure, including ACTEW's proposal for 'drought pricing' is set out in chapter 11.

### *Miscellaneous fees and charges*

Miscellaneous fees and charges include special meter readings, testing of water meters, the provision of rate certificates and fees for tapping into water mains.

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<sup>78</sup> This is evidenced by the divergent views on tariff structures set out in chapter 11 of this draft decision

<sup>79</sup> ACTEW, *Response to the draft decision on prices for water and wastewater services in the ACT*, p. 8.

ACTEW has suggested that it should be able to amend miscellaneous fees and charges under a tariff basket approach. ACTEW suggested that a tariff basket was required in order to:

allow the implementation and removal of fees and charges within the cap to provide ongoing flexibility to properly signal costs and ensure an efficient allocation of resources to these services.<sup>80</sup>

ACTEW's approach contrasts with the draft decision proposal that miscellaneous fees and charges simply change by the CPI each year. Under current arrangements revenue from miscellaneous charges are included in the MAAR cap.

The Commission has some concerns with ACTEW's proposal. Firstly, a tariff basket does not operate well in cases where fees and charges are being added and removed. This is because for new tariffs there is no historic quantity information upon which to 'weight' the basket.

Secondly, the Commission considers it is unlikely that the costs of providing miscellaneous services are likely to change considerably during a regulatory period and thus there is limited likelihood that a CPI-indexed price will diverge from the cost of providing services.<sup>81</sup> Accordingly, the benefits of a tariff basket may be limited.

Finally, the Commission does not consider that ACTEW should be able to unilaterally remove or add new miscellaneous services.

However, the Commission agrees that there may be circumstances in which it is desirable to add a new miscellaneous service or remove an existing miscellaneous service and that the price direction allow this to occur. The Commission believes that the following process should be followed and has reflected this in its price direction:

- In the case of the proposed removal of a miscellaneous service, ACTEW should provide information to the Commission identifying which miscellaneous service it wishes to remove and the reasons for the removal. The Commission will advise ACTEW within 14 days whether it may remove the miscellaneous service.
- In the case of the proposed addition of a miscellaneous service, ACTEW should provide information on the proposed new service and its cost and proposed price. The Commission will advise ACTEW within 14 days whether it may add the service at the proposed price.

## 10.4 Cost pass-throughs

Regulatory arrangements typically permit certain unforeseen and non-controllable costs to be passed through to customers. 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 certain costs that apply uniformly across all service providers will be able to be passed directly through to customers in the short term.

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<sup>80</sup> ACTEW, *Response to the draft decision on prices for water and wastewater services in the ACT*, p. 11.

<sup>81</sup> This assumes that the initial price for the service is consistent with its cost: ACTEW has not identified any cases where this is not the case.

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.

ACTEW’s existing regulatory arrangements currently provide for pass-throughs 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
- 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.

ACTEW’s original proposal suggested 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.

## 10.5 Nature of cost pass-throughs

### 10.5.1 Draft decision

In the draft decision the Commission proposed to adjust the definition of the change in taxes event to clarify that taxes and other imposts imposed by the ACT government can be passed through by ACTEW. The Commission noted that the wording of the current pass-through mechanism—‘relevant taxes’ as levied by ‘any authority of the Commonwealth of Australia’ was not clear on this point.

The Commission also agreed with ACTEW that the definition of the existing ‘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 did not support ACTEW’s proposed changes to the clause. Rather, the Commission proposed an amendment which provided for a pass-through in the event that additional expenditure in relation to new supply sources needed to be undertaken. The Commission made clear that the mechanism did not relate to changes in operating expenditure associated with existing supply sources.

In the draft decision the Commission rejected ACTEW’s proposal 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. The Commission noted that there are few major projects where costs are significantly uncertain, with the exception of water security projects which are dealt with via the augmentation event.

Finally, the Commission did not accept ACTEW’s proposal for 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. The Commission noted that 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 expressed concern that such a mechanism may diminish ACTEW’s incentives to make appropriate trade-offs between maximising supply and minimising costs.

### 10.5.2 Response to draft decision

ACTEW did not comment directly on the specific nature of the cost pass-through events provided by the Commission in the draft decision. However, ACTEW recommended that if the Commission proceeded with its proposal to use five-year forecasts that there be a mid-term review process in relation to Water Security Plan costs.

### 10.5.3 Analysis and final decision

The sections below discuss ACTEW’s proposed amendments to the cost pass-through items.

### ***Change in taxes event***

As noted above, in respect of ACTEW's suggestion to change the definition of the change in taxes event, the draft decision agreed that it would be desirable to clarify that taxes and other imposts imposed by the ACT Government can be passed through by ACTEW.

No comments were received on this proposal and hence the Commission confirms its draft decision to amend the definition of relevant tax as set out below. (Note that the Commission has amended the wording of the proposed clause since the draft decision by changing the word 'by' to 'on' as underlined below. This has no material impact on the clause and simply corrects a grammatical issue.)

Relevant taxes are any tax, rate, duty, charge of levy or other like or analogous impost that is imposed on or payable directly or indirectly by ACTEW to any authority of the Commonwealth of Australia or the government of the ACT, including a goods and services tax, the Water Abstraction Charge and the Network Facilities Tax Augmentation event/contingent project event.

### ***Augmentation event***

The existing 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 price direction. In its original submission ACTEW 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 (for example, demand management measures) may better deal with supply shortages. ACTEW 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.

In the draft decision the Commission agreed that the existing 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. It therefore agreed to change the 'augmentation event' to a 'water shortage' event and to amend the definition of such an event.

In its original submission ACTEW also proposed a contingent project mechanism whereby 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.

In the draft decision the Commission noted that such a mechanism provided few benefits either for ACTEW or customers. The Commission identified that with the exception of the uncertainty about spillway upgrade costs at Corin and Bendora dams, which the Commission removed from ACTEW's capital expenditure plan, there are few major projects where costs are significantly uncertain. The exception to this is security of supply projects, which are dealt with via the augmentation event. The Commission's draft decision therefore did not accept ACTEW's proposal to include a contingent project mechanism.

ACTEW did not respond directly on the matter of the water shortage event or contingent project pass-throughs. However, in outlining its views on the minimum requirements if the Commission

was to proceed with the use of five-year forecasts, ACTEW proposed a mid-term price review process for Water Security Plan projects. ACTEW noted that ‘significant uncertain costs in connection with the Water Security Plan that have not yet been incorporated in ACTEW’s revenue requirement may need to be incurred early in the price path and should not be held back for compensation until the subsequent regulatory period’.<sup>82</sup>

The Commission has considered ACTEW’s revised request. The Commission notes that the water security projects that are already incorporated in ACTEW’s forecast expenditure—notably the Cotter Dam, Murrumbidgee to Googong transfer, design of the demonstration water purification plant and smart metering projects—have been subject to extensive examination and analysis. While formal quotes from the market have not yet been obtained, the Commission considers there is sufficient certainty regarding these projects such that a formal reopening mechanism is not required. ACTEW should ensure that it manages the costs of these projects just as it does for the remainder of its projects.

In relation to the contingent water supply projects that are not included in the current capital forecasts—construction of the water purification plant and the Tantangara supply option—the Commission agrees with ACTEW that tariffs should be adjusted to reflect the additional costs incurred should these projects proceed in the current regulatory period.<sup>83</sup> At the same time, the Commission considers that any adjustments to tariffs should be made only where ACTEW’s capital expenditure forecasts in other areas had been met. Customers would be overpaying in circumstances where ACTEW was able to recoup additional costs associated with the contingent projects but had underspent capital expenditure forecasts in other areas (for which it will already have been compensated through tariffs).

The Commission also considers it is desirable that any adjustment to tariffs minimise regulatory costs and the impact on customers. The contingent project mechanism will therefore operate as follows:

- A once-off adjustment will be made to the X factor for 2011–12 and 2012–13 to reflect capital and operating expenditure incurred and forecast to be incurred on the contingent projects during the regulatory period.
- Adjustments will only be made to tariffs for capital expenditure on contingent projects where that expenditure results in total capital expenditure exceeding the forecasts in this final decision, taking into account the timing of that capital expenditure. Thus any additional expenditure as a result of the contingent projects will be netted off against any ‘underspend’ on other projects. This ‘netting off’ will also take into account the timing of expenditure.
- The X factor adjustment will reflect all prudent incurred and forecast operating expenditure on contingent projects. Unlike capital expenditure there will be no netting off in relation to operating expenditure in other areas.
- ACTEW will be required to provide a submission to the Commission prior to 1 March 2011 detailing the expenditure on the contingent projects that it is seeking to recoup. The Commission will review the submission and may engage consultants to advise it on the prudence and efficiency of the forecasts.

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<sup>82</sup> ACTEW, *Response to the draft decision on prices for water and wastewater services in the ACT*, p. 10.

<sup>83</sup> In chapter 7 the Commission has set out its views on the process that needs to be followed prior to government approval of these projects proceeding.

As part of the implementation of this mechanism the Commission will require ACTEW to provide annual reports on capital expenditure to the Commission by 1 October each year.

### ***Water supply operating costs***

ACTEW's original submission 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.

In the draft decision the Commission noted that it did 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.

In the draft decision the Commission also considered 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.

ACTEW did not respond to the Commission's draft decision. The Commission therefore maintains its position on this matter and has not provided for such a mechanism.

### ***Act of terrorism***

The current price direction permits ACTEW to pass through to customers increases in costs associated with acts of terrorism. It also provides that where an act of terrorism is so significant as to restrict ACTEW's ability to provide services and also imposes costs in excess of \$10 million, this may trigger a reopening of the price determination.

At the time of the last price determination, insurance premiums had been increasing sharply and businesses were finding it difficult to obtain insurance coverage for acts of terrorism. It was partly for this reason that the Commission agreed to provide a specific pass-through event to compensate ACTEW for any additional costs incurred as a result of terrorism.

However, since the last determination the successful establishment of the Australian Reinsurance Pool Corporation under the *Terrorism Insurance Act 2003* has resulted in terrorism insurance (both for property damage and business interruption) becoming available to Commonwealth and state agencies such as ACTEW.

As a general principle, the role of an economic regulator is not to manage risks for businesses where such risks can be adequately dealt with through the insurance market. Given that terrorism insurance is now readily available, it is not necessary for the Commission to provide for a pass-through. The Commission has therefore adjusted its price direction accordingly.

The Commission considers it is appropriate to retain the ability to reopen the price determination in the event of a major terrorism attack which disrupts services and imposes significant net costs on ACTEW.

## 10.6 Timing of pass-throughs

### 10.6.1 Draft decision

In the draft decision (and 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 cost 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 draft decision therefore provided for an approach where most pass-through items are aggregated across the first four years of the regulatory period and recovered through prices in the subsequent regulatory period. Cost pass-throughs that arise in the final year of the regulatory period would be dealt with at the subsequent price review. The exception to this was costs imposed by the ACT government for policy reasons—notably the WAC—which the Commission proposed would be passed through on an annual basis.

### 10.6.2 Response to draft decision

In response to the draft decision the ACT Government noted that

While the Government recognises the benefits of providing consumers with a degree of price certainty, it is concerned with the implication that deferring price increases may have for the next price period. The Government considers that large and material changes in ACTEW's revenues and expenditures, relative to forecasts, should be incorporated within the five year period and not deferred until the next price period.<sup>85</sup>

ACTEW also emphasised the importance of annual pass-throughs to ensure that a balance is retained between revenue and the cost of providing services. ACTEW argued that:

Annual adjustments facilitate a proper assessment of pass through costs within the immediate context of the expenditure decision and avoid the need for costly administration in both tracking and recording the basis and amount of the pass through claims.<sup>86</sup>

If the Commission was to retain its approach of providing for pass-throughs in the subsequent regulatory period, ACTEW proposed:

the application of the nominal WACC (and not the risk free rate of return as proposed) to compensate ACTEW for the risks associated with the lagged recovery of costs eligible for pass through under the Commission's end of period approach. The Commission's approach is inconsistent with other aspects of its financial modelling and there exist several regulatory precedents for use of the nominal WACC.<sup>87</sup>

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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.

<sup>85</sup> J Stanhope MLA, *ACT Government submission to the Independent Competition and Regulatory Commission water and wastewater draft price review*, 20 February 2008.

<sup>86</sup> ACTEW, *Response to the draft decision on prices for water and wastewater services in the ACT*, p. 9.

<sup>87</sup> ACTEW, *Response to the draft decision on prices for water and wastewater services in the ACT*, p. 11.

### 10.6.3 Final decision

The Commission remains of the view that annual changes to tariffs to reflect changes in costs, revenues and forecast usage are undesirable. As outlined in the draft decision, such changes have the potential to reduce certainty for customers, create volatility in tariffs, increase regulatory costs and reduce transparency in the regulatory process.

At the same time the Commission accepts arguments put forward by ACTEW and the government that to wait until the next regulatory period to implement all pass-throughs creates additional risk for ACTEW. The Commission has therefore adopted an approach which it considers balances ACTEW's risks with customers' interests and good regulatory practice. This approach provides for the following:

- Changes in the WAC will be able to be passed through on an annual basis.
- Other expenditure pass-throughs (with the exception of contingent project pass-throughs discussed in section 10.5.3 above) and revenue shortfalls/over-recoveries (discussed in section 10.8) will be aggregated across the first four years of the regulatory period and passed through in the next regulatory period.
- X factors for 2011–12 and 2012–13 may be varied on a once-off basis to account for contingent project pass-throughs and reforecasts of demand in the last two years of the period.

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 somewhat 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.

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 change in the WAC, which will apply to all water sold in the ACT and will be rounded to the nearest cent.

## 10.7 Materiality threshold

In the draft decision the Commission proposed to reduce the materiality threshold for individual pass-through items to \$1 million per event per year across the regulatory period.

No comments were received on this matter and the Commission therefore confirms this approach in this final decision.

## 10.8 Revenue pass-throughs

As noted above, the Commission has elected to establish prices (in real terms) for the entire regulatory period, based on the existing forecasts of expenditure and demand. While this approach has a number of benefits, it increases the risk that there will be a divergence between forecasts and actual outcomes, particularly in relation to revenue.

### 10.8.1 Draft decision

In the draft decision the Commission proposed a ‘deadband’ mechanism to protect both ACTEW and consumers from the risk that revenue differs significantly from forecasts—for example if water restrictions worsen or are lifted at a different rate from that assumed in the forecasts. The Commission proposed that if revenue from all water and wastewater charges (including sales to Queanbeyan but excluding miscellaneous services) was outside a range of +/- 10% from that established in the final decision, then the difference would be recouped/offset against prices in the next regulatory period in the same way that cost pass-throughs are.

### 10.8.2 Response to the draft decision

As noted above, in its response of 8 February 2008 ACTEW expressed concern regarding the Commission’s proposal to take a five-year approach to setting prices. ACTEW suggested that if the Commission used five-year forecasts, it should apply a deadband ‘width’ of around 3% of revenue from water sales. ACTEW expressed concern regarding the risk of greater revenue shortfalls with a wider mechanism. ACTEW also proposed that if revenue fell outside the band then the full amount of the shortfall should be recovered in the next regulatory period, and not just the difference between actual revenue and a (3%) band.

ACTEW provided further correspondence to the Commission on 20 March 2008 again expressing concern about the proposal for revenue pass-throughs to occur in the subsequent regulatory period.

... if we had Stage 3 Water Restrictions through the period, our modelling shows that we would lose up to \$100 million in revenue over the five year period.

This would be a significant cash flow problem for us. We would have to borrow to cover it, with the interest costs surely being applied to our cost base and thus eventually being borne by our customers. However, if this was all that was at stake, you may well wish us to simply bear with that.

It is, however, not all that is at stake. If we were to lose revenue of some \$20 million a year this would mean that our massive investment in the water business was actually running at a substantial loss. Remember, our annual profit on the water business over the last several years has been only around \$8 million.

As noted above, the ACT Government also suggested that revenue pass-throughs should be incorporated within the regulatory period and not deferred until the next price period.

### 10.8.3 Discussion

#### *Revenue pass-throughs in other jurisdictions*

In considering ACTEW’s proposal the Commission has examined revenue pass-through arrangements in other jurisdictions.

Regulatory water price reviews are currently underway in Victoria and New South Wales. In its recently released draft decision, the ESC in Victoria has proposed that, should forecast water demand be ‘significantly too conservative (or optimistic)’ in light of actual demand, it will conduct a within-period review to quantify the impact on the water businesses and customers and may adjust prices during the period.

IPART has also recently released its draft decision on water prices to be charged by Sydney Water. IPART noted that its 10% deadband mechanism has not been triggered in the current regulatory period because the variation in forecast and actual water consumption has been less than 10%. (This outcome was achieved even though Level 3 water restrictions have been in place since 1 June 2005). IPART concluded that, since the mechanism has not been triggered, such a mechanism is not necessary for the forthcoming regulatory period.

The Essential Services Commission of South Australia (ESCOSA) conducts an annual inquiry into water prices charged in metropolitan and regional South Australia. Regulatory arrangements in South Australia do not enable any form of revenue pass-through.

### *Deadband mechanism*

A deadband mechanism is designed primarily to reduce the impact of demand forecasts turning out to be significantly incorrect. Until the last few years such mechanisms have not been necessary because storage levels have been sufficiently high, and consumption patterns sufficiently predictable, that revenue risk was low. This is not currently the case in the ACT.

Under a deadband:

- Consumption risk within the deadband rests with ACTEW, while consumption risk 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.
- ‘Over and under’ recoveries during the period will offset each other.

The existing revenue shortfall recovery mechanism may be considered to be a deadband mechanism with a 0% bandwidth, except that:

- It is applied on a yearly basis, which means that there is no opportunity for ‘overs’ and ‘unders’ to average out, resulting in potentially large price shocks from year to year.
- It has a different sharing of risks. At high restriction levels customers bear all the (downside) risk, at low restriction levels ACTEW bears the (downside risk), and with no restrictions ACTEW bears the (generally upside) risk.

The 10% deadband width proposed by the Commission in the draft decision was consistent with that adopted by IPART for Sydney Water and other NSW water authorities. However, the Commission has considered ACTEW’s response and agrees that, given the current uncertainties surrounding supply, the 10% deadband width proposed in the draft decision may result in an excessive level of risk being faced by ACTEW, particularly given the potential for asymmetric revenue outcomes. The Commission has therefore reduced the deadband width to 3% and decided that it will apply only in respect of water revenue.

The deadband adjustment at the end of the period will apply only to actual revenue received in the first four years of the regulatory period, and the latest estimate of revenue for the last year of the regulatory period (as determined by the Commission). It will only compensate ACTEW or customers to the edge of the band. Thus, if forecast water revenue over the period is \$750 million (in net present value terms) and actual revenue (including an estimate for 2012–13) is \$800 million

then \$27.5 million will be returned to customers in the following regulatory period.<sup>88</sup> This ensures that customers do not bear all the revenue risk.

### ***Further revenue adjustments***

To further ensure that actual revenue is consistent with forecast revenue and avoid the asymmetric revenue risk identified by ACTEW, the Commission intends to provide for a potential resetting of prices in the fourth and fifth years of the regulatory period. Should water revenue be more than 7% different from that forecast over the first two and a half years of the regulatory period, the Commission will revisit the usage forecasts for the remaining two years of the regulatory period and adjust tariffs for the last two years of the regulatory period to realign the forecast revenue set out in this final decision with the new demand forecasts. In making this adjustment:

- Volumetric water prices will change to better match forecast and actual water volumetric revenue only in 2011–12 and 2012–13. They will not be amended to provide for a ‘catch-up’ of any revenue shortfalls in the preceding three years—these will be addressed by the end of period deadband mechanism
- While the Commission will work with ACTEW to agree to a usage forecast for 2011–12 and 2012–13, a final decision on the usage forecast will be entirely up to the Commission to determine.
- There will be no rebalancing of prices in 2011–12 or 2012–13. Both volumetric prices will change by the same proportion.

Any readjustment of prices necessary under this mechanism will be made concurrently with any adjustment to prices to reflect expenditure on contingent projects.

### ***Conclusions***

Notwithstanding the views of regulators in other jurisdictions, where revenue pass-throughs are either non-existent or more strictly applied, the Commission has decided to allow for two forms of revenue pass-through mechanisms, as described above.

The narrowing of the deadband range and the potential reopening of tariffs for the last two years of the regulatory period will result in reduced revenue risk for ACTEW. As a consequence the Commission now does not propose to adjust the forecast year forecast usage volumes by 3% (as per the draft decision).

The operation of the deadband mechanism and the price adjustment is detailed further in Appendix 1.

Given that the water security measures to be introduced during this regulatory period should result in the easing of restrictions and return ACTEW to a position where water sales volumes are less uncertain, aside from the catch-up in respect of the 2008–09 to 2012–13 regulatory period, the Commission does not anticipate the need for a revenue pass-through mechanism to apply to the regulatory period commencing in 2013–14.

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<sup>88</sup> That is, the difference between revenue earned (\$800 million) and the deadband (\$772.5 million)—(\$750 million x 1.03).



# 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 for both water and wastewater.

A number of issues related to pricing and tariff structures were raised and considered in the Commission's Discussion Paper 3 which was released in August 2007. This paper discussed both the theory and practice associated with issues such as marginal cost pricing and the number and level of blocks. A copy of this paper may be found on the Commission's web site.

## 11.2 Water tariffs

### 11.2.1 Introduction and draft decision

Current pricing arrangements provide for a water tariff with:

- a fixed water supply charge of \$75
- a 77.5 cent variable component for the first 100 kilolitres consumed
- a \$1.67 variable component for consumption above 100 kilolitres and below 300 kilolitres
- a \$2.57 variable component for consumption thereafter.

In addition, water customers pay an additional 64 cents per kilolitre to recover the WAC (55 cents per kilolitre) and NFT (9 cents per kilolitre).

Over the regulatory period the fixed charge has remained constant. However, the volumetric charge has increased. This increase has been greater for the higher usage tiers, as shown in table 11.1.

Table 11.1 ACT water prices (\$ nominal) (excluding WAC and NFT)

Water	2004–05	2005–06	2006–07	2007–08
Fixed \$/pa	75.00	75.00	75.00	75.00
Tier 1 (0–100 kL) \$/kL	0.515	0.58	0.66	0.775
Tier 2 (101–300 kL) \$/kL	1.00	1.135	1.29	1.67
Tier 3 (301 kL+) \$/kL	1.35	1.53	1.74	2.57

ACTEW's original submission advocated the following arrangements for the water tariff structure:

- a single price step at 100 kL 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 100 kL 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
- ACTEW should be permitted to adjust the structure of prices and level of the fixed charge within an overall revenue cap set by the Commission.

After careful consideration of the issue, the draft decision advocated a reduction in the number of tiers from three to two while retaining the overall shape of the tariff structure. The Commission came to this decision after taking into account issues including:

- the trade-off among economic efficiency, equity, and practicality
- the costs and benefits of inclining block tariffs
- the level of fixed charges
- the potential use of price as a demand management tool.

The Commission also agreed to implement daily pricing.

While the Commission recognised the ability of the ACT Government to change the WAC, the Commission did not accept the proposal for ACTEW to use the WAC to complement water restrictions. The Commission did not consider that short term changes in tariffs would be an effective tool to influence demand and bring supply and demand into equilibrium.

In the draft decision, the Commission proposed for 2008–09 the tariff structure for water set out in table 11.2.

Table 11.2 Draft decision—ACT water prices for 2008–09 (\$ nominal)

Water	2008–09
Fixed \$/pa	85.00
Tier 1 (0–200 kL) \$/kL	1.75
Tier 2 (201 kL +) \$/kL	3.50

### 11.2.2 Comments on draft decision

In relation to the structure of tariffs the ESCC generally supported the Commission's proposed tariff structure and suggested that the first pricing tier should occur around 150–200 kL. In contrast, some parties, including Ms Helen Hadobas, suggested that a flat tariff structure should apply to all users, but particularly public and commercial water users.

Several parties, including the ACT Government, ACTEW and the ESCC expressed concern at the Commission's proposal to front-load price increases in the first year of the regulatory period.

In relation to the relative price of the two tiers the ESCC recommended that the Commission test some pricing scenarios which further reduced the price of the first block balanced by an increase in the second block.

ACTEW also proposed a variation on its original proposal to use the WAC as a demand management tool involving the concept of ‘drought pricing’.

The following sections set out the Commission’s final decision on the following key aspects of water pricing:

- the structure of tariffs (number and level of steps/tiers, the level of the fixed tariff, the relative prices of the tariffs and commercial versus residential tariffs)
- contemporaneous pricing for revenue recovery (referred to as ‘drought pricing’)
- daily pricing
- revenue recovery over time (the  $p_0$  and  $x$ -factor).

### 11.2.3 The structure of tariffs

#### *Number of tiers*

In response to the draft decision, there were no objections from stakeholders to moving away from a three-tier volumetric charge. The issue facing the Commission is therefore whether to move to a single volumetric charge or apply a two-tier structure.

As the Commission noted in Discussion Paper 3, a key reason given by regulators for adopting inclining block tariff structures is that they encourage water conservation because they allow for the price of water to increase as consumption increases. In addition, inclining blocks are seen by regulators as being sufficiently flexible to allow them to balance the many competing factors that they must consider when determining water prices. These include, in particular, equity objectives and the need to ensure that customers are able to purchase sufficient water to meet their essential health and hygiene needs.

Stakeholders have divergent views on this matter. Some parties, such as ACTEW and the ESCC, have advocated a two-tier structure. Others, such as Ms Helen Hadobas, the Water Our Garden City group and Dr Terry Dwyer, have advocated a single volumetric tariff, primarily on the grounds of efficiency, but also on the grounds of equity. For example, Ms Hadobas noted that organisations such as the botanic gardens and other similar institutions, as well as large families, are penalised by a multi-tier approach.

In considering this issue, the Commission examined recent water tariff structure decisions by other regulators. In its recent draft decision on Sydney Water’s price path,<sup>89</sup> IPART elected to phase out the existing two-tiered volumetric charge and replace it with a single usage charge. The usage charge will be set so that by the end of the determination period it will be equivalent to the estimated long-run marginal cost (LRMC) of supply. IPART cited a number of reasons for moving to a single usage charge, including:

- The two-tier tariff was introduced in 2005 in a drought when dam levels were falling. This is no longer the case.

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<sup>89</sup> IPART, chapter 10.

- Since tiers are set on a per household basis and not a per capita basis, the tiers are unlikely to accurately target discretionary and non-discretionary use.
- Inclining block tariffs may result in some customers changing their consumption behaviour in response to the higher tier price, even if they are low water users.
- An inclining block tariffs is less efficient than a single usage charge (set at the marginal cost of supply) because it results in at least some consumption being priced at a level either above or below marginal cost.

In contrast, in South Australia, in the face of severe water shortages, SA Water will move from a two-tier to a three-tier volumetric structure in 2008–09. The new tier will apply to single residential customers only and to consumption above 520 kL per annum. The third-tier charge will be \$1.65, which is less than the current estimated LRMC of \$1.90.

In Victoria, most urban water authorities employ an inclining block structure with the three Melbourne retailers each having a three tier volumetric charge for residential customers and a single volumetric charge for non-residential customers.

In a recent report, the Productivity Commission recommended the use of a single usage charge rather than inclining block tariffs. According to the Productivity Commission:

The key problem with IBTs is that different users face different incentives for conserving water, while the value to the system of conserving a unit of water does not normally vary by user. The more users that face a price for their next unit of water different from the marginal cost of supplying it, and the greater the discrepancy, the greater the efficiency losses. Community welfare could be improved by ensuring that all water users paid the same price (unless there are differences in the costs of supplying them).<sup>90</sup>

In considering this issue the Commission has also had regard to the transitionary impact of moving from three blocks to either two or one. As a general rule, reducing the number of blocks will usually result in higher overall increases for bills for low use customers compared to high use customers. Moving to a one block structure will have a greater impact than moving to a two-block structure. The social impacts of these ‘price shocks’, particularly for low users, will be compounded when overall price levels are rising significantly. The Commission’s modelling has confirmed that this will be the case. For example, moving to a single-tier structure will result in 100 kL per annum customers experiencing a 70% increase in their water bill in the first year of the regulatory period.

Therefore, while the Commission considers that there may be benefits in the longer term from moving to a single-tier structure, in the shorter term the social impacts of doing so appear prohibitive. Further, given the current shortage of water in storages, the Commission also considers there will be short-term benefits from retaining a tariff structure with a relatively higher top-tier price. The Commission has therefore decided to confirm its draft decision to move to a two-step inclining block water tariff structure.

### ***Level of the tiers***

Given that the objective of the lower price tier is to provide ‘essential’ water at a relatively lower price, the question arises as to the level at which the tier should be set.

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<sup>90</sup> Productivity Commission, *Towards urban water reform: a discussion paper*, Productivity Commission Research Paper, Melbourne, March 2008, p. 44.

In the draft decision, the Commission proposed that a step at 200 kL would be appropriate. There were few comments from submitters in response to this level, although the ESCC suggested that the first block might be in the vicinity of 150–200 kL. As noted above, ACTEW’s original proposal was for a 100 kL block, based on advice from Access Economics.

The Productivity Commission has noted that if it is deemed desirable for ‘essential’ water to be provided at low price then the volume of the first block should be set sufficiently low such that nearly all users pay the price of the second block at the margin.<sup>91</sup>

Current first-tier blocks in other capital cities include 160 kL in Melbourne, 150 kL in Perth, 255 kL in Brisbane and 125 kL in Adelaide. Sydney Water currently has a first tier block of 400 kL, but will phase out block tariffs over the next regulatory period.

Given that a key objective of the first block is to provide cheaper priced water that is sufficient for householders to meet their essential health and hygiene needs, a key question is how much water is required to meet these needs. As the Productivity Commission has noted, Quiggin has suggested that basic needs are around 50 litres per person per day—around 18 kL per annum.<sup>92</sup> This estimate is substantially lower than other previous estimates such as contained in work by Barrett in 2005 which determined that average indoor household water usage in the ACT was in the range of 170 kL to 200 kL per annum.<sup>93</sup> In its 2004 determination the Commission adopted a figure of 57 kL per person per annum based on Western Australian data, although it is likely that improved consumer attitudes towards water conservation and the increasing use of water efficient appliances have resulted in this figure reducing in recent years.

Of course the issue with providing minimum allowances to represent essential use is that household size varies. In an ideal world different households will be allocated different allowances depending upon the number of residents. However, this will lead to significant administrative complexity and cost. Depending upon the difference in price between the tiers, it may also lead to significant ‘gaming’ by consumers. It is therefore not a practical solution. Further, it is incumbent upon the Commission to err on the higher side when determining the first tier allowance in order to ensure that most large families can fit their consumption within this band

The Commission has therefore decided that a first block of 200 kL is appropriate and sufficient to ensure that the vast majority of residential customers can meet all their basic needs within this block.

### ***Commercial tariffs***

In the draft decision the Commission indicated its intention to maintain the same tariff structure for residential and non-residential customers.

This was despite, as the Commission noted, the fact that the concept of ‘equity’ and discretionary use is not relevant in the non-residential sector. Indeed, as the Productivity Commission has suggested:

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<sup>91</sup> Productivity Commission, p. 45.

<sup>92</sup> J Quiggin, ‘Issues in Australian water policy’, published in *Australian Chief Executive*, Committee for Economic Development of Australia, 2007, pp. 38–47.

<sup>93</sup> G Barrett, *Pricing in response to ACT Government’s per capita demand management targets: report for ACTEW Corporation*, October 2005. As cited by ACTEW.

... the argument that *firms* have a right to the production inputs they need (including water) at a price that guarantee their viability, is untenable in an economy like Australia's. Accordingly, the equity argument for IBTs does not apply to commercial and industrial firms.<sup>94</sup>

However, there are administrative and other practical benefits from applying a uniform residential and non-residential charge. Although an inclining block tariff for commercial users may not be desirable in the long run, in the current environment it plays a useful short-term role in reducing demand. The Commission also notes that in its submission the ACT Government encouraged the Commission to ensure that pricing for high-volume commercial customers provided signals for the commercial sector to invest in facilities that reduce reliance on potable water.

Finally, the Commission notes that large industrial use of water in the ACT is minimal compared to that in other capital cities.

The Commission has therefore chosen to maintain the same tariff structure for residential and non-residential customers.

### ***Relative price of the tiers***

As the Commission noted in its draft decision, ACTEW's current tariffs are characterised by a top-tier price that is 3.3 times higher than the bottom tier price excluding the WAC and NFT, and 2.3 times higher than the bottom tier price including the WAC and NFT. This ratio is much greater than that which applies to prices for comparative volumes in other jurisdictions. This differential attracted criticism from parties concerned about the equity of the impact on larger users.

In the draft decision the Commission proposed to set the top-tier price at twice the level of the bottom-tier price. No comments were received on this approach, other than from the ESCC, which requested the Commission test some pricing scenarios which reduce the relative price of the first block and increase the relative price of the second block. The Commission has undertaken the analysis requested but is concerned at the resultant high price increases for large users, both in percentage and absolute terms.

The Commission therefore confirms its view that the top-tier price should be twice that of the bottom-tier price.

### ***The fixed charge***

In the draft decision the Commission proposed to set the fixed charge at \$85 in 2008–09 (in nominal terms).

There were no objections from stakeholders to this proposal and the Commission therefore confirms its position in this draft decision.

## **11.2.4 Drought/scarcity pricing**

In its February 2008 submission ACTEW suggested that the Commission investigate the development of a drought pricing/scarcity scheme.<sup>95</sup> ACTEW noted that:

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<sup>94</sup> Productivity Commission, p. 45.

<sup>95</sup> This approach differs from that outlined in ACTEW's original submission which suggested that the level of the WAC might be linked to dam levels.

In its most simple form, higher prices of water could be applied to all users when dam levels fell below specific trigger levels. The trigger levels and prices would be announced in advance so that price expectations would be tied to an objective fact before the event was triggered.<sup>96</sup>

According to ACTEW, its drought pricing proposal would have a number of benefits:

- making the current *effective* drought price (whereby prices are increased following a revenue shortfall from restrictions in line with ACTEW's revenue cap) considerably more transparent to customers, providing a more immediate price signal of the need to reduce consumption
- providing additional incentive to save water in areas not currently captured by behavioural water restrictions (for example, commercial usage)
- providing an additional enforcement mechanism for behavioural restrictions, particularly in helping to eliminate some of the perverse incentive that can arise from behavioural restrictions
- beginning to create a perception, in customers' eyes, of the link between shortages and increased costs of water
- providing a transition to longer term approaches to drought demand management.

The idea of scarcity pricing has received considerable interest recently with the Productivity Commission issuing a recent report on urban water reform.<sup>97</sup> In this report the Productivity Commission noted that water restrictions were inequitable and that the 'hidden costs' of restrictions are high. The Productivity Commission has recommended that strong consideration be given to arrangements which increase prices during times of scarcity in order to balance supply and demand. A simple example would be to substitute higher prices for water restrictions. That is, instead of introducing water restrictions, as has traditionally been the case, the volumetric charge would increase to achieve an equivalent fall in use.

The Productivity Commission noted that the advantages of such an approach are that users can make their own water use decisions. Customers have the incentive to reduce water use in whatever ways they find least costly. While restrictions result in irrecoverable time and inconvenience costs, using higher prices in times of scarcity results in financial costs to water users that are transferred to water utilities or governments. That is, costs are recovered and can be used in ways that benefit the community.

Other submitters have also advocated the use of market-based instruments as a way of allocating scarce water and as an alternative to restrictions. The Horticultural Society of Canberra (HSOC) noted the severe impact that the imposition of Stage 4 restrictions might have on householders and Canberra in general. Similar to the Productivity Commission, the HSOC advocated the use of market forces for water pricing and noted that in times of shortages:

Rising prices would at such times be a more efficient and equitable method than restrictions for determining the distribution of scarce water, because they would directly increase incentives to economise on water and also give those who place a higher value on water opportunities to buy it and use it in accordance with their own priorities.<sup>98</sup>

Mr Kevin Cox provided the Commission with a submission in which he outlined the benefits of his proposal to introduce a 'rewards' scheme, whereby the revenue raised from any price increases is returned to customers in the form of rewards. Under Mr Cox's proposal all ACTEW users would be initially provided with an allocation of water based on their characteristics but based on a 'per

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<sup>96</sup>ACTEW, *Response to the draft decision on prices for water and wastewater services in the ACT*, pp. 14–17.

<sup>97</sup>Productivity Commission.

<sup>98</sup>Horticultural Society of Canberra Incorporated, Submission to the draft report, 29 January 2008, pp. 12–13.

head' allowance for residential customers and best practice usage for other users. Customers that use less water than their allocation could earn rewards in the form of vouchers that can only be spent on approved ways of saving or increasing water supply, including investment through ACTEW. Any organisation or individual wishing to increase supply or save water could compete with ACTEW for funds from rewards holders. Rewards recipients would be free to choose which of the available infrastructure projects they invest their rewards in and any income from these investments would be returned to the rewards investor.

The Commission considers that each of the market-based arrangements suggested above as alternatives or complements to water restrictions do have some merits. However, there are also a number of practical issues and concerns with their implementation. For example, the Productivity Commission noted the following broad difficulties and disadvantages of scarcity pricing:

- It can be difficult to estimate accurately the appropriate scarcity charge.
- Scarcity-based pricing might simply provide excess revenue to water utilities.
- There are likely to be equity concerns regarding low income households facing higher prices in times of scarcity.
- Price volatility would increase and many water users may find this undesirable. It is more difficult to make appropriate investment decisions in such circumstances.
- Communicating prices to customers is important and current metering and billing arrangements can mute price signals.

Other specific schemes will have their own disadvantages and difficulties. To take Mr Cox's proposal as an example, it first requires water to be allocated to users. This would be a significant exercise. Further problems arise in cases where consumers are not individually metered. According to Mr Cox an independent organisation would need to be established to run Water Rewards, which would generate transaction costs. Finally, it is not clear whether under the Utilities Act and ICRC Act that ACTEW would be permitted to increase prices on the proviso that revenue be distributed to a rewards system.

This is not to suggest that Mr Cox's scheme does not have merit: rather it illustrates that there are complex practical, equity, administrative and legal issues associated with the introduction of any type of scarcity pricing.

The Commission notes that ACTEW's own proposal is based more around the concept of full revenue recovery rather than 'efficient' scarcity pricing. Under ACTEW's proposal, drought pricing would be in addition to restrictions, rather than as an alternative to them. Prices would not change to reflect the opportunity cost of water or to balance supply and demand, but rather would be amended to a point where ACTEW recovered its forecast revenue.

ACTEW engaged consultants from the Centre for International Economics to assist it to develop its drought pricing proposal. The Commission met with ACTEW and the consultants to discuss the scheme in March 2008 and how it might operate. The Commission considered that there might be a number of benefits from the scheme. However, ultimately the Commission had concerns that a number of the important details of the scheme had not been sufficiently developed and would prove problematic to resolve, including:

- defining the 'trigger points' and frequency at which higher or lower prices would commence
- identifying the change in prices that would be required to achieve revenue neutrality.

Given its concerns over these key practical issues the Commission has therefore decided it is inappropriate to adopt any form of scarcity or drought pricing as part of this price determination.

### 11.2.5 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. At present the annual approach is used. 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 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 draft decision the Commission indicated its intention to accept ACTEW's proposal to apply daily pricing, noting that:

- 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
- Current arrangements, which result in an effective reduction in price between the last bill of one financial year and the first bill of the next, may prove confusing.

No comments were received from stakeholders in relation to the introduction of daily pricing. The Commission therefore confirms its decision that daily pricing will proceed from 1 July 2008.

The Commission expects ACTEW to implement daily pricing from 1 July 2008. This implies that for the billing cycle that takes place between 1 July and 30 September 2008, consumption that is deemed (pro rata) to have taken place in 2007–08 will be based on the daily rather than the annual pricing approach. 2007–08 consumption billed in 2008–09 will be charged according to steps of 274 L/day and 822 L/day ('average daily' versions of the current annual price steps).

### 11.2.6 Calculation of prices—initial price increase and X factors

The draft decision provided for a once-off increase in the overall real level of both water and wastewater charges in 2008–09, with tariffs to move by CPI for the remainder of the regulatory period. This effectively 'front-ended' the price increases.

In response to the draft decision several parties expressed concern with this approach. The ACT Government submitted that ACT households on fixed or low incomes would find it easier to deal with a gradual price increase over the five year period rather than a significant once-off increase followed by more moderate CPI based changes. ACTEW indicated that:

The indicative prices set out in the draft decision involve a substantial price shock for consumers at the outset of the period. Also, the price increases would occur in advance of realisation of customer benefits in terms of improved water supply security.<sup>99</sup>

The Commission acknowledges these concerns and, in recognition that the overall price increases set out in this final decision are greater than in the draft decision, has attempted to spread the price changes more evenly across the regulatory period. However, in doing so, the Commission has still applied a more substantial real price increase in 2008–09 than in the other years on the basis that:

- If price increases are spread more evenly across the regulatory period, then the need to ensure that ACTEW recovers the NPV of its total revenue requirement will result in relatively higher prices at the end of the regulatory period. This in turn may cause a sharp price fall between the end of the next regulatory period and the start of the subsequent one.
- A higher initial price increase will assist ACTEW to meet its heavy funding requirements associated with its capital works program in 2008–09 and 2009–10.
- Higher prices in the first year will help minimise the impact of the more uncertain usage volumes in the initial years of the regulatory period before the Cotter Dam and Murrumbidgee to Googong projects are constructed.

This results in the tariffs set out in table 11.3. The tariff increase in 2008–09 will differ quite widely according to usage. Details are set out in chapter 12. However, water bill increases will be between approximately 2% and 25% for customers using between 100 kL and 300 kL per annum. After 2008–09, all prices will change by CPI + 1% each year.

These price increases are primarily caused by three factors:

- a tripling in ACTEW’s capital program from \$169 million in the current (four-year) regulatory period to \$518 million in the forthcoming (five-year) regulatory period
- an increase in the cost of capital from the 7.0% in the current period to 7.27% in the next regulatory period
- an amount of almost \$50 million in cost pass-throughs and revenue catch-ups flowing through from the current regulatory period.

Table 11.3 Final decision—ACT water prices for 2008–09 to 2012–13

Water	2008–09	2009–10 to 2012–13 annual increase
Fixed \$/pa	85.00	CPI + 1%
Tier 1 (0–200 kL) \$/kL	1.85	CPI + 1%
Tier 2 (201 kL +) \$/kL	3.70	CPI + 1%

Daily billing will apply to all consumption billed on or after 1 July 2008. Water billed after 1 July 2008, but deemed to have been consumed prior to 1 July 2008, will attract the 2007–08 water abstraction charge and recovery of utilities network facilities tax in addition to the following volumetric charge:

- for the first 0.274 kilolitres supplied on average per day of the billing period—\$0.775/kL plus

<sup>99</sup> ACTEW, *Response to the draft decision on prices for water and wastewater services in the ACT*, p. 10.

- for all water supplied between 0.274 kilolitres on average per day and 0.822 kilolitres on average per day of the billing period—\$1.67/kL

plus

- for all water supplied in excess of 0.822 kilolitres on average per day of the billing period—\$2.57/kL

## 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. No volume or strength based charges apply. In addition, customers pay an additional \$18 per year and \$18 per fixture in 2007–08 network facilities tax for wastewater, which appears as a separately listed item on their water and wastewater bills.

### 11.3.2 Draft decision

The draft decision identified and discussed a number of disadvantages of the current fixed charge wastewater tariff. These included:

- Tariffs do not distinguish between customers that produce large amounts of wastewater and those that produce a small amount.
- The non-residential per fixture charge was a poor proxy for the volume and strength of discharge.

The draft decision also noted that ACTEW had highlighted a number of possible alternative pricing arrangements with regard to wastewater but had presented no firm reform proposals to the Commission. This meant that there would be insufficient time available to review and appropriately consult on any wastewater tariff proposal received by ACTEW before the final decision. The Commission therefore reluctantly decided to defer any consideration of new wastewater pricing arrangements until the next regulatory period.

The Commission’s draft decision therefore proposed a once-off real increase in wastewater tariffs in 2008–09, with charges to increase by CPI for the remainder of the regulatory period.

Table 11.4 Draft decision—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

### 11.3.3 Response to the draft decision

In response to the draft decision, the Commission received submissions from ACTEW and Mr Nicholas Mayo.

ACTEW's submission expressed disappointment that wastewater tariffs would be locked in for five years. ACTEW noted its 'long standing plan to reduce the emphasis on fixtures-based charging and incorporate volumetric and strength components'<sup>100</sup> and that the Commission's decision would prevent further tariff reform.

Mr Mayo found the Commission's decision to defer any consideration of revised wastewater tariff structures until the next regulatory period unsatisfactory and contrary to best practice. Mr Mayo also provided further comment on an issue raised in his earlier submission regarding the ability of ACTEW to levy wastewater charges on a property that is no longer connected to the wastewater system.

### **11.3.4 Discussion**

#### ***Reform of the wastewater tariff structure***

Although ACTEW may have had a 'long standing plan' to amend the wastewater tariff structure, it has not presented this structure for the Commission or stakeholders to consider. This is despite the Commission signalling the need for reform in its 2004 determination. As discussed in the draft decision, the Commission does not consider it is appropriate to introduce new tariff structures in the absence of full public consultation regarding the changes. The Commission has therefore, somewhat reluctantly, elected to maintain the existing wastewater tariff structure for the forthcoming regulatory period.

The Commission looks forward to a detailed plan for reform of the wastewater tariff system being presented by ACTEW as part of its submission on regulatory arrangements for the regulatory period commencing in 2013–14.

#### ***Charging for non-connected properties***

The original submission from Mr Mayo (and Ms Sarah Clayton) argued that as owners of Canberra's Sustainable House—which has its own stand-alone water and wastewater system and hence has been disconnected from ACTEW's network—they should not be liable for the service charge for either water or wastewater services.

The Commission advised in the draft decision that it was seeking legal advice prior to responding on this matter.

A subsequent submission from Mr Mayo reiterated the view that 'the current situation of water and wastewater services being charged and delivered by a monopoly utility with possible legislative backing ... is both untenable and unsustainable'. Mr Mayo argued that there was no 'financial incentive for others wishing to reduce their environmental footprint' by being self-sufficient in terms of water collection and disposal.

Mr Mayo further advised that the Commission's decision not to comment on the legality of levying service charges on Canberra's Sustainable House until the final decision did not provide any opportunity for appropriate consultation or public comment.

As foreshadowed in the draft decision, the Commission sought legal advice on ACTEW's right to charge service fees to Canberra's Sustainable House. The legal advice received by the Commission

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<sup>100</sup> ACTEW, *Response to the draft decision on prices for water and wastewater services in the ACT*, p. 8.

confirms that ACTEW is within its legal rights to levy such a charge, even if the customer is not connected to the water or wastewater network.

Specifically, the legal advice cited paragraph 92(1)(b) of the Utilities Act, which reads:

- (1) The terms on which a utility may provide a utility service to a person are-
  - (b) ...the terms of the standard customer contract for the provision of the service by the utility that apply-
    - (i) when the person applies to the utility for the service on those terms
    - or
    - (ii) when the service is provided by the utility to the person in the absence of an application by the person.

Importantly, both Section 11 and 13 of the Utilities Act include in the definition of a utility service a provision that makes the making the water and sewerage network available a utility service. Although a property may be disconnected from both the water and sewerage network, either in a situation where the property owner has elected not to be connected or the house is not yet built, ACTEW Corporation has made available the networks for the provision of those services to the property if required at any later date. Therefore, the Commission's legal advice indicated that by virtue of the fact that ACTEW was making the water and sewerage network available, it has the legal right to charge a service fee.

The Commission notes that, for largely historic reasons, this outcome is not consistent with the manner in which services such as electricity and gas are charged. Electricity and gas customers who choose not to connect to the relevant infrastructure do not receive any service charge, even if the infrastructure is available to the customer.

The provision in the Utilities Act also does not accord with a 'user pays' philosophy or provide financial incentives for environmentally sustainable development with respect to customers who are able to source their own water or provide their own wastewater treatment (subject to meeting appropriate health and environmental safeguards). With environmental management, and water management in particular, becoming an increasingly important issue for government, industry and residents, outcomes that hinder environmentally friendly investment may require revision.

The Commission notes that Sydney Water does not levy a service charge in the case of properties that disconnect from its water or wastewater system.

The Commission therefore recommends that the ACT Government closely consider amending the Utilities Act to promote more environmental sustainable management through the reduction or removal of service charges to unconnected properties.

### **11.3.5 Final decision—wastewater tariffs**

The Commission's final decision in relation to wastewater prices in the forthcoming regulatory period is set out in table 11.3. Consistent with the total revenue requirement set out in section 10.2, tariffs will increase by 7.3% in nominal terms in 2008–09 and then by CPI + 4.76% each year.

In arriving at these prices the Commission has acknowledged the concerns expressed in response to the draft decision that front-ending price increases is not appropriate. Unlike water tariffs there is no benefit from front-loading price changes in the case of wastewater.

Table 11.5 Final decision—ACT wastewater charges

Wastewater	2008–09	2009–10 to 2012–13 annual increase
Service charge (\$/pa)	443.82	CPI + 4.76%
Fixtures charge for non-residential properties (fixture/pa)	434.04	CPI + 4.76%

An analysis of the impact of these tariffs on customers and ACTEW is set out in chapter 12.

## 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 tariffs determined by the Commission for 2008–09.

Table 12.1 2007–08 and proposed 2008–09 water prices (\$ nominal)

	2007–08		2008–09
Fixed \$/pa	75.00	Fixed \$/pa	85.00
Tier 1 (0–100 kL) \$/kL	1.145	Tier 1 (0–200 kL) \$/kL	1.85
Tier 2 (101–300 kL) \$/kL	2.31	Tier 2 (201 kL+ ) \$/kL	3.70
Tier 3 (301 kL+ ) \$/kL	3.21		

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

- the increase in average revenue that ACTEW may recover and consequent increase in the level of prices, as set out in chapter 10
- the proposed changes to the water tariff structure set out in chapter 11
- the introduction of daily pricing.

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) \$	Increase over 2007–08 (constant usage) %	2008–09 combined bill (seasonal usage) \$	Increase over 2007–08 (seasonal usage) %
0	75.00	85.00	13.3	85.00	13.3
50	145.75	177.50	21.8	177.50	21.8
100	216.50	270.00	24.7	270.00	24.7
150	332.00	362.50	9.2	362.50	9.2
200	447.50	455.00	1.7	516.67	15.5
250	563.00	640.00	13.7	670.83	19.2
300	678.50	825.00	21.6	825.00	21.6
350	839.00	1,010.00	20.4	1,010.00	20.4
400	999.50	1,195.00	19.6	1,195.00	19.6
500	1,320.50	1,565.00	18.5	1,565.00	18.5
750	2,123.00	2,490.00	17.3	2,490.00	17.3
1000	2,925.50	3,415.00	16.7	3,415.00	16.7
2000	6,135.50	7,115.00	16.0	7,115.00	16.0
5000	15,765.50	18,215.00	15.5	18,215.00	15.5
10000	31,815.50	36,715.00	15.4	36,715.00	15.4

The constant usage is the current usage pattern whereby the rate is applied to the consumption within the bandwidth each quarter. If the consumption within a quarter crosses over to the next bandwidth, the consumption over the first tier is billed at the higher rate in the next bandwidth. However with the seasonal usage, the consumption is billed on a quarterly basis based on an annualised level of consumption. In effect, this means that once a customer exceeds 548 litres in average daily usage over a quarter, the additional consumption will be billed at the higher tariff rate for purposes of the estimates provided in table 12.2. The spring and summer consumption is double the winter and autumn consumption level. For example, if the consumption in winter was 100 kL, the spring and summer bills will be based on 200 kL of consumption

As can be seen in table 12.2, customers who consume around 200 kL per year will experience a moderate increase in their water bills in 2008–09 of about 15%. Some customers will experience increases of up to 25%. The greatest increase will be for customers with a consumption level of around 100 kL per annum as a result of the removal of the existing cheapest price tier.

Larger (more than 500 kL) users will experience increases of 15–18%.

For the remaining four years of the price direction water customers will face a 1% real increase in their water bills per annum if their water consumption remains unchanged.

### 12.1.2 Wastewater bills

The Commission’s final decision will result in a 7.3% nominal increase in customer bills in 2008–09. After 2008–09 wastewater bills will rise by CPI + 4.76%, whereas the water bills will rise by CPI + 1%.

### 12.1.3 Combined water and wastewater bills

While table 12.2 shows customers who consume around 200 kL per year will experience a moderate increase in their water bills in 2008–09 of about 15%, the combined bill table 12.3 for the same period shows an increase of only about 9%.

The combined bill for larger users (more than 300 kL) will experience increases of about 14–15%.

Table 12.3 Changes in residential combined water and wastewater bills, including WAC and NFT

Current consumption kL	2007–08 combined bill \$	2008–09 combined bill (seasonal usage) \$	Increase in combined bill %
0	506.76	528.82	4.4
50	577.51	621.32	7.6
100	648.26	713.82	10.1
150	763.76	806.32	5.6
200	879.26	960.49	9.2
250	994.76	1,114.65	12.1
300	1,110.26	1,268.82	14.3
350	1,270.76	1,453.82	14.4
400	1,431.26	1,638.82	14.5
500	1,752.26	2,008.82	14.6
750	2,554.76	2,933.82	14.8
1000	3,357.26	3,858.82	14.9
2000	6,567.26	7,558.82	15.1
5000	16,197.26	18,658.82	15.2
10000	32,247.26	37,158.82	15.2

### 12.1.4 Commercial combined water and wastewater bills

Table 12.4 shows that the minimum increase for combined water and wastewater for commercial customers is about 4% at the 1,000 kL of consumption and with 100 fixtures. The maximum increase of about 14% is at the 10,000 kL of consumption and with 10 fixtures. The percentage increase is highest with 10 fixtures at all the three levels of consumption, while the lowest levels of increases are with 100 fixtures at all three levels of consumption. This is due to the fact that the increase in wastewater charges is lower than the increase in water charges for large water users.

Table 12.4 Changes in commercial combined water and wastewater bills, including WAC and NFT

Current consumption kL	Fixtures no.	2007–08 combined bill \$	2008–09 combined bill \$	Increase over 2007–08 %
1,000	10	7,583.66	8,199.22	8.1
1,000	50	24,489.26	25,560.82	4.4
1,000	100	45,621.26	47,262.82	3.6
5,000	10	20,423.66	22,999.22	12.6
5,000	50	37,329.26	40,360.82	8.1
5,000	100	58,461.26	62,062.82	6.2
10,000	10	36,473.66	41,499.22	13.8
10,000	50	53,379.26	58,860.82	10.3
10,000	100	74,511.26	80,562.82	8.1

## 12.2 Concessions

### 12.2.1 Introduction

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—notably holders of Centrelink Pensioner Concession Cards, Department of Veterans’ Affairs pension concession cards and gold cards—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 that depends on a fresh supply of water are eligible for a reduction in water usage charges.
- Schools and ecclesiastical properties receive a 50% discount on the volumetric charge that applies for consumption above 175 kL. The full cost of these concessions is reimbursed to ACTEW by the government.

### 12.2.2 Draft decision

In the draft decision the Commission noted comments from the ESCC 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.
- The effect of the WACC should be wholly offset within the water/wastewater rebate.

The Commission also commented that despite the ACT Government’s commitment in its 2004 social plan, no changes have been made to the concessions scheme since the 2004 price direction and the Commission was concerned that the current level of water and wastewater concessions in the ACT is inadequate.

- The Commission also noted that 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 an outcome of increasing volumetric charges relative to fixed charges, and has been exacerbated by increases in the WAC and the imposition of the NFT. The Commission noted that the 2007–08 water rebate represents only 9% of a 250 kL customer’s water bill, compared to 26% in 2003–04.

As a result, the draft decision recommended to the government that as part of the Department of Disability, Housing and Community Services’ (DHCS) current review of concessions the government strongly consider:

- 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.

### 12.2.3 Response to the draft decision

The Hon. Jon Stanhope responded to the draft decision on behalf of the government, advising that concerns raised by the Commission in its draft report have been noted and that ‘the Government is already working to ensure that the financial impact on pensioners and other low income groups will be mitigated’.<sup>101</sup> Mr Stanhope advised that the government’s review was focused on administrative arrangements for concessions and that a report on the review will be considered by the government in early 2008.

The ESCC made a presentation at the public forum, and subsequently provided the Commission with a written response to the draft decision. In relation to concessions the ESCC indicated that it is essential that the value of the water/wastewater concession be increased and extended to include Health Care Card holders. The ESCC recommended that the concession be set at 100% of the combined water/wastewater fixed charge.

The ESCC also indicated that because the Residential Tenancy Act specifies that water and wastewater fixed fees must be paid by the lessor (only variable charges can be passed through) there is no need to extend the concession to tenants. The ESCC also indicated that one important gap in the current arrangements is that tenants who cannot pay the variable charges cannot access ESCC support as there is no direct contractual relationship between ACTEW and the tenant.

## 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 community service obligations.

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<sup>101</sup> J Stanhope MLA, *ACT Government submission to the Independent Competition and Regulatory Commission water and wastewater draft price review*, p. 1.

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. Compliance with individual requirements of the NWI is detailed in table 12.5.

**Table 12.5 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))	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.  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 WAC is not retained by ACTEW but passed to the government).
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))	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.  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.
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)  Public reporting on cost recovery for water planning and management (paragraph 68)	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.  Prices also reflect ongoing catchment management and remediation costs required to be undertaken by ACTEW in response to the 2003 bushfires.  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.
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 12.6 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 & Poor's and the New South Wales Treasury.

The calculation and assessments are those of the Commission and not Standard & Poor's. The actual rating process used by Standard & Poor's is very broad, involving subjective judgements of industry risk and cost structures, not just financial ratios. Standard & 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 & 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 & Poor's.

As indicated in table 12.6, 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 & 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 12.6 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	6.3	4.7	3.5	3.4	3.4
NSW Treasury rating (2002)	AAA	AAA	A+	A+	A+
Funds from operations interest coverage	5.6	3.7	2.7	2.9	2.8
Standard & Poor's—US Utilities (2003)	AA	AA	A	A	A
Pre-tax interest coverage	4.7	3.5	2.6	2.5	2.5
Standard & Poor's—US Utilities (2003)	AA	AA	A	A	A
<b>Ability to repay debt</b>					
Funds flow net debt payback	3.61	5.08	5.68	5.66	5.37
NSW Treasury rating (2002)	A+	BBB+	BBB	BBB	BBB+
Funds from operations/total debt	19%	12%	10%	11%	12%
Standard & Poor's—US Utilities (2003)	A	BBB	BB	BBB	BBB
(Net debt)/(regulatory value of fixed assets + working capital)	32%	39%	40%	39%	37%
NSW Treasury rating (2002)	AA+	AA+	AA+	AA+	AA+
Standard & Poor's—US Utilities (2003)	AA	AA	AA	AA	AA
<b>Ability to finance investment from internal sources</b>					
Internal financing ratio	23%	21%	59%	75%	181%
NSW Treasury rating (2002)	B	B	BBB	A	AAA
Net cash flow/capital expenditure	28%	18%	43%	71%	168%
Standard & Poor's—US Utilities (2003)	BB	< BB	BBB	A	AA
<b>NSW Treasury total score (0–10)</b>					
NSW Treasury total score (0–10)	6.5	6.00	6.00	6.50	7.75
Overall rating	A	A	A	A	A+

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. EBITDA 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: 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, maintain and enhance environmental, amenity, recreational and designated use values, and 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. Progress towards achievement of this target is discussed in chapter 5.

### 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 were first introduced in March 2006 and apply at all times when temporary restrictions are not in place. Among 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
- 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 7–10 a.m. and 7–10 p.m. 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 7–10 a.m. and 7–10 p.m. 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.

At the date of this report 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>102</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
- a range of regulations to support more water efficient use of water in the home and garden.

In the draft decision the Commission noted a submission from the O’Malley Park Executive Committee criticising the ACT Government and ACTEW’s efforts to encourage reduced water consumption through means other than pricing and restrictions. The Commission agreed with several of the Committee’s concerns and noted that:

- Despite water restrictions currently being more severe than in 2004, of the measures offered to customers at that time, 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.

The Commission did not receive any submissions directly addressing these points. However, the ACT Government noted that demand management is an important tool in minimising water use and that a review of current demand management measures was underway.<sup>103</sup>

The Government also noted that it would welcome it if the Commission’s final report included an examination of how the proposed pricing structure impacts on high-volume commercial water users, particularly to ascertain whether it provides adequate signals to invest in facilities that reduce reliance in potable water. While the Commission’s timeframes and resources have not enabled a detailed review of the effectiveness of price signals to occur, the Commission notes that the prices contained in this final decision provide a stronger signal for large businesses to conserve water than currently exists and a stronger signal than in any other capital city. However, the Commission notes that successful programs to reduce water use by large commercial users in other capital cities have generally come from specific programs and partnerships that have a strong information and education component to complement pricing effects. These include the ‘Top 200’ program in Melbourne and the ‘Every Drop Counts’ program in Sydney.

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<sup>102</sup> ACT Government, *Think water, act water*, summary, p. 2.

<sup>103</sup> J Stanhope MLA, *ACT Government submission to the Independent Competition and Regulatory Commission water and wastewater draft price review*, p. 2.

### 13.2.3 Water reuse and recycling

The ACT has a target of increasing the use of reclaimed water to 20% by 2013.<sup>104</sup> However, as *Think water, act water* notes, this target is challenging and broad-scale opportunities for using 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 currently has two major water recycling projects—at Southwell Park and North Canberra. The Southwell Park project is a water-mining 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 achieve the 20% recycling target set out in *Think water, act water*.

Prior to releasing the draft decision 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.

As discussed in chapters 6 and 7 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. However, as discussed in chapter 7, the Commission considers that the costs and benefits of a water purification plant need to be carefully considered before any decision is made regarding construction of such a plant.

## 13.3 Environmental obligations

### 13.3.1 Effluent discharges

Key environmental standards are established for ACTEW's operations in accordance with the ACT *Environment Protection Act 1997* and the Environment Protection Regulation 2005. 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 1990* 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

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<sup>104</sup> ACT Government, *Think water, act water*, report, vol. 1, p. 36.

licence conditions is generally high. ACTEW makes data on its performance available on its website on a monthly basis.<sup>105</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. Among other things, this will allow improved ammonia and nitrogen management capacity. Nitrogen levels have been nearing licence limits in the last 12 months.

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 final 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 is 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 final decision, which has been made with due regard to the principles of ecologically sustainable development, will contribute towards positive outcomes for the environment.

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<sup>105</sup> Other performance information, including in relation to water quality, is also available on the website.



# Appendix 1 Final Price Direction

## 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 (see clauses 3.1 and 5 to 9)
- the provision of wastewater services by ACTEW (including the availability of supply) to domestic, commercial, and industrial premises (see clauses 3.2 and 5 to 9)
- miscellaneous services provided by ACTEW (see clause 3.3), 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 (see clause 4)
- the provision of trade waste services (see clause 3.2) and reuse water by ACTEW (see clause 4).

## 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.

Table A1.1 Water services—charges, regulatory period

	2008–09	2009–10 to 2012–13
Fixed charge \$/pa	85.00	$p_t = p_{t-1} \times (1 + x + CPI_t)$
Volumetric charge (\$/kL)		
Tier 1 (0–548 litres/day)	1.85	$p_t = p_{t-1} \times (1 + x + CPI_t)$
Tier 2 (above 548 litres/day)	3.70	$p_t = p_{t-1} \times (1 + x + CPI_t)$

Where:

$p_t$  is the price to be charged for the relevant service in the next regulatory year

$p_{t-1}$  is the price charged for the relevant service in the current year

$x$  is 1%

$$CPI_t = \frac{CPI_{\text{March}(t-2)} + CPI_{\text{June}(t-2)} + CPI_{\text{Sept}(t-1)} + CPI_{\text{Dec}(t-1)}}{CPI_{\text{March}(t-3)} + CPI_{\text{June}(t-3)} + CPI_{\text{Sept}(t-2)} + CPI_{\text{Dec}(t-2)}} - 1$$

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 Commission that is its best estimate of the index.

Under the daily pricing arrangements agreed by the Commission all water billed after 1 July 2008 will be billed on a daily basis. Water billed after 1 July 2008, but deemed to have been consumed prior to 1 July 2008, will attract the 2007–08 water abstraction charge and recovery of utilities network facilities tax in addition to the following volumetric charge:

- for the first 0.274 kilolitres supplied on average per day of the billing period—\$0.775/kL

plus

- for all water supplied between 0.274 kilolitres on average per day and 0.822 kilolitres on average per day of the billing period—\$1.67/kL

plus

- for all water supplied in excess of 0.822 kilolitres on average per day of the billing period—\$2.57/kL

### 3.2 Wastewater services

The price to be charged for wastewater services in each year of the regulatory period is set out in the table below. Charges for trade waste will be developed during the upcoming regulatory period.

Table A1.2 Wastewater services—charges, regulatory period

	2008–09	2009–10 to 2012–13
Fixed charge	443.82	$\mathbf{p}_t = \mathbf{p}_{t-1} \times (\mathbf{1} + \mathbf{x} + \mathbf{CPI}_t)$
Per fixture charge (for more than two fixtures)	434.04	$\mathbf{p}_t = \mathbf{p}_{t-1} \times (\mathbf{1} + \mathbf{x} + \mathbf{CPI}_t)$

Where:

$\mathbf{p}_t$  is the price to be charged for the relevant service in the next regulatory year

$\mathbf{p}_{t-1}$  is the price charged for the relevant service in the current year

$\mathbf{x}$  is 4.76%

$\mathbf{CPI}_t$  is as defined in 3.1.

### 3.3 Miscellaneous services

#### 3.3.1 Prices

The price to be charged for each miscellaneous service in each year of the regulatory period, including 2008–09, is to be calculated in the following manner:

$$\mathbf{p}_t = \mathbf{p}_{t-1} \times (\mathbf{1} + \mathbf{CPI}_t)$$

Where:

$\mathbf{p}_t$  is the price to be charged for the relevant service in the next regulatory year

$\mathbf{p}_{t-1}$  is the price charged for the relevant service in the current year

$\mathbf{CPI}_t$  is as defined in 3.1.

Prices should be rounded to the nearest dollar GST inclusive.

#### 3.3.2 New miscellaneous services

Should ACTEW wish to introduce a new miscellaneous service during the regulatory period, ACTEW must to make an application to the Commission and provide the following information:

- a description of the new miscellaneous service
- the reasons for the introduction of the new miscellaneous service
- the terms and conditions which will apply to the provision of the new miscellaneous service
- the direct efficient costs of providing the new miscellaneous service
- a forecast of the annual volume of sales of the new miscellaneous service
- the proposed price for the new miscellaneous service for the first year it is in place.

The Commission will consider ACTEW's submission and have regard to:

- whether the expenditure and/or revenue associated with the miscellaneous service have already been taken into account in specifying the prices to apply under this determination
- whether the proposed price provides for a sustainable revenue stream that does not reflect inefficient expenditure and reflects the costs of providing the miscellaneous service
- any other relevant matter.

The Commission may request that ACTEW:

- provide any additional information specified by the Commission
- resubmit any price proposed by ACTEW for a new miscellaneous service.

The Commission will notify ACTEW of its decision whether or not to approve the proposed price submitted for the new miscellaneous service, together with the details of the timing of the introduction of the price for the new miscellaneous service and any terms and conditions which will apply to its introduction or provision.

The Commission will provide ACTEW with this notification within ten business days of ACTEW's submission, or later if any additional information is provided by ACTEW. In the event that no additional information is sought from ACTEW, if the Commission does not formally advise ACTEW of its decision within ten business days, ACTEW's proposal will be deemed to be approved and ACTEW may commence charging for the new miscellaneous service as per its proposal.

### **3.3.3 Removing a miscellaneous service**

Should ACTEW wish to remove a miscellaneous service, ACTEW must provide to the Commission:

- a description of the miscellaneous service to be removed
- reasons for the removal of the miscellaneous service
- the proposed date of the removal of the miscellaneous service.

The Commission will notify ACTEW of its decision whether or not to approve the removal of the miscellaneous service. The Commission will provide ACTEW with this notification within ten business days of ACTEW's submission, or later if any additional information is provided by ACTEW. In the event that no additional information is sought from ACTEW, if the Commission does not formally advise ACTEW of its decision within ten business days, ACTEW's proposal will be deemed to be implicitly approved and ACTEW may remove the new miscellaneous service as per its proposal.

## **4. Bulk water and reuse water**

ACTEW must provide bulk water and reuse 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.

- 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 regulatory years 2009–2010 to 2012–13) ACTEW must provide the following to the Commission:

- proposed tariffs for the services which are subject of 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
- 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 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 April each year 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 the tariffs will remain at their existing 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 one of the following:

- a change in taxes event
- a major natural disaster event
- a contingent capital expenditure project
- a subvention payment event
- a service standards 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 on or payable directly or indirectly by ACTEW to any authority of the Commonwealth of Australia or the government of the ACT, including a 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 Major natural disaster**

A major natural disaster event is 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 Contingent capital expenditure project

A contingent capital expenditure project event occurs when ACTEW is instructed by the ACT Government to begin work on one or both of the following two projects:

- the purchase and transfer of water from the Tantangara Reservoir
- the construction of a water purification plant.

### 6.4 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	Subvention payment \$'000 (2006–07 dollars)
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.

### 6.5 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 1 April 2008 that has the effect of:

- 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 1 April 2008
  - altering the nature or scope of water and wastewater services required to be provided by ACTEW
- or
- substantially varying the manner in which ACTEW is required to provide water and wastewater services from 1 April 2008

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.

## **6.6 Materiality test**

The effect of the major natural disaster event or service standard 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 (that is, first four 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.

## **6.7 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
- 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, has occurred or is continuing. If the Commission decides that the pass-through event will occur, has occurred or is continuing the Commission will pass through a change of 1.1 cents for each 1 cent change in the rate of the WAC. This adjustment to prices will be rounded to the nearest whole cent.

## **6.8 Recovery of pass-through amount—contingent capital expenditure projects**

ACTEW may seek to incorporate in tariffs the effect of the construction of either or both of the phase 2 contingent capital expenditure projects by providing the Commission with a submission prior to 1 March 2011. The Commission will not accept more than one submission from ACTEW prior to 1 March 2011, unless the subsequent submission provides additional information specifically as requested by the Commission.

ACTEW’s submission must include:

- details of the actual capital expenditure incurred on projects, excluding contingent projects, up to 30 June 2010
- details of the actual operating and capital expenditure incurred as a result of the obligation to undertake the contingent projects up to the date of submission

- forecast operating and capital expenditure incurred as a result of the obligation to undertake the contingent projects for the remainder of the regulatory period
- documentation that provides evidence of the prudence and efficiency of the forecast operating and capital expenditure for the contingent projects.

If the Commission receives a submission under this clause it must decide whether the pass-through event specified in the statement will occur, has occurred or is continuing. If the Commission decides that the pass-through event will occur, has occurred or is continuing, the Commission will adjust prices in the event that the Commission considers the expenditure to be prudent and efficient. If this criterion has been met, the Commission will allow an increase in prices in the final two years of the regulatory period for:

- actual operating expenditure incurred as a result of constructing the contingent project
- any further forecast operating expenditure that will be incurred as a result of constructing the contingent project
- a regulatory depreciation allowance for any actual or forecast capital expenditure associated with the contingent project, calculated on the same basis as regulatory depreciation approved in this final determination
- a return on the written down value of any actual or forecast capital expenditure associated with the contingent project, calculated on the same basis as the 'return on capital' approved in this final determination.

Should the actual capital expenditure incurred at the date of the submission not exceed the allowable capital expenditure contained in this price determination, the Commission will reduce the amount of the cost pass-through by the value of the return on and return of the capital expenditure underspend. The details of the calculation of this pass-through are contained in the attachment to this appendix, which should be read as part of the final price direction.

## **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 final 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 Change to volumes event**

The Commission will make an adjustment to forecast water volumes for years 2011–12 and 2012–13 if both of the following conditions are met:

- The net present value of water revenue for the period from 1 July 2008 to 31 December 2010 differs by more than 7% of the revenue anticipated in the final decision.
- There is evidence to suggest that the factors that led to the undercollection or overcollection of revenue for the first two and one half years will continue for the remainder of the price direction.

ACTEW is required to provide to the Commission by 1 March 2011 a submission detailing the net present value of revenue earned over the period from 1 July 2008 through 30 December 2010. If actual revenue differs from the target revenue by not less than 7%, ACTEW will also provide the Commission with updated quarterly forecasts of water consumption for the period 1 July 2011 through 30 June 2013.

The Commission will assess the updated quarterly forecasts and either accept them or, if it does not believe they are reasonable, impose its own forecasts. These forecasts will be used to update water tariffs for 2011–12 and 2012–13. Updated tariffs will satisfy the following conditions:

- The fixed charge for 2011–12 will change by the CPI + x methodology as described in section 3.1.
- The ratio of prices for the second tier to the first tier will remain 2:1.
- Tariffs for 2012–13 will satisfy the conditions of section 3.1 (that is, 2012–13 tariffs will grow by the CPI + x mechanism).
- In the determination of tariffs for 2011–12 and 2012–13, the net present value of revenue for the period from 1 July 2011 through 30 June 2013 under the updated tariffs should equal the net present value of revenue prescribed in the price direction.

The details of the calculation of this pass-through are contained in the attachment to this appendix.

### **6.11 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 6.7, 6.8, 6.9, and 6.10, the Commission must aim to 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*.

## **6.12 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 clauses 6.7, 6.8, 6.9, or 6.10, 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.

## **6.13 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 under the deadband mechanism**

Where the net present value of actual water revenue earned by ACTEW over the period 2008–09 to 2012–13 from the services set out in clause 3.1 of this price direction differs by more than 3% 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, incorporate in tariffs a revenue pass-through amount. The pass-through will be determined as the difference between the net present value of revenue earned over the period 1 July 2008 to 30 June 2013 and net present value of revenue allowed in the final report plus or minus 3% depending on whether there has been an overcollection or an undercollection of revenue. Forecast revenue will be used for those quarters of the financial year 2012–2013 for which actual revenue data is unavailable.

# **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 relevant Minister 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 regard to the appropriateness of various pricing structures.

## 10. Capital monitoring

ACTEW must, prior to 1 October each year, provide the Commission with details of the actual capital expenditure incurred in the previous financial year. ACTEW's submission must include:

- the total amount of capital expenditure incurred over the previous financial year for water and wastewater
- commentary on the capital expenditure undertaken in the previous financial year including any major differences (in terms of level of expenditure and projects undertaken) from the forecast expenditure contained in this final decision and the reasons for the differences
- expenditure on each of the water security projects in aggregate and in the previous financial year
- any revised information relating to forecast changes in the timing or level of the capital expenditure program.

# Attachment: Adjustment mechanism after year two

## Predetermined data

Tables AA1 through AA5 are information from the Commission's final decision.

**Table AA1 WACC and depreciation rate**

WACC (%)	7.27
Depreciation rate (%)	1.52

**Table AA2: Quarterly consumption forecasts (ML), 2011–12 to 2012–13**

Tier	First quarter		Second quarter		Third quarter		Fourth quarter	
	2011–12	2012–13	2011–12	2012–13	2011–12	2012–13	2011–12	2012–13
First tier	5,716	5,779	6,002	6,046	6,313	6,373	6,270	6,326
Second tier	4,079	4,067	5,957	5,862	9,852	9,666	7,544	7,470

**Table AA3: Customer and fixture numbers, water and wastewater, 2011–12 to 2012–13**

	2011–12	2012–13
Water customer numbers	151,467	153,530
Wastewater customer numbers	144,700	146,950
Wastewater fixtures	57,095	58,220

**Table AA4 Target revenue, water and wastewater, 2011–12 to 2012–13**

	2011–12	2012–13
Water revenue target (2007–08 dollars)	160,892,542	161,682,559
Wastewater revenue target (2007–08 dollars)	99,498,251	105,858,750

**Table AA5 Forecast capital expenditure, excluding phase 2 capital expenditure, 2008–09 to 2009–10**

	2008–09	2009–10
Forecast capital expenditure water (2007–08 dollars)	104,811	187,471
Forecast capital expenditure wastewater (2007–08 dollars)	60,399	12,323

## Data required from ACTEW

Tables AA6 through AA11 to be filled in if off-ramp conditions met.

**Table AA6** Actual and forecast CPI, 2008–09 to 2012–13

	2008–09	2009–10	2010–11	2011–12	2012–13
Actual and forecast CPI (%)					

**Table AA7** Prices for water and wastewater, 2010–11

	2010–11
Water	
Fixed charge (\$/pa)	
First tier price (\$/kL)	
Second tier price (\$/kL)	
Wastewater	
Fixed charge (\$/pa)	
Fixture charge (\$/fixture)	

**Table AA8** Actual capital expenditure, excluding phase 2 contingent projects, 2008–09 to 2009–10

	2008–09	2009–10
Actual capital expenditure water (2007–08 dollars)		
Actual capital expenditure wastewater (2007–08 dollars)		

**Table AA9** Forecast/actual capital expenditure, phase 2 contingent projects, 2008–09 to 2012–13

	2008–09	2009–10	2010–11	2011–12	2012–13
Forecast/actual capital expenditure water (2007–08 dollars)					
Forecast/actual capital expenditure wastewater (2007–08 dollars)					

**Table AA10:** Forecast/actual operating expenditure, for phase 2 contingent projects, 2008–2013

	2008–09	2009–10	2010–11	2011–12	2012–13
Forecast/actual operating expenditure water (2007–08 dollars)					
Forecast/actual operating expenditure wastewater (2007–08 dollars)					

Table AA11: Adjusted quarterly consumption forecasts (ML)

Tier	First quarter		Second quarter		Third quarter		Fourth quarter	
	2011-12	2012-13	2011-12	2012-13	2011-12	2012-13	2011-12	2012-13
First tier adjusted forecast consumption								
Second tier adjusted forecast consumption								

Additional capital and operating expenditure for phase 2 contingent projects will adjust the revenue targets for water and wastewater for 2011–12 and 2012–13. Underspend in 2008–10 capital expenditure will reduce the amount of revenue adjustment for water and wastewater for 2011–12 and 2012–13.

Undercollection/overcollection of actual revenue will lead to adjustments in the forecast customer volumes for 2011–12 and 2012–13.

Adjustment of quarterly consumption forecasts for 2011–2013 will be done via a proposal/acceptance mechanism. ACTEW will propose new customer numbers and the Commission reserves the right to accept the proposed forecasts or to impose its own forecasts.

The Commission will accept actual and forecast phase 2 contingent projects capital expenditure subject to a prudence/efficiency review.

The Commission will accept actual and forecast phase 2 contingent projects operating expenditure subject to a prudence/efficiency review.

### Adjustment formulae

Define time as follows:

$$t = \begin{cases} 1 & \text{if year is 2008 – 09} \\ 2 & \text{if year is 2009 – 10} \\ 3 & \text{if year is 2010 – 11} \\ 4 & \text{if year is 2011 – 12} \\ 5 & \text{if year is 2012 – 13} \end{cases}$$

**WACC** is the weighted average cost of capital as determined in the final decision.

**DF** is the depreciation rate as determined in the final decision.

**CPI<sub>t</sub>** is the consumer price index for year t, t = 1, ..., 5.

**Re vW<sub>t</sub>** is the revenue target for water for year t, t = 4, 5

**Re vWW<sub>t</sub>** is the revenue target for wastewater for year t, t = 4, 5.

**CustNoW<sub>t</sub>** is the customer numbers for water for years t = 4, 5 as given in Table A3.

**CustNoWW<sub>t</sub>** is the customer numbers for wastewater for years t = 4, 5 as given in Table A3.

**FixNoWW<sub>t</sub>** is the fixture numbers for wastewater for years t = 4, 5 as given in Table A3.

**CEW<sub>t</sub>** is the actual capital expenditure for water for year t, t = 1, 2 excluding phase 2 contingent projects.

**CEWW<sub>t</sub>** is the actual capital expenditure for wastewater for year t, t = 1, 2 excluding phase 2 contingent projects.

**FCEW<sub>t</sub>** is the forecast capital expenditure for water for year t, t = 1, 2.

**FCEWW<sub>t</sub>** is the forecast capital expenditure for wastewater for year t, t = 1, 2.

**P2CEW<sub>t</sub>** is the actual/forecast for phase 2 capital expenditure for water for year t, t = 1, ..., 5.

**P2CEWW<sub>t</sub>** is the actual/forecast for phase 2 capital expenditure for wastewater for year t, t = 1, ..., 5.

**P2OEW<sub>t</sub>** is the actual/forecast for phase 2 operating expenditure for water for year t, t = 1, ..., 5.

**P2OEW<sub>t</sub>** is the actual/forecast for phase 2 operating expenditure for wastewater for year t, t = 1, ..., 5.

## Revenue adjustments

Determine roll forward asset base and depreciation for phase 2 contingent projects capital expenditure. Opening roll forward asset base for phase 2 contingent projects is 0 in 2008–09 for water and wastewater. Roll forward asset base for phase 2 contingent projects for years 2009–10 through 2012–13 given by formula:

$$\mathbf{CIP2RABW_t = OpP2RABW_t + P2CEW_t - P2DeprW_t}$$

$$\mathbf{OpP2RABW_{t+1} = CIP2RABW_t}$$

$$\mathbf{CIP2RABWW_t = OpP2RABWW_{t-1} + P2CEWW_t - P2DeprWW_t}$$

$$\mathbf{OpP2RABWW_{t+1} = CIP2RABWW_t}$$

where

**OpP2RABW<sub>t</sub>** is the opening phase 2 contingent projects roll forward asset base for water for year t, t = 1, ..., 5.

**OpP2RABWW<sub>t</sub>** is the opening phase 2 contingent projects roll forward asset base for wastewater for year t, t = 1, ..., 5.

$CIP2RABW_t$  is the closing phase 2 contingent projects roll forward asset base for water for year  $t$ ,  $t = 1, \dots, 5$ .

$CIP2RABWW_t$  is the closing phase 2 contingent projects roll forward asset base for wastewater for year  $t$ ,  $t = 1, \dots, 5$ .

$P2DeprW_t$  is phase 2 contingent projects depreciation for water for year  $t$ ,  $t = 1, \dots, 5$ .

$P2DeprWW_t$  is phase 2 contingent projects depreciation for wastewater for year  $t$ ,  $t = 1, \dots, 5$ .

$$P2DeprW_t = DF \times OpP2RABW_t + \frac{1}{2} \times DF \times P2CEW_t$$

$$P2DeprWW_t = DF \times OpP2RABWW_t + \frac{1}{2} \times DF \times P2CEWW_t$$

Determine the return on capital for phase 2 contingent projects capital expenditure. The following formulae determine the return on capital:

$$P2RoCW_t = WACC \times OpP2RABW_t + \frac{1}{2} \times WACC \times P2CEW_t$$

$$P2RoCWW_t = WACC \times OpP2RABWW_t + \frac{1}{2} \times WACC \times P2CEWW_t$$

where

$P2RoCW_t$  is the return on capital for phase 2 contingent projects water capital expenditure for  $t = 1, \dots, 5$

$P2RoCWW_t$  is the return on capital for phase 2 contingent projects wastewater capital expenditure for  $t = 1, \dots, 5$

If total actual water and wastewater capital expenditure for 2008–09 and 2009–10 is less than the forecast capital expenditure as measured in 2007–08 dollars then an adjustment for capital underspend is made. The adjustment for underspend is done on an aggregate basis (that is, combining water and wastewater spending).

If  $\sum_{t=1}^2 CEW_t + \sum_{t=1}^2 CEWW_t - \sum_{t=1}^2 FCEW_t - \sum_{t=1}^2 FCEWW_t \leq 0$  holds then there is a net underspend on capital for the first 2 years.

Let **CapAdj** be the net adjustment for underspend of capital in the first 2 years, which is determined by the following formula:

$$CapAdj = (WACC + DF) \times \left( \sum_{t=1}^2 CEW_t + \sum_{t=1}^2 CEWW_t - \sum_{t=1}^2 FCEW_t - \sum_{t=1}^2 FCEWW_t \right)$$

Define **Tot RevAdj** as the total revenue adjustment due to phase 2 contingent projects, which is given by the following formula:

$$\begin{aligned} \text{Tot RevAdj} = & \sum_{t=1}^5 \text{P2RoCW}_t + \sum_{t=1}^5 \text{P2RoCWW}_t + \sum_{t=1}^5 \text{P2DeprW}_t + \sum_{t=1}^5 \text{P2DeprWW}_t \\ & + \sum_{t=1}^5 \text{P2OEW}_t + \sum_{t=1}^5 \text{P2OEWW}_t + \text{CapAdj} \end{aligned}$$

The total revenue adjustment must be apportioned to water and wastewater and to each of the remaining years in the regulatory period. Apportionment to water or wastewater is made on the relative level of capital expenditure and apportionment over the two years is evenly spread.

Let **AdjW** be the proportion of the total revenue adjustment apportioned to water and let **AdjWW** be the proportion of the total revenue adjustment apportioned to wastewater. These are calculated by:

$$\begin{aligned} \text{AdjW} &= \frac{\sum_{t=1}^5 \text{P2CEW}_t}{\sum_{t=1}^5 \text{P2CEW}_t + \sum_{t=1}^5 \text{P2CEWW}_t} \\ \text{AdjWW} &= \frac{\sum_{t=1}^5 \text{P2CEWW}_t}{\sum_{t=1}^5 \text{P2CEW}_t + \sum_{t=1}^5 \text{P2CEWW}_t} \end{aligned}$$

The total revenue adjustment can be apportioned.

Let **AdjRevW<sub>t</sub>** be the adjusted revenue target for water for year t, t = 4, 5.

Let **AdjRevWW<sub>t</sub>** be the adjusted revenue target for wastewater for year t, t = 4, 5.

The adjusted revenue targets are calculated by:

$$\begin{aligned} \text{AdjRevW}_t &= \text{RevW}_t + \frac{1}{2} \times \text{AdjW} \times \text{Tot RevAdj} \\ \text{AdjRevWW}_t &= \text{RevWW}_t + \frac{1}{2} \times \text{AdjWW} \times \text{Tot RevAdj} \end{aligned}$$

Let **T1Vol<sub>t,q</sub>** be the price direction first tier consumption forecast water volume given in Table 2 for year t, t = 4, 5, and for quarter q, q = 1, ..., 4.

Let **T2Vol<sub>t,q</sub>** be the price direction second tier consumption forecast water volume given in table 2 for year t, t = 4, 5, and for quarter q, q = 1, ..., 4.

Let **AdjT1Vol<sub>t,q</sub>** be the adjusted first tier consumption forecast water volume given in table 11 for year t, t = 4, 5, and for quarter q, q = 1, ..., 4.

Let **AdjT2Vol<sub>t,q</sub>** be the adjusted second tier consumption forecast water volume given in table 11 for year t, t = 4, 5, and for quarter q, q = 1, ..., 4.

The Commission has prescribed that the price of the second tier is twice the price of the first tier. The Commission has also prescribed that prices in year 5 will be 1% higher than prices in year 4.

Let  $\mathbf{FC\ Re\ vW}_t$  be the revenue from the fixed charge for water for years  $t = 4, 5$ .

The Commission is fixing the increase to the revenue from fixed charges for water to increase at the rate of the  $x$ -factor of 1%. Thus the real (in 2007–08 dollars) revenue from fixed charges for  $t = 4, 5$  is given by:

$$\mathbf{FC\ Re\ vW}_t = \mathbf{CustNoW}_t \times \mathbf{85.00} \times (\mathbf{1} + \mathbf{0.025})^{-1} \times (\mathbf{1} + \mathbf{0.01})^t$$

Let  $\mathbf{T1PW}_3$  be the first tier price for 2010–11.

Let  $\mathbf{T2PW}_3$  be the second-tier price for 2010–11.

Let  $\mathbf{T1PW}_4$  be the first-tier price for 2011–12.

If there are only adjustments to revenues while customer volumes remain unadjusted then the first tier price for 2011–12 (in 2007–08 dollars) is the price that solves the following equation:

$$\begin{aligned} & \mathbf{Adj\ Re\ vW}_4 \times (\mathbf{1} + \mathbf{WACC}) + \mathbf{Adj\ Re\ vW}_5 = \\ & \left(\frac{\mathbf{1}}{\mathbf{2}} \times \mathbf{T1PW}_3 \times \mathbf{T1Vol}_{4,1} + \frac{\mathbf{1}}{\mathbf{2}} \times \mathbf{T2PW}_3 \times \mathbf{T2Vol}_{4,1} + \frac{\mathbf{1}}{\mathbf{2}} \times \mathbf{T1PW}_4 \times \mathbf{T1Vol}_{4,1}\right) \\ & + \frac{\mathbf{1}}{\mathbf{2}} \times \mathbf{T1PW}_4 \times \mathbf{2} \times \mathbf{T2Vol}_{4,1} + \mathbf{T1PW}_4 \times (\mathbf{T1Vol}_{4,2} + \mathbf{T1Vol}_{4,3} + \mathbf{T1Vol}_{4,4}) \\ & + \mathbf{T1PW}_4 \times \mathbf{2} \times (\mathbf{T2Vol}_{4,2} + \mathbf{T2Vol}_{4,3} + \mathbf{T2Vol}_{4,4}) + \mathbf{FC\ Re\ vW}_4) \times (\mathbf{1} + \mathbf{WACC}) \\ & + \frac{\mathbf{1}}{\mathbf{2}} \times \mathbf{T1PW}_4 \times \mathbf{T1Vol}_{5,1} + \frac{\mathbf{1}}{\mathbf{2}} \times \mathbf{T1PW}_4 \times \mathbf{2} \times \mathbf{T2Vol}_{5,1} \\ & + \frac{\mathbf{1}}{\mathbf{2}} \times \mathbf{T1PW}_4 \times (\mathbf{1.01}) \times \mathbf{T1Vol}_{5,1} + \frac{\mathbf{1}}{\mathbf{2}} \times \mathbf{T1PW}_4 \times \mathbf{2} \times (\mathbf{1.01}) \times \mathbf{T2Vol}_{5,1} \\ & + \mathbf{T1PW}_4 \times (\mathbf{1.01}) \times (\mathbf{T1Vol}_{5,2} + \mathbf{T1Vol}_{5,3} + \mathbf{T1Vol}_{5,4}) \\ & + \mathbf{T1PW}_4 \times \mathbf{2} \times (\mathbf{1.01}) \times (\mathbf{T2Vol}_{5,2} + \mathbf{T2Vol}_{5,3} + \mathbf{T2Vol}_{5,4}) + \mathbf{FC\ Re\ vW}_5 \end{aligned}$$

If there are only adjustments to customer volumes while revenues remain unadjusted then the first-tier price for 2011–12 is the price that solves the following equation:

$$\begin{aligned}
& \text{Re v}W_4 \times (1 + \text{WACC}) + \text{Re v}W_5 = \\
& \left(\frac{1}{2} \times \text{T1PW}_3 \times \text{AdjT1Vol}_{4,1} + \frac{1}{2} \times \text{T2PW}_3 \times \text{AdjT2Vol}_{4,1} + \frac{1}{2} \times \text{T1PW}_4 \times \text{AdjT1Vol}_{4,1}\right) \\
& + \frac{1}{2} \times \text{T1PW}_4 \times 2 \times \text{AdjT2Vol}_{4,1} + \text{T1PW}_4 \times (\text{AdjT1Vol}_{4,2} + \text{AdjT1Vol}_{4,3} + \text{AdjT1Vol}_{4,4}) \\
& + \text{T1PW}_4 \times 2 \times (\text{AdjT2Vol}_{4,2} + \text{AdjT2Vol}_{4,3} + \text{AdjT2Vol}_{4,4}) + \text{FC Re v}W_4 \times (1 + \text{WACC}) \\
& + \frac{1}{2} \times \text{T1PW}_4 \times \text{AdjT1Vol}_{5,1} + \frac{1}{2} \times \text{T1PW}_4 \times 2 \times \text{AdjT2Vol}_{5,1} \\
& + \frac{1}{2} \times \text{T1PW}_4 \times (1.01) \times \text{AdjT1Vol}_{5,1} + \frac{1}{2} \times \text{T1PW}_4 \times 2 \times (1.01) \times \text{AdjT2Vol}_{5,1} \\
& + \text{T1PW}_4 \times (1.01) \times (\text{AdjT1Vol}_{5,2} + \text{AdjT1Vol}_{5,3} + \text{AdjT1Vol}_{5,4}) \\
& + \text{T1PW}_4 \times 2 \times (1.01) \times (\text{AdjT2Vol}_{5,2} + \text{AdjT2Vol}_{5,3} + \text{AdjT2Vol}_{5,4}) + \text{FC Re v}W_5
\end{aligned}$$

If there are adjustments to both revenue and customer numbers, then the first-tier price for 2011–12 is the price that solves the following equation:

$$\begin{aligned}
& \text{Adj Re v}W_4 \times (1 + \text{WACC}) + \text{Adj Re v}W_5 = \\
& \left(\frac{1}{2} \times \text{T1PW}_3 \times \text{AdjT1Vol}_{4,1} + \frac{1}{2} \times \text{T2PW}_3 \times \text{AdjT2Vol}_{4,1} + \frac{1}{2} \times \text{T1PW}_4 \times \text{AdjT1Vol}_{4,1}\right) \\
& + \frac{1}{2} \times \text{T1PW}_4 \times 2 \times \text{AdjT2Vol}_{4,1} + \text{T1PW}_4 \times (\text{AdjT1Vol}_{4,2} + \text{AdjT1Vol}_{4,3} + \text{AdjT1Vol}_{4,4}) \\
& + \text{T1PW}_4 \times 2 \times (\text{AdjT2Vol}_{4,2} + \text{AdjT2Vol}_{4,3} + \text{AdjT2Vol}_{4,4}) + \text{FC Re v}W_4 \times (1 + \text{WACC}) \\
& + \frac{1}{2} \times \text{T1PW}_4 \times \text{AdjT1Vol}_{5,1} + \frac{1}{2} \times \text{T1PW}_4 \times 2 \times \text{AdjT2Vol}_{5,1} \\
& + \frac{1}{2} \times \text{T1PW}_4 \times (1.01) \times \text{AdjT1Vol}_{5,1} + \frac{1}{2} \times \text{T1PW}_4 \times 2 \times (1.01) \times \text{AdjT2Vol}_{5,1} \\
& + \text{T1PW}_4 \times (1.01) \times (\text{AdjT1Vol}_{5,2} + \text{AdjT1Vol}_{5,3} + \text{AdjT1Vol}_{5,4}) \\
& + \text{T1PW}_4 \times 2 \times (1.01) \times (\text{AdjT2Vol}_{5,2} + \text{AdjT2Vol}_{5,3} + \text{AdjT2Vol}_{5,4}) + \text{FC Re v}W_5
\end{aligned}$$

The tier 1 price charged in 2011–12 is equal to:

$$\text{T1PW}_4 \times (1 + \text{CPI}_1) \times (1 + \text{CPI}_2) \times (1 + \text{CPI}_3) \times (1 + \text{CPI}_4).$$

The tier 2 price charged in 2011–12 is equal to the tier 1 price multiplied by 2. The fixed charge in 2011–12 is the fixed charge prescribed in section 3.1 of Appendix 1. Tariffs for 2012–13 will continue under the  $\text{CPI} + x$  (with  $x = 1\%$ ) adjustment prescribed in section 3.1 of Appendix 1.

### Determining wastewater tariffs.

The ratio of the fixed charge to the fixture charge for wastewater is to remain 1.02254:1. Tariffs for wastewater in 2012–13 are assumed to be 4.76% higher than tariffs in 2011–12.

Define the wastewater fixed charge for 2101–12 to be  $\text{PWW}_4$ .

The value of  $\text{PWW}_4$  that solves the following equation will determine the wastewater charges for 2011–12:

$$\begin{aligned}
 & \text{Adj Re vWW}_4 \times (1 + \text{WACC}) + \text{Adj Re vWW}_5 = \\
 & (\text{PWW}_4 \times \text{CustNoWW}_4 + \text{PWW}_4 \times (0.977957) \times \text{FixNoWW}_4) \times (1 + \text{WACC}) \\
 & + \text{PWW}_4 \times (1.0476) \times \text{CustNoWW}_5 + \text{PWW}_4 \times (1.0476) \times (0.977957) \times \text{FixNoWW}_5
 \end{aligned}$$

The fixture charge for 2011–12 will be the fixed charge multiplied by (0.977957). Wastewater tariffs for 2012–13 will continue under the CPI + x (with x = 4.76%) adjustment prescribed in section 3.1 of Appendix 1.

## Appendix 2 Terms of Reference

### Independent Competition and Regulatory Commission (Regulated Water and Sewerage Services) Terms of Reference Determination 2007<sup>106</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% by 2013 and 25% by 2023'
  - 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>106</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
  - 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 1 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
26 March 2007	Mrs Jo Forestier	Future supply options and ACTEW efficiency
15 June 2007	Mrs Jo Forestier	Recycled sewage
18 June 2007	Mr Nick Mayo and Ms Sarah Clayton	Wastewater charges
19 June 2007	Mr Scott Crawford	Increasing water consumption charges based on water restrictions
9 July 2007	Mr Ben Ponton, ACT Planning and Land Authority	Advising that consultant has been engaged and further submissions will be made
31 July 2007	ACTEW	Submission: Investigation into prices for water and wastewater services in the ACT
5 September 2007	Mr Kevin Cox	Submission: Water Pricing and water Rewards
6 September	Dr Terry Dwyer	Response to ICRC Discussion Paper 3
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	Dr 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
25 September 2007	Mr Peter Sutherland, Essential Services Consumer Council	Additional matters raised in the Working Conclusions paper
3 October 2007	Mr Kevin Cox	Submission: Water pricing—market based approach
9 October 2007	Mr John McCarthy, Water Our Garden City Inc.	ACTEW asset base and rate of return, water tariff structure
22 October 2007	Ms Suzanne Vidler, O'Malley Park Executive Committee	Water restrictions, tariffs and incentives to reduce consumption
23 October 2007	ACTEW	Response to ICRC Working Conclusions Paper
24 October 2007	Dr Terry Dwyer (by email)	Working Conclusions paper and water tariffs
26 October 2007	ACTEW	Revenue forecasting model for water pricing by Rebecca Letcher and Trevor Breusch
31 October 2007	Mr Neil Savery, ACT Planning and Land Authority	Technical issues related to setting water prices
14 November 2007	ACTEW	ACTEW information paper: Implementation of the ACT Government's announcement on Water Security
3 December 2007	Dr Terry Dwyer	Response to ICRC Working Conclusions Paper
7 December 2007	Mr Jon Stanhope MLA	Confidential Submission: ACT Government—Pricing of water and wastewater, water abstraction charge, Utility Network Facilities Tax and possible future developments.
30 January 2008	Mr Kevin Cox	Response to ICRC Draft Decision
31 January 2008	Merylyn Condon, Horticultural Society of Canberra	Response to ICRC Draft Decision
1 February 2008	Ms Helen Hadobas	Response to ICRC Draft Decision
5 February 2008	Dr Christopher Dorman	Response to ICRC Draft Decision

5 February 2008	ACTEW	Confidential response to Technical Regulator's Report
8 February 2008	ACTEW	Response to ICRC Draft Decision
11 February 2008	Mr Nick Mayo and Ms Sarah Clayton	Response to ICRC Draft Decision
13 February 2008	Mr Paul X Rutherford, ACTPLA	Confidential response to ACTEW's response to Technical Regulator's Report
13 February 2008	Mr Peter Jensen, Property Owners Association	Submission: water and wastewater pricing
13 February 2008	ACTEW	Confidential submission: additional information on ACTEW's research and development expenditure
13 February 2008	ACTEW	Non confidential response to Technical Regulator's Report
13 February 2008	ACTEW	CEG report for ACTEW: A methodology for determining expected inflation
20 February 2008	Mr Jon Stanhope MLA	ACT Government: response to ICRC Draft Decision
27 February 2008	ACTEW	BIS Shrapnel: Construction Cost Outlook Report
28 February 2008	ACTEW	CRA International: Efficiency Gains from the Utilities Management Agreement
5 March 2008	Mr Peter Sutherland, Essential Services Consumer Council	Response to ICRC Draft Decision
4 March 2008	ACTEW	CIE Notes on Drought Pricing Scheme
5 March 2008	ACTEW	Submission: Return on Equity calculations
20 March 2008	ACTEW	Letter: Water Pricing
14 March 2008	ACTEW	Project MIMI: Feasibility Business Case
17 March 2008	ACTEW	ACT Water Demand Projections 2008–09 to 2012
1 April 2008	ACTEW	Murrumbidgee to Googong Raw Water Transfer Project
1 April 2008	ACTEW	Response to Halcrow draft report

The Commission also held a public hearing to discuss its draft decision on 14 February 2008. The following organisations and individuals made a verbal presentation at the public hearing:

- ACTEW
- Mr Peter Sutherland, ESCC
- O'Malley Park Owners Corporation
- Dr Christopher Dorman
- Dr Terry Dwyer
- Mr Scott Crawford
- Property Owners and Rate Payers Association
- Ms Helen Hadobas

A copy of the transcript of the proceedings is available on the Commission's website: [www.icrc.act.gov.au](http://www.icrc.act.gov.au)

## Appendix 4 Compliance with the Terms of Reference

The following table notes where the respective Terms of Reference for this price determination have been addressed.

**Table A4.1 Compliance with the Terms of Reference received from the ACT Government**

No.	Terms of Reference Requirement	Discussion
1	Imposition of a charge on ACTEW (currently the Water Abstraction Charge) to recover the costs associated with the taking of water and to reflect the value of water as a scarce resource.	Chapter 6, section 6.5
2(a)	The charge in (1) to be set such that it supports the policies of the ACT Government, particularly the <i>Think Water, Act Water</i> action plan and its target of a reduction in per capita mains water consumption by 12% by 2013 and 25% by 2023	Chapter 6, section 6.5
2(b)	The charge in (1) to be set such that it supports such further reductions in water consumption as may be considered necessary having regard to 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.	Chapter 6, section 6.5
3	The Commission is required to have regard to the charge referred to in (1), the ACT Government policies referred to in paragraphs 2(a) and 2(b), as well as ecologically sustainable development and National Water Initiative policies agreed to by the ACT Government.	Chapter 6, section 6.5 Chapter 2, section 2.1–2.5 Chapter 13
4	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.	Chapter 3[entire chapter] Chapter 10, section 10.3
5(a)	The Commission should have regard to 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	Chapter 7
5(b)	The Commission should have regard to the commercial value of past investment by ACTEW (or its predecessors) in infrastructure that continues to deliver services and is needed to sustain a high standard of service, giving particular consideration to an optimised depreciated replacement cost valuation	Chapter 7, subsection 7.1.1 and section 7.3 Chapter 8
5(c)	The Commission should have regard to an assessment of the commercial value of ACTEW's regulatory asset base that gives particular consideration to all investment in the water network and appropriately reflects the re-instatement of assets returned to service as the result of changes to operating procedures during the current period	Chapter 8
5(d)	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	Chapter 9

No.	Terms of Reference Requirement	Discussion
5(e)	The Commission should have regard to 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'	Chapter 4 Chapter 6 Chapter 7 Chapter 9 Chapter 11 Chapter 12 Chapter 13
5(f)	The Commission should have regard to incentives for ACTEW to undertake commercial investment in research and development in water and sewerage services in the territory	Chapter 6, subsection 6.3.4
5(g)	The Commission should have regard to achieved efficiencies in service delivery and appropriate incentives to both ACTEW and the operator, currently ActewAGL, to ensure ongoing efficiencies	Chapter 4, section 4.3, section 4.4

# Glossary and abbreviations

ACG	Allen Consulting Group
ACT	Australian Capital Territory
ACTPLA	ACT Planning and Land Authority
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
ESC	Essential Services Commission of Victoria
ESCC	Essential Services Consumer Council
ESCOSA	Essential Services Commission of South Australia
FAR	forecast average revenue
GAAR	Gas Access Arrangements Review
ICRC Act	<i>Independent Competition and Regulatory Commission Act 1997</i>
IPART	Independent Pricing and Regulatory Tribunal
KPI	key performance indicator
LPI	labour price index
LMWQCC	Lower Molonglo Water Quality Control Centre
MAAR	maximum allowable average revenue
MJA	Marsden Jacob Associates
MMA	McLennan Magasanik Associates
MOU	memorandum of understanding
NFT	network facilities tax
NPV	net present value
NWC	National Water Commission
NWI	National Water Initiative

ODRC	optimised depreciated replacement cost
PWCMs	permanent water conservation measures
R&D	research and development
RAB	regulatory asset base
RBA	Reserve Bank of Australia
TCIB	Treasury capital-indexed bond
TFCB	Treasury fixed-coupon bond
TOR	terms of reference
TWAW	<i>Think water, act water</i>
TWRs	temporary water restrictions
UMA	Utilities Management Agreement
Utilities Act	<i>Utilities Act 2000</i>
WAC	water abstraction charge
WACC	weighted average cost of capital
WPP	water purification plant
WSAA	Water Services Association of Australia