



ICRC

independent competition and regulatory commission

Draft Report and Draft Price Direction

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

December 2003

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.

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

Foreword

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

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

The review comes at an important time in terms of consideration of Canberra's future management of water resources. The prolonged drought, combined with a growing realisation of the finite availability of water, has caused a significant reappraisal of the way in which this resource is used and what Canberra's needs might be for future generations. The ACT Government has now released its draft strategy for sustainable water resource management in the ACT, and this price review should be considered in the context of the wider policy debate on the use of water for consumptive purposes in the ACT.

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

This draft decision is the second step in a public awareness program that is a feature of the price review process being undertaken by the commission. The commission is seeking to encourage submissions and gather community views on all aspects of the price review, covering not only the issue of price but also the associated matters of service quality and reliability.

Submissions can be made on any aspect of the matters listed for review at this time. There will also be a public hearing at which parties seeking to have their views considered will be able to present those views and hear the

comments and arguments advanced by other parties with an interest in the inquiry.

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

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

Paul Baxter
Senior Commissioner
December 2003

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Executive summary

Overview

The commission is releasing this draft report to provide an opportunity for public comment and debate on various aspects of ACTEW Corporation's charges for water and wastewater services. A final report will be released at the end of March 2004 and before then the commission envisages extensive public debate on various aspects of this report.

The pricing of water and wastewater services, and the overall management of the territory's water resources, are highly topical and potentially contentious issues. The recently released draft water strategy *Think water, Act water* has identified a number of the longer-term issues concerning water availability and use in the Australian Capital Territory (ACT) that must be addressed in the near term.

This draft price direction has a shorter-term perspective and is focused more on ACTEW Corporation's water reticulation and wastewater treatment activities. However, it cannot be divorced from the longer-term issues of appropriate demand management policies, the role of price in influencing the use of water, environmental and social issues associated with the use of water for consumptive purposes, the pricing of that water such that consumers can meet their basic needs for water for hygiene, cooking and drinking purposes, and the funding of the infrastructure needed to ensure that the ACT has appropriate access to water at a level of security considered appropriate for a large city.

This draft decision has proposed a price path for water and wastewater that will see the average revenue outcome for ACTEW Corporation (ACTEW) for these services grow annually by CPI (the consumer price index) plus 2.4 per cent and CPI plus 0.5 per cent respectively over the next four years. This is less than the CPI plus 6 per cent and CPI plus 5.3 per cent that ACTEW had sought, but still reflects an appropriate return on ACTEW's asset base, a recovery of ACTEW's operating costs, and a return of its capital expenditure program.

The translation of these average revenue outcomes into water and wastewater tariffs could still see the average household's bill for water and wastewater growing by around 4.9 per cent and 3.0 per cent annually when the expected inflation rate of 2.5 per cent is taken into account. In addition, the commission has outlined an option which would see more substantial price increases occur for those households consuming higher volumes of water than the 280 kilolitres used by the average household.

When these average price increases envisaged by the commission are combined with the ACT Government's announced plan to increase the Water Abstraction Charge (WAC) to 25 cents per kilolitre, the water bill that an average household consumer would face from 1 July 2004 would be up to 12.3 per cent higher than in 2002–03, with the average combined water and wastewater bill increasing by around 7.6 per cent.

There has been much debate on the issue of a new water supply for the ACT to supplement the existing Googong and Cotter catchments. The commission has not sought to favour any one of the options under consideration or to recommend the timing of a decision as to whether and when the infrastructure for a new water source should be constructed. However, the commission has sought to give some guidance on the question of how the costs of any new infrastructure might be recovered and what might be the magnitude of these costs from an individual consumer's perspective. This is intended to assist the debate on the options currently before the Government.

Finally, this report examines a number of aspects of ACTEW's operations and the funding requirements for ACTEW to continue to meet the high standard of service required by the ACT community and ensure the continued efficient operation of the water and wastewater systems.

The commission has not fully accepted all of ACTEW's funding proposals, but has sought to drive continuing efficiency improvements in the way ACTEW conducts its business and meets the growing demand for water reticulation and wastewater treatment facilities across the territory.

Background to this draft decision

In May 1999 the commission issued a price direction which covered, among other things, water and sewerage service pricing. The relevant investigations were undertaken in response to a reference issued under the *Independent Pricing and Regulatory Commission Act 1997* (IPARC Act). The 1999 price direction expires on 30 June 2004.

The commission, as the regulator of utility services for the ACT, is conducting an investigation into prices for water and wastewater services provided by ACTEW within the ACT. The current investigation will result in a decision on pricing being issued for water and wastewater services to apply from 1 July 2004 to 30 June 2008 (the next regulatory period).

Consultation

The commission has developed the following timetable for the consultation process.

Release of information paper	22 December 2002
Release of 2003 issues paper	23 July 2003
Close of submissions on the 2003 issues paper	19 August 2003
Release of the commission's draft report and draft price direction	3 December 2003
Close of submissions on the draft report and draft price direction	23 January 2004
Public hearings	first week in February 2004
Release of the commission's final report and final price direction	31 March 2004

The ACT water industry

Since the 1999 price direction was made there have been a number of changes in the water and wastewater industry in the ACT. These changes include:

- the appointment of the newly established entity ActewAGL as the operator of the water and wastewater services in the ACT on behalf of the owner, ACTEW
- a period of relatively severe drought, resulting in the introduction of water restrictions in January 2003, culminating in Stage 3 restrictions being applied from 1 October 2003
- the January 2003 bushfires and their impact upon water and wastewater infrastructure within Canberra and the Cotter water catchment area
- increased public awareness of water environmental issues and the need for reductions in usage, reflected in the ACT Government's recent draft strategy for sustainable water resource management in the ACT, *Think water, Act water*
- a commitment by the ACT Government to the adoption of a cap on water usage for consumptive purposes in line with the Murray–Darling Ministerial Council Cap on water usage from the Basin
- the introduction of the WAC and, more recently, the increase in that charge from 10 cents per kilolitre to 25 cents per kilolitre from 1 July 2004.

Outcomes of the 1999 price direction

Since the 1999 price direction was set, the demand for water and the growth in new connections has exceeded the expectations of ACTEW and the commission. As a result, ACTEW's revenue, which has been tied to the number of connections, has risen at a faster rate than anticipated. ACTEW's operating costs have also increased significantly, particularly in more recent years. ACTEW has argued that this has been a result of unforeseen cost increases, including the impact of the 2003 bushfires and the need to pump greater quantities of water from the Googong catchment.

Capital expenditure over the existing regulatory period lagged behind expectations in the early years of the period, but in the most recent year has been increased to meet the perceived needs, particularly in terms of the new Stromlo and Googong water treatment facilities.

At the end of the current regulatory period, operating costs are at historically high levels, in part funded by the higher than anticipated revenue outcomes. A number of the additional costs are seen as being ‘once-off’ events which are not expected to continue throughout the next regulatory period. As a result, the commission must consider carefully issues of ongoing operating expenditure requirements and the appropriate roll-in of capital expenditure that, although now being undertaken, has been delayed during the current regulatory period.

Services to be regulated

The commission believes that the existing regulated services should continue to be directly regulated. Urban water and wastewater services are clearly monopoly services which are provided to a large number of customers and represent a material cost to households. The provision of these services and the standard at which they are provided is critical to individual household and community wellbeing.

Additionally, declining average costs, resulting from the relatively large initial infrastructure costs, have led to limited or no competition in the market for large-scale water and wastewater networks in the ACT, providing ACTEW with a natural monopoly in these activities. Given concerns over the potential abuse of monopoly power and the public benefits associated with equitable access to clean water and appropriate levels of sanitation, there is a compelling rationale for the continued regulation of ACTEW’s general water and wastewater services.

The miscellaneous additional services provided by ACTEW represent a relatively small proportion of its revenue; however, these fees and charges may be significant for individual users. Although some of these services (for example, special meter reading) are potentially contestable, there are no firm proposals to introduce contestability in the foreseeable future. The commission is therefore inclined to continue to subject these miscellaneous services to regulation.

In the absence of evidence that the current approach is not operating effectively, the commission also proposes not to regulate bulk water charges during the forthcoming regulatory period. Again, the commission reiterates its requirement that ACTEW charge a price which is no less than the avoidable costs of supply. The commission will continue to monitor the performance of ACTEW in the pricing of bulk water, and will move to regulate this revenue at some future time if necessary.

In respect of reuse water, in the 1999 price direction review ACTEW argued that because of substitutability with treated potable water, the price for potable water represented a de facto maximum charge for reuse water. Therefore, ACTEW argued, there was no need for reuse water to be price regulated. The commission agreed with this approach but mandated that reuse water should be charged at a rate that at least recovered its incremental costs.

Since 1999, the reuse water market has developed further. ACTEW now undertakes a number of effluent reuse activities and has forecast further capital expenditure on additional schemes, in part to meet government policy objectives for greater reuse of water in the ACT. Given the relatively small customer numbers and volumes of reuse water in the ACT at this time, the commission believes that the case for direct price regulation is not immediately compelling. However, the commission will continue to monitor the development of the reuse water market.

The commission also proposes not to price regulate trade waste services directly, given the small number of customers involved, and the fact that customers typically have on-site treatment alternatives should they believe that prices offered by ACTEW are not competitive.

However, reuse water and trade waste services are not left out of the regulatory equation entirely. Because these services share infrastructure and hence costs with the directly regulated services, it is necessary for the commission to remove the revenue impact of these services from the total revenue requirement of ACTEW when determining the price path for regulated services. The commission has done this by removing the forecast revenue from these services before calculating the X factor to apply to the directly regulated services.

Length of the regulatory period

The commission has concluded that in the current circumstances a four-year regulatory period for ACTEW’s water and wastewater services is preferable. The reasoning behind this decision, when a five-year period has been considered more of a regulatory standard, is as follows.

- There are a number of uncertainties impacting on medium-term water usage, caused by the current drought, water restrictions, and increases in the WAC—a slightly shorter regulatory period will be preferable while these out-of-the-ordinary events pass through.
- Observations by the commission’s consultants on ACTEW’s five-year planning horizon suggest that there may be some fluidity in ACTEW’s longer-term operating and capital expenditure projections, reflecting in part the current drought conditions and bushfire effects and a degree of renegotiation of arrangements between ACTEW and its service provider ActewAGL.
- Government policy parameters and objectives are currently under review and may result in a commitment to a major new water source.
- A shorter time will separate the timing of the water and wastewater price direction from that of the electricity distribution price review. Conducting the reviews simultaneously provides the commission, a relatively lightly resourced regulator, with a significant logistical challenge which should be avoided if possible.

The building-block methodology

In its 2003 issues paper the commission indicated its intention to adopt a ‘cost building block’ approach in order to calculate the efficient levels of costs which will become the notional or total revenue requirement for ACTEW. The commission has determined ACTEW’s maximum allowable revenue using the building-block approach, whereby the price path for a particular year can be expressed as:

$$\text{Total revenue requirement} = \text{efficient operating costs} + \text{return on capital} + \text{return of capital}$$

However, rather than determine a revenue requirement on an individual year basis and thereby potentially create wide movements in each year's prices, the commission has smoothed the revenue requirement over the four years of the proposed regulatory period.

The commission has not been persuaded that, in the calculation of regulated revenues using the building-block approach to regulatory modelling adopted by the commission, there is a justification for the inclusion of a return on working capital as a separate cost. This does not deny that a business will need to generate a return on its working capital and have an incentive to keep working capital to a minimum. However, under the regulatory price modelling used, ACTEW effectively recovers additional revenue sufficient to meet prudent working capital requirements. The commission has therefore declined to include a separate working capital component in the building-block approach.

Service standards

The commission notes the key service targets which are set out in ACTEW's submission and underpin its pricing proposals. However, the commission also notes that:

- in many cases ACTEW is easily surpassing these targets, notwithstanding limited information currently available to the commission
- there are a number of other minimum service standards in the Consumer Protection Code and the Water Supply and Sewerage Service Standards Code which are not included in the key service targets
- ACTEW has provided its targets for 2002–03 only, and not for any years of the next regulatory period.

Prior to preparing its final report, the commission will seek a more detailed submission from ACTEW on the service standards which it intends to meet during the next regulatory period, and which underpin its current pricing proposals.

This submission should ideally include any proposal to adjust standards as a result of analysis of ACTEW's 'willingness to pay' study. The commission

expects, based on current performance, that these service standards will in most cases exceed the minimum values set out in the relevant codes.

In general, the commission expects that over the next regulatory period ACTEW will provide services at or above levels currently being achieved.

Demand forecast

The commission is concerned by ACTEW's use of dual demand forecasts, with the higher forecast driving the operating and capital plan and the lower forecast being submitted for revenue-setting purposes. This type of approach could be construed as an attempt to 'game' the regulatory outcome.

At the same time the commission notes the difficulty in preparing accurate forecasts of demand for water services, given the number of influencing variables and uncertainty regarding the extent to which demand management activities and the current water restrictions will drive longer-term reductions in usage.

Under the commission's proposed form of price control, the forecasts of water use and wastewater generated do not have a direct impact on the price path to be established by the commission at this time. Rather, the usage forecasts are more important in determining annual compliance during the regulatory period.

One area where the commission has concerns is the growth rate in customer numbers for the period 2002–03 to 2003–04. The growth rates of 1.35 per cent and 1.25 per cent for water and wastewater customer numbers respectively that have been provided by ACTEW are below both the growth rates experienced in the prior years, and those forecast for subsequent years. ACTEW has argued that this reflects the impact of the bushfires, the ability of the local housing industry to maintain the current pace of incremental new housing development, and the expected downturn in the housing cycle.

Until the commission can satisfy itself that there is a downturn in new customer number growth in 2002–03, it will require ACTEW to adjust its customer number forecast for 2003–04 to reflect a 1.57 per cent and 1.47 per cent growth in water and wastewater customer numbers compared to 2002–03 numbers.

The commission requires ACTEW’s forecast of customer numbers for the period 2003–04 to 2008–09 to be amended as set out in Table ES.1.

Table ES.1 ACTEW’s forecast customer numbers, 2002–03 to 2008–09

	2002–03 (actual)	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09
Water							
Customer numbers	129 113	131 140	133 199	135 290	137 414	139 572	141 763
Percentage increase		1.57%	1.57%	1.57%	1.57%	1.57%	1.57%
Wastewater							
Customer numbers	125 869	127 719	129 597	131 502	133 435	135 396	137 387
Percentage increase		1.47%	1.47%	1.47%	1.47%	1.47%	1.47%

The regulatory asset base

ACTEW has proposed that the current regulatory asset base (RAB), as determined in the 1999 price direction, should be revalued to reflect the value of the revenue stream based on 2003–04 prices. ACTEW believes the roll-forward approach proposed by the commission in its 2003 issues paper should not be adopted. ACTEW’s calculation of the ‘updated’ valuation for water assets is \$459.3 million and \$475.6 million for its wastewater assets. ACTEW has noted that these valuations remain substantially below the depreciated optimised replacement cost valuation of its assets.

The commission has reviewed ACTEW’s arguments but does not accept ACTEW’s revised valuation. Given the historical circumstances of the initial investment in water and wastewater assets in the ACT, and the public ownership of those assets, the commission does not agree that a revaluation is necessary to ensure the long-term financial sustainability of the water and wastewater business in the territory, or to provide appropriate investment signals going forward. Also, the commission believes that to adopt a process whereby ACTEW’s RAB is subject to rebasing at each regulatory reset could result in a downward valuation of the RAB in future, particularly in a climate where projected demand might fall.

The commission has therefore decided to roll forward the current RAB in order to determine the opening valuation of the next RAB. The roll-forward arrangements will take the RAB determined for the 1999 price direction and adjust it for the value of prudent investment over the current regulatory period, indexation to ensure values keep pace with changes in inflation, asset write-offs, and depreciation.

The commission has accepted that all of ACTEW's capital expenditure in the current regulatory period (to 2002–03) can be considered to be prudent. The commission will also accept the latest estimate of ACTEW's 2003–04 expenditure for the purposes of forecasting the RAB. The opening RAB on 1 July 2004 will therefore be \$426.6 million for water and \$439.0 million for wastewater.

Capital expenditure 2004–05 to 2008–09

ACTEW has proposed a capital expenditure program for the water and wastewater businesses amounting to \$107.2 million (2002–03 dollars) over the next regulatory period.

The commission engaged Halcrow Pacific Limited (Halcrow) to review the efficiency and prudence of the proposed ACTEW capital expenditure program over the period 2004–05 to 2008–09. As part of this process the commission provided ACTEW with an opportunity to comment on Halcrow's findings.

Based upon the findings of the consultant's report, ACTEW's comments on the consultant's review, and its own deliberations, the commission has decided that it will accept in general terms the broad capital program proposed by ACTEW for the next regulatory period.

However, in accepting this broad program the commission still has concerns regarding the estimated costs of the program. These relate in particular to:

- concerns identified by Halcrow regarding unit rates and the use of excessive contingencies
- high design and project management costs.

On balance, and partly due to the length of the regulatory period being four years rather than five (which limits the potential gains to ACTEW from

overestimating capital costs), the commission has decided to accept the actual forecast program cost, but will impose a relatively rigorous review of the capital expenditure as part of the next price review before agreeing to the roll-in of that expenditure into the RAB for the next price reset.

As part of its review, the commission has been made aware of an issue concerning ACTEW's proposed funding of a performance incentive fee to be paid to ActewAGL should certain target capital expenditure efficiencies be achieved. The commission is not opposed to the concept of an incentive fee arrangement being paid by ACTEW, but believes that this should be funded out of the efficiencies achieved and not treated as a cost pass-through to consumers.

Thus, any gainshare–painshare mechanism, or profit sharing arrangement negotiated by ACTEW with its subcontractors will not be directly funded by ACT consumers by way of a pass-through of the payment into the revenue requirement. Rather it should be funded from the benefits arising out of the increased performance of the contractor.

The revised aggregate capital expenditure figures used for purposes of the regulatory modelling and forward RAB adjustment are provided in Tables ES.2 and ES.3 for water and wastewater respectively.

Table ES.2 The commission's efficient capital expenditure program—water

Year ending 30 June (2002–03 dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000	Total \$'000
ACTEW's proposed water capital expenditure program	25 120	7 345	3 497	4 876	3 318	44 156
Adjustment for the ActewAGL performance management fee	450	450	450	450	450	2 250
Commission's capital expenditure allowance	24 670	6 895	3 047	4 426	2 868	41 906
Halcrow's proposed capital expenditure allowance	21 616	5 221	1 947	2 574	1 801	33 159

Table ES.3 The commission’s efficient capital expenditure program—wastewater

Year ending 30 June (2002–03 dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000	Total \$'000
ACTEW's proposed wastewater capital expenditure program	17 647	13 217	11 377	11 202	9 627	63 070
Adjustment for the ActewAGL performance management fee	550	550	550	550	550	2 750
Commission's capital expenditure allowance	17 097	12 667	10 827	10 652	9 077	60 320
Halcrow's proposed capital expenditure allowance	14 162	7 801	8 596	8 436	6 535	45 530

Weighted average cost of capital

The commission has decided to use a pre-tax real rate of return for the purposes of the regulatory model. The commission will not be adopting the approach taken by the Australian Competition and Consumer Commission and the Essential Services Commission of Victoria, of calculating taxes as a separate cost line, but will use the approach adopted in its 1998–99 decision of treating the statutory tax rate as the effective rate for purposes of calculating an efficient rate of return on investment.

ACTEW has proposed a weighted average cost of capital (WACC) of 7.53 per cent pre-tax real. The commission has determined the WACC to be 7.1 per cent pre-tax. Table ES.4 sets out the parameters used by ACTEW and the commission in determining the WACC. The parameters used by the commission were chosen after consideration of the submissions received from ACTEW and a review of recent regulatory decisions within Australia.

Table ES.4 Comparison of parameters used in the weighted average cost of capital calculation

Parameter	ActewAGL's proposal	The commission's draft determination
	Value	Value
Risk-free rate	4.99%	5.82%
CPI	2.1%	2.34%
Real risk-free rate	2.9%	3.48%
Market risk premium	6.5%	6.0%
Debt margin	1.425%	1.425%
Gearing	50%	60%
Gamma	0.40	0.50
Asset beta	0.45	0.40
Debt beta	0.00	0.06
Tax rate	30%	30%
Equity beta (calculated)	0.90	0.90
WACC (nominal post-tax)	6.83%	6.74%
WACC (pre-tax nominal)	9.8%	9.62%
WACC (pre-tax real)	7.53%	7.1%

Operating costs

ACTEW has sought the commission's approval of operating costs of between \$65 million and \$70 million per annum over the regulatory period. These expenditure forecasts follow substantial increases in ACTEW's operating costs between 1999–2000 and 2003–04. Operating expenses in 1999–2000 were just \$47.2 million.

The commission is concerned that the forecasts of operating costs provided by ACTEW may overestimate the efficient costs of providing water and wastewater services to customers in the ACT. In particular, the commission has not been convinced by arguments put forward by ACTEW in respect of:

- a lack of the potential for efficiency savings going forward, particularly bearing in mind forecast further increases in real wage costs
- the justification for increases in certain cost items between 2002–03 and 2004–05

- the comparative efficiency of asset planning and management costs and ActewAGL’s service provision activities.

Accordingly, the commission has reduced the operating costs forecast by ACTEW by an average of 6.5 per cent over the four-year regulatory period (Halcrow had proposed reductions of double this amount). These reductions have been made primarily in relation to administration and corporate cost areas. The commission has generally accepted the forecast of direct operating and maintenance expenditure (Asset Management Plan expenditure) proposed by ACTEW. Table ES.5 details the commission’s proposed allowance for efficient operating costs.

Table ES.5 Commission’s estimate of efficient operating costs, 2004–05 to 2008–09

Year ending 30 June (2002–03 dollars)	2004–05 \$’000	2005–06 \$’000	2006–07 \$’000	2007–08 \$’000	2008–09 \$’000
ACTEW’s (revised) forecast	65 089	64 106	64 705	67 427	68 501
Commission’s efficient operating plan—water	28 332	28 188	28 177	28 723	29 112
Commission’s efficient operating plan—wastewater	33 329	32 003	32 320	33 231	33 556
Commission’s efficient operating plan—total	61 661	60 191	60 497	61 954	62 668
Commission’s reduction	-5.3%	-6.1%	-6.5%	-8.1%	-8.5%

Here again the issue of the eligibility of direct funding of an incentive payment from ACTEW to ActewAGL was raised by ACTEW in its submissions. In determining the allowance for operating costs, the commission believes that it has included sufficient revenue to allow ACTEW to pay ActewAGL an appropriate, contestable, arm’s-length fee (including a profit margin) for its operational and management services.

Revenue determination and the X factor

The cost building blocks

Tables ES.6 and ES.7 provide a summary of the cost build-up and revenue requirement provided by ACTEW in its September 2003 information return and its response to the 2003 issues paper.

Table ES.6 ACTEW's proposed cost building blocks—water

Year ending 30 June (nominal dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000
Operating costs	31 076	31 809	33 049	34 986	36 491
Return of capital—depreciation	10 816	11 246	11 633	12 036	12 392
Return on regulated asset base	35 470	36 550	36 634	37 432	37 895
Return on working capital	261	692	1 008	1 174	1 333
Total revenue requirement	77 623	80 297	82 324	85 628	88 111

Table ES.7 ACTEW's proposed cost building blocks—wastewater

Year ending 30 June (nominal dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000
Operating costs	36 773	36 236	37 699	40 636	42 249
Return of capital—depreciation	10 949	11 577	12 068	12 601	13 076
Return on regulated asset base	36 553	37 949	39 207	40 407	41 556
Return on working capital	452	572	744	873	1 013
Total revenue requirement	84 727	86 334	89 718	94 517	97 894

Having reviewed the assumptions behind ACTEW's proposal and reached decisions on the various components as outlined in the previous sections, the commission has used the cost building blocks set out in Tables ES.8 and ES.9 to determine ACTEW's total revenue requirement for its water and wastewater businesses over the next regulatory period.

Table ES.8 The commission's cost building blocks—water

Year ending 30 June (nominal dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000
Operating expenditure	29 892	29 419	29 809	30 746	31 544
Depreciation	10 047	10 470	10 821	11 131	11 470
Return on fixed assets (pre-tax)	30 186	31 098	31 401	31 687	31 942
Total revenue requirement	70 125	70 988	72 031	73 564	74 957

Table ES.9 The commission’s cost building blocks—wastewater

Year ending 30 June (nominal dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000
Operating expenditure	35 845	33 921	34 800	36 241	37 082
Depreciation	10 277	10 691	11 155	11 587	12 042
Return on fixed assets (pre-tax)	30 782	31 631	32 411	33 207	33 932
Total revenue requirement	76 904	76 244	78 366	81 035	83 055

The commission’s revenue requirement is on average 11.7 per cent lower than ACTEW’s proposal over the four-year regulatory period. This difference reflects a number of individual decisions, with four important issues accounting for most of the difference. These decisions are:

- the commission’s decision to roll forward the current RAB to determine the opening asset value, rather than accept ACTEW’s proposal for a revaluation of the asset base which would have added more than \$70 million to the opening RAB across the water and wastewater functions
- the commission’s decision not to include a return on working capital in the build-up of costs for regulatory modelling purposes, on the grounds that the regulatory model already compensates ACTEW for this cost
- the commission’s decision to reduce the forecast of allowable operating expenditure required by ACTEW in order to continue to undertake its functions consistent with existing service levels
- the commission’s decision to use parameters in the estimation of the WACC that are in line with decisions taken by other regulators across Australia.

The X factor

Table ES.10 provides ACTEW’s proposed X factor adjustments consistent with the projected revenue requirements summarised in Tables ES.6 and ES.7.

Table ES.10 ACTEW's proposed X factors

Year ending 30 June	2004–05	2005–06	2006–07	2007–08	2008–09
CPI forecast— Econtech	1.7%	1.8%	2.6%	3.0%	2.5%
ACTEW's proposal— water	CPI + 6.0%				
ACTEW's proposal— wastewater	CPI + 5.3%				

The commission has adopted the inflation forecasts proposed by ACTEW for the purposes of regulatory modelling and setting the X factors. It has also opted to adopt net present value smoothing and a single X factor across the regulatory period for each part of the business. Table ES.11 provides the X factors to be used by the commission over the regulatory period.

Consistent with the commission's decision to adopt a four-year regulatory period, the commission's calculation of the X factors excludes data for 2008–09.

Table ES.11 The commission's draft decision on X factors

Year ending 30 June	2004–05	2005–06	2006–07	2007–08
CPI forecast	1.7%	1.8%	2.6%	3.0%
Water	CPI + 2.4%	CPI + 2.4%	CPI + 2.4%	CPI + 2.4%
Wastewater	CPI + 0.5%	CPI + 0.5%	CPI + 0.5%	CPI + 0.5%

CPI adjustment

The commission has previously used the year to March CPI in its price path determinations. However, to make regulation more convenient the commission proposes to use the year to December CPI as the adjustment factor. The commission has made this decision to ensure that prices are available to all customers well in advance of 1 July each year.

Therefore the commission will allow ACTEW to adjust regulated revenues using the following formula:

$$\text{Average revenue per customer} = (1 + (\text{CPI} + \text{X})) \times (\text{maximum allowable average revenue in the previous year})$$

where CPI is the sum of the four quarters ending December of the previous year divided by the sum of the four quarters ending December a further 12 months previously.

Setting the average revenue cap

In reviewing compliance with the average revenue cap, the commission will calculate the average revenue for financial year t by multiplying the proposed tariffs by the forecast sales volumes in the next year.

Thus the calculation for the maximum average revenue (MAR) will be:

$$\text{MAR}_t = \frac{\sum_n (\text{Forecast sales volumes}^n \times \text{Proposed tariffs}_t^n)}{\text{Forecast number of properties}}$$

where n represents the tariff classes.

The commission will require ACTEW, in submitting proposed tariffs to the commission each year, to provide detailed sales and revenue forecasts, and to describe and justify the assumptions adopted in arriving at those forecasts. Where the commission is not satisfied with the veracity of those forecasts, it may reject the tariffs proposed by ACTEW and require new tariffs to be submitted. The proposed process for establishing tariffs on an annual basis is set out in the draft price direction in Appendix 1.

Tariff structure and billing

The revenue settings established by the CPI + X price control mechanism, which the commission proposes to set at CPI + 2.4 per cent for water and CPI + 0.5 per cent for wastewater, provide a context for average changes in water and wastewater tariffs. However, the individual tariffs for different customer groups or services do not need to be adjusted at the same rate as the overall price control. Rather, the tariff structure that is adopted, provided that it does not breach the overall price control mechanism, is able to be adapted to suit the particular circumstances faced by ACTEW and by the ACT community.

Tariff structure

The structure of water tariffs will have direct implications not only for customer bills but also for the demand for water, the environmental impact of water taken for consumptive purposes, the need for a new storage in the ACT, the requirement for some form of financial concession arrangements for less advantaged consumers, the use of side constraints, and the demand for substitute products such as reuse water.

The commission has developed two alternative price structure proposals which have direct relevance for consideration of these issues. The commission is seeking comments from interested parties on these alternatives. Proposal A, which would require a change in the current billing arrangements, is based on a 'U' shaped average price curve (that is, the average price ultimately rises as consumption rises) while at the same time increasing the marginal price at three consumption steps as consumption of water increases. Proposal B has the same shaped average price curve as the existing price structure. Irrespective of which of the two proposals (or other pricing proposals) is adopted, there will be an additional charge applied to the variable price of water from 1 July 2004, namely the 25 cents per kilolitre WAC. The ACT Government has already announced this change, and in any assessment of the strengths and weaknesses of alternative tariff structures a fixed per kilolitre WAC of 25 cents needs to be considered.

Proposal A has the following price schedule:

- a fixed water supply charge of \$70.00
- a \$0.50 variable component for the first 100 kilolitres consumed
- a \$1.00 variable component for the next 200 kilolitres (that is, to 300 kilolitres) consumed
- a \$1.50 variable component for consumption thereafter.

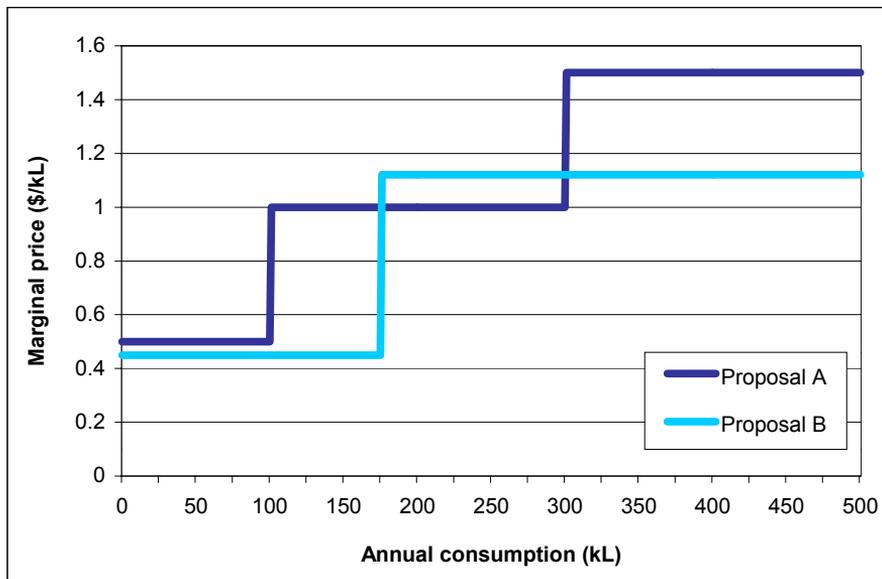
Proposal B has the following price schedule:

- a fixed water supply charge of \$125.00
- a \$0.45 variable component for the first 175 kilolitres consumed
- a \$1.12 variable component for consumption thereafter.

Primary consideration of these two proposals focuses on the pricing impact on residential consumers. However, the commission notes that non-residential customers account for almost half of all water used in the ACT. If a structure such as proposal A was adopted, the majority of commercial premises which use small amounts of water (less than 360 kilolitres per year) would experience price falls. However a small number of large non-residential customers would face increases in bills of more than 20 per cent. These potentially significant tariff increases, and their effect on usage, need to be considered in any discussion of tariff structures.

Figure ES.1 compares the pricing structures of proposal A and proposal B.

Figure ES.1 Comparison of marginal price schedules



Under proposal A the average cost curve, while initially declining, subsequently increases, resulting in an increased average price per kilolitre of water consumed for larger water consumers. Proposal B provides a declining average cost curve over all levels of consumption, resulting in the average price paid by consumers actually falling as consumption increases, notwithstanding the increasing marginal rate. Under both approaches the commission has used an inclining block tariff with an increasing marginal price for water.

Each proposal has a number of different impacts.

Proposal A generates proportionately more revenue for ACTEW from the variable charge, hence creating higher revenue volatility in dry and wet years compared to proposal B.

Both proposals are relatively easy for customers to understand. However, proposal B, which has a single price adjustment step and is similar to the existing pricing structure, does not require customers to adapt to a new regime.

Proposal A is more likely to help achieve the reductions in per capita consumption proposed by the ACT Government in its draft water strategy. ACTEW has advised that consumption of water above 300 kilolitres per annum by households accounts for over two-thirds of the residential water consumed in the ACT. However, the proportion of households consuming at greater than 300 kilolitres per year for non-discretionary consumption is less than 3 per cent. It is therefore expected that there is a relatively higher elasticity of demand for water usage above 300 kilolitres. Given the volume of water involved, proposal A is more likely to achieve reductions in usage than proposal B.

The equity and economic efficiency effects are less clear cut and will depend to some extent on where the marginal cost of water lies. Proposal A provides clear benefits for users of small amounts, and allows non-discretionary usage at the low or middle step, with water bills likely to be lower than currently experienced, even with the increased WAC and the implementation of the commission's price path. At the same time, proposal A can be accused of unduly penalising users of large amounts of water, particularly if the highest step is above the long-term marginal price of water. The highest step may result in customers reducing usage to a point where the marginal costs to society outweigh the marginal benefits of the reduction in water demand, resulting in a net loss to the community.

While both proposals provide low-cost water up to certain consumption step (currently 175 kilolitres per annum), proposal B could be accused of penalising larger households for the consumption of non-discretionary water at rates above this step. However, under proposal B most consumers face the same price for marginal use and therefore have the same incentive to save or consume water. Average consumers are free to choose the amount of water they consume for discretionary purposes without facing a higher cost if they breach any predetermined additional consumption step, as is envisaged under

proposal A. This promotes the maximising of consumer welfare, which is a desirable outcome.

The commission emphasises that these two proposals are for discussion only and as such should not be seen as the price for water to apply from 1 July 2004. The commission is interested in obtaining views on the relative merits of each proposal from interested parties before providing ACTEW with some final guidance on tariff structures in its final decision to be released in March 2004.

The commission has also outlined a number of other alternative billing arrangements which could be considered in conjunction with proposal A and B, or separately from the issue.

Billing

The commission has also set out alternative billing arrangements in the form of daily pricing, and invites comment from interested parties on the merits of this approach. The commission is also seeking input on the matters of side constraints, seasonal tariffs and wastewater pricing, prior to making its final decision.

Daily pricing

At present, ACTEW's billing system calculates prices for all water consumed since the previous meter reading at the prices in effect on the day of the meter reading. Prices for water change on the first day of a new financial year. Therefore, consumers can find themselves paying for water consumed in the previous financial year at the rates charged in the present financial year.

Under daily pricing, customers would pay for water at the relevant rate applying in the year in which water is consumed. To meet this objective, every bill issued between 1 July and 30 September would be pro-rated according to the number of days falling in each financial year. Thus no customer would be disadvantaged in terms of the per kilolitre rate that they are required to pay.

At present, the first marginal price adjustment step occurs after the customer has consumed 175 kilolitres in a year. Daily pricing would result in customers paying the higher price in every quarter once their average daily

consumption in that quarter exceeds 479 litres per day. Thus, customers would in effect be paying higher prices particularly in those quarters (for example, summer and spring) when average daily rates of consumption will be higher. Currently, an averaging process across the year may mean that low consumption levels in winter counterbalance high consumption during the warmer months.

There are a number of benefits associated with the introduction of daily pricing, not the least of which is giving a stronger price signal at times when there is peak demand (and therefore high infrastructure usage). However, there are also a number of issues the commission would like to investigate further before agreeing to the introduction of daily pricing. The commission will reserve its judgement on the introduction of daily pricing until the final decision is released in March.

Wastewater pricing methodologies

ACTEW has proposed to review wastewater tariffs, and has foreshadowed that relative increases in residential tariffs are required to address what it believes is a current cross-subsidy problem benefiting residential consumers. As a consequence, ACTEW is proposing that the non-residential tariff structure may be reformed from 2006–07, following customer consultation.

The commission is supportive of ACTEW's review of the fixtures-based charge for non-residential dwellings. It agrees with ACTEW that the number of fixtures is a poor indicator of the impact placed by the customer on the wastewater system. The commission notes that a fixtures-based approach is adopted by very few Australian water businesses and that most such businesses have moved away from this approach to direct usage charging for wastewater services.

Unmetered properties

There are currently 4819 properties in the ACT (approximately 4 per cent of the total) that are receiving a water supply but which are unmetered. A 'deemed' approach to pricing for these properties is currently applied.

ACTEW has advised that the average consumption of these unmetered properties is around 184 kilolitres. The deemed use for flats of 175 kilolitres has a number of implications. First, water customers residing within a unit do not face a marginal price for water, and thus face no incentive to reduce

consumption. Second, customers in low water-use housing blocks pay exactly the same as those in high-use blocks.

The commission believes that for unmetered residential buildings, there would be benefits in moving to an approach similar to that used for strata title home units, whereby metered consumption is used to determine bills. This will address some equity issues to the extent that low-use blocks of units may then pay less than high-use blocks. More importantly, it will also encourage more efficient water use.

Trade waste

ACTEW proposes to review whether a trade waste tariff will produce improvements in economic efficiency, before considering the tariff structure, if any, that needs to apply. The commission supports ACTEW's proposed review, and expects to be kept informed of the progress and outcomes of this review.

Side constraints

Side constraints have been used in the 1999 price direction. However, the commission would like to avoid using side constraints if at all possible, as they have the potential to create anomalies in the tariff structure. The commission will give further consideration to the issue of price side constraints prior to releasing its final report in March 2004. For the moment, the commission will refrain from applying side constraints subject to further consideration of potential changes to the tariff structure.

Impact on customers

The Treasurer's reference requires the commission to consider the impact of its decision on disadvantaged consumers, low-income earners and large households, and the adequacy of concessions for services intended to address any perceived disadvantages suffered by these groups. The commission is also required to consider the impact of the pricing decision on ACTEW's community service obligations and, specifically, the funding required to meet these objectives.

Financial impact on customers

Assuming that there is no change to the structure of tariffs and that the CPI is 2.5 per cent, if ACTEW alters all charges proportionately then all customers will face an annual 4.9 per cent nominal increase in their water bill, a 3.0 per cent change in their wastewater bill, and an increase of up to 4.9 per cent in their total bill (depending upon the relative size of their water bill compared to their wastewater bill).

The ACT Government has also proposed an increase in the WAC, to raise it on 1 January 2004 to 20 cents per kilolitre and on 1 July 2004 to 25 cents per kilolitre. The increase in the WAC combined with the forecast effects of the CPI and the 2.4 per cent real increase in bills allowed by this draft price direction will result in most customers' water bills increasing by 10 per cent to 12.5 per cent in 2004–05 compared to 2003–04 (assuming no other changes).

Including both water and wastewater price changes as proposed in this draft decision, a customer consuming 250 kilolitres of water will incur a total price increase of 7.35 per cent and a customer consuming 300 kilolitres of water will incur a 7.78 per cent increase. The median level of water consumption in the ACT is 280 kilolitres per annum. In effect, the overall increases proposed will cost the median household approximately \$1.00 in water and wastewater charges per week.

For households in the ACT reliant on government pensions or falling into similar low-income groups, whose weekly income is in the range of \$300 to \$350 per week, an additional \$1.00 per week in water and wastewater costs would represent 0.3 per cent of weekly income. However, with the average number of persons in the home around two, and assuming per capita consumption of 85 kilolitres per year (50 per cent higher than the estimated consumption to meet non-discretionary needs), the overall increase in costs is more likely to be in the range of an extra \$0.75 per week. These are not insignificant amounts for some households and the commission as part of its final report will examine in more detail aspects of the impact of price changes on individual household types. It is important to note, however, that there will be real increases in the prices for water and wastewater services under a tariff option that adopts a pricing structure similar to that currently used by ACTEW.

Impact on the environment and environmentally sustainable development

The commission believes that this draft decision will provide positive outcomes for the environment. This positive impact is reflected in likely outcomes in terms of demand management and environmental standards.

Demand management

The major implication of this draft decision in terms of demand for water is in relation to pricing. The revenue outcomes proposed here allow for a small real increase in water bills on average. This increase reflects the revenue requirements for ACTEW to meet its water reticulation and treatment obligations. Of itself, this increase is unlikely to materially affect demand.

However, the commission has put forward for consideration two alternative pricing structures which would have somewhat different impacts on demand for water. These pricing structures, combined with the increase in the WAC to take effect from 1 July 2004, could have a significant impact upon demand, particularly at the higher levels of consumption.

These changes in tariff structure could provide a greater incentive to reduce demand, although the exact effect is difficult to estimate. This difficulty is created by the limited availability of information on the elasticity of demand at individual levels of water consumption.

In the ACT context, an additional incentive to reduce demand is created by the WAC. Although demand management is not a key objective of the WAC, the Government's plan to increase the WAC to 20 cents per kilolitre from 1 January 2004, and to 25 cents per kilolitre from 1 July 2004, will assist in reducing water usage.

Environmental standards

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.

The draft decision allows ACTEW to recover its costs to meet existing levels of environmental compliance. In addition, the commission has allowed ACTEW the recovery of the costs of operating mini-hydroelectric (mini-hydro) schemes on the main supply pipelines. The costs of these activities will in part be recovered from the sale of electricity, and in part through the water prices, from a recovery of costs linked to the control of water flows.

Reuse water

ACTEW has developed a number of reuse water programs, including the Fyshwick effluent reuse system and the Southwell Park effluent reuse plant. ACTEW also proposes additional operating and capital expenditure during the next regulatory period on these existing reuse water projects and an additional reuse facility in Belconnen.

The commission notes that the draft water resources policy targets an increase in effluent reuse from 5 per cent to 20 per cent and that the *Territory Owned Corporations Act 1997* (TOC Act) gives ACTEW an environmental objective. The new projects currently proposed by ACTEW will not achieve this reuse target. Further, the TOC Act provides no specific guidance on individual projects that need to be undertaken.

The achievement of the reuse targets will therefore need to be the subject of more detailed discussion and debate involving the ACT Government, ACTEW and the community. As the draft water resources policy notes, a plan to increase the use of treated effluent needs to be developed.

The commission has outlined a process that it proposes to use to assess the cost-effectiveness of individual reuse projects. The ACT Government's policy objective identifies the desirability of increasing such activities. However, individual projects need to be considered carefully to ensure that they represent the best value for money. Consumers need to be aware of the relative costs of various reuse alternatives, especially when the community already fully funds best-practice reuse technology in the Lower Molonglo Water Quality Control Centre.

Major infrastructure investment

The commission's review of ACTEW's water and wastewater networks is part of the broader debate on the future of the ACT's water resources. This debate has also focused on the importance of ensuring that the territory continues to have access to enough water to support its population over the next 50 years. The commission, while not seeking to express a view as to the most appropriate new source of water for the ACT or the timing of a decision to access that source, has offered some thoughts on the ways to fund any new infrastructure proposal that may be required.

Funding

There are three primary options for funding a major new infrastructure project in the ACT (although there may also be variations within these options). The options are:

- Commonwealth Government funding
- ACT Government funding
- ACTEW funding.

Some form of joint funding involving any two or more of these should not be dismissed as a possible funding arrangement.

Commonwealth Government funding

Should the Commonwealth Government decide to fully fund a new major infrastructure project, as it has in the past, the funding would in all probability be in the form of a direct payment to the ACT. The infrastructure involved would be fully funded, and consumers in the ACT would simply be required to meet the costs of whole-of-life maintenance and operation of the facility. In these circumstances there would be no need for ACT consumers to fund the infrastructure, which would be treated as a gifted asset.

ACT Government funding

If the infrastructure project were funded by the ACT Government, the Government would have available to it the WAC, through which it could fund the project. It would not be necessary for the ACT Government to recover the actual construction costs of the new infrastructure. Rather,

recognising the infinite life of the new infrastructure project and the need to address intergenerational issues, the ACT Government could simply treat the capital costs as a long-term bond on which it would need to recover an annual interest charge. It is this charge that would be recovered through the WAC, together with any other costs (not already recovered by ACTEW) needed to ensure that the asset is retained in ‘as-new condition’ in perpetuity.

As an example of the likely cost effect, assume that the risk-free interest rate of 5.8 per cent, as used in the calculation of the WACC for ACTEW, is the ‘bond rate’ required to be recovered by the ACT Government. The cost of interest on a \$200 million project would in these circumstances be in the order of \$11.6 million per annum. This cost would be apportioned over the volume of the water consumed in the ACT. Assuming that the gross amount of water sold in a given year equalled 75 gegalitres¹, the increase in the WAC would be approximately \$0.15 per kilolitre over the level currently applied in the ACT.

This would result in ACT consumers being required to pay increased water charges, including the WAC, of around 12 per cent per annum compared to current charges.

ACTEW funding

If the infrastructure project were fully funded by ACTEW, the same principles as for the ACT Government example would apply. That is, the asset, because of its infinite life, should be fully funded through a form of long-term bond arrangement plus a charge to recover the whole-of-life maintenance costs. The only difference from the ACT Government example is that ACTEW would fund the project and retain the revenue. The rate of return to be used would be the regulatory WACC and thus there would be some slight increase in the net cost per kilolitre of water consumed, as the WACC is greater than the risk-free interest rate. Cost increases of 14 per cent to 15 per cent compared to current charges would be required.

¹ This assumption is based on continued growth in consumption resulting in increased need for a major augmentation or supply project.

Costs and benefits

As can be seen from these simple examples, the funding of a new major infrastructure project is possible without causing significant undue financial burden to current and future consumers. The ACT Government, through the WAC, has the mechanism in place whereby it could fund and undertake the infrastructure project. Alternatively, ACTEW could fund and undertake the project at a very similar annual cost to consumers. If rights to water had to be purchased (for example, if the Tantangara option discussed in Section 13.1.2 were used), there would be an offsetting benefit from the temporary sale of the water under those rights in the years in which it is not needed for the ACT.

Wider environmental and social costs and benefits will need to be considered, and where possible costed, as part of any evaluation of the options available. To the extent that these can be costed, they can be included in the pass-through of costs to consumers under the pricing models outlined above.

Financial impact on ACTEW

The commission has considered the likely financial implications for ACTEW of the proposed price path under this draft decision.

The financial modelling undertaken by the commission indicates that ACTEW will still achieve a credit rating in the A to AA+ category, using the New South Wales Treasury rating approach. A credit rating of this level is consistent with the need for ACTEW to be able to access debt funding at an appropriate cost should it decide to go to the market and restructure its current debt–equity arrangements.

1 Introduction

In May 1999 the commission issued a price direction which covered, among other things, water and sewerage service pricing. The relevant investigations were undertaken in terms of a reference issued under the *Independent Pricing and Regulatory Commission Act 1997* (IPARC Act). The 1999 price direction expires on 30 June 2004.

The commission, as the regulator of utility services for the ACT and the jurisdictional regulator for the ACT, is conducting an investigation into prices for water and wastewater services provided by ACTEW within the ACT. The investigation will allow for a decision on pricing to be issued for water and wastewater services to apply from 1 July 2004 to 30 June 2008 (the next regulatory period).

This review is being undertaken in conjunction with a review of prices for electricity services being provided by ActewAGL. The two reviews are being undertaken separately, although there is some overlap in terms of issues considered.

1.1 The commission's decision-making process

The commission's price direction will determine the annual revenue requirement for water and wastewater services provided by ACTEW. Water and wastewater services are delivered, under contractual arrangements, by ActewAGL, which is a joint venture partnership between ACTEW and the Australian Gas Light Company (AGL). While ACTEW retains ownership of the water and wastewater assets, the customer interface is wholly with ActewAGL. These arrangements are outside the scope of the reference issued by the ACT Treasurer.

1.1.1 Matters to be considered

The commission has been issued with a reference by the ACT Treasurer to review and report on an appropriate costing and pricing methodology and pricing level for regulated water, sewerage and trade waste services. This reference is set out in full in Appendix 2.

In undertaking this review, the commission must among other things:

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

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

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

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

1.2 Consultancies

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

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

Burns and Roe Worley (BRW) has reviewed demand forecasts, cost attribution, and operating and capital expenditure programs for ActewAGL. BRW has employed McLennan Magasanik Associates (MMA) and Halcrow Pacific Limited (Halcrow) as subconsultants to ensure that all aspects of the review are addressed with the necessary specialist expertise.

While the commission has appointed IPART and BRW to provide advice and detailed analysis, the final conclusions that have been made in coming to this draft decision have been made by the commission alone.

1.3 Outline of this report

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

Section 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 1999–2000 to 2003–04 regulatory period.

Section 3 sets out the commission's proposed methodology for determining ACTEW's regulated revenue.

Section 4 discusses service quality issues, services to be regulated, and the forecast of demand for water and wastewater services.

Section 5 sets out the manner in which ACTEW's regulated asset base (RAB) and forecast depreciation has been calculated by the commission.

Section 6 sets out the commission's decision regarding the weighted average cost of capital to be applied to ACTEW's RAB to determine the rate of return on network investment.

Section 7 sets out the commission's decision regarding the operating expenditure allowances to be applied over the next regulatory period.

Section 8 brings together Sections 5 to 7 and calculates ACTEW's total regulated revenue requirement. It also discusses how price changes throughout the next regulatory period will be made.

Section 9 outlines the commission's views on issues relating to the tariff structure for water and wastewater services.

Section 10 discusses other regulatory issues, including the incentives for ACTEW to improve service standards and achieve efficiency gains.

Section 11 sets out the likely impact of the draft decision on consumers.

Section 12 discusses the impact of the draft price direction on the environment and environmentally sustainable development.

Section 13 discusses the potential demand and funding mechanisms for increased major water and wastewater infrastructure in the ACT.

Section 14 provides a financial analysis of the likely impact of the draft decision on ACTEW's credit ratings.

This draft report and draft price direction represent the preliminary views of the commission on the key issues included in this price review. The views have been drawn together in the form of this draft report to provide an opportunity for ACTEW, customers and other interested parties to scrutinise and comment on the views expressed by the commission.

The commission is seeking information and comments on any issues that interested parties consider are relevant to this price review. Where possible, submissions should contain relevant data, documentation and explanations to support the views expressed.

Anyone can make a submission to this price review. It can be a short letter outlining your views on a few aspects relevant to the price review or a more substantial document canvassing a wide range of issues. All submissions will be published on the commission's website except where the commission has agreed to treat a submission as confidential.

The due date for submissions in response to the draft decision is 5.00 pm, 24 December 2003. Please send your written submission to the commission via mail or electronically via email or on a disk,

by mail to: PO Box 975
Civic Square
ACT 2608

in person to: Level 7, Eclipse House
197 London Circuit, Civic

or by email to: icrc@act.gov.au

1.4 Timetable for the 2004 review

The commission has developed the following timetable for the consultation process.

Release of information paper	22 December 2002
Release of 2003 issues paper	23 July 2003
Close of submissions on the 2003 issues paper	19 August 2003
Release of the commission's draft report and draft price direction	3 December 2003
Close of submissions on the draft report and draft price direction	23 January 2004
Public hearings	first week in February 2004
Release of the commission's final report and final price direction	31 March 2004

2 Regulatory environment

ACTEW is currently operating under a price direction made by the commission in 1999. This direction is operative until 30 June 2004. Since this price direction was made there have been a number of changes in the water and wastewater industry in the ACT. These changes include:

- the appointment of the newly established entity ActewAGL as the operator of the water and wastewater services in the ACT, on behalf of the owner, ACTEW
- a period of relatively severe drought, resulting in the introduction of water restrictions in January 2003, culminating in Stage 3 restrictions being applied from 1 October 2003
- the January 2003 bushfires and their impact upon water and wastewater infrastructure within Canberra and the Cotter water catchment area
- increased public awareness of water environmental issues and the need for reductions in usage, reflected in the ACT Government's recent draft strategy for sustainable water resource management in the ACT, *Think water, Act water*
- a commitment by the ACT Government to the adoption of a cap on water usage for consumptive purposes in line with the Murray–Darling Ministerial Council cap on water usage from the basin
- the introduction of the Water Abstraction Charge (WAC) and, more recently, the increase in that charge from 10 cents per kilolitre to 25 cents per kilolitre from 1 July 2004.

These issues, as well as ACTEW's financial outcomes compared to the benchmarks set by the commission in 1999, are discussed below.

2.1 The ACTEW–AGL alliance

The commission's 1999 price direction was made in respect of ACTEW. Since that time ACTEW and Australian Gas Light Company (AGL) have entered into an alliance arrangement such that water and wastewater services

are now provided, under contractual arrangements, by ActewAGL, which is a joint venture partnership between ACTEW and AGL. While ACTEW retains ownership of the water and wastewater assets, the customer interface is wholly with ActewAGL.

ActewAGL operates through a business structure involving a number of interconnected corporate entities. ACTEW owns the water and wastewater infrastructure but contracts ActewAGL to provide all the system operations and maintenance to deliver water and wastewater services to customers.²

ActewAGL is organised as two partnerships: one distribution partnership and one retail partnership. The ActewAGL distribution partners are ACTEW Corporation Limited and AGL Gas Company (ACT) Limited. ActewAGL Distribution is responsible for the network side of the energy business. It also operates and maintains the water and sewerage network under contract to ACTEW Corporation. ActewAGL Distribution also provides financial, human resources, information technology and legal services to ActewAGL Retail.³

The ActewAGL retail partners are ACTEW Retail Limited and AGL ACT Retail Investments Proprietary Limited. ActewAGL Retail carries out customer service and marketing and sells energy. Bulk energy is purchased via the AGL group.⁴

The resulting corporate and operational structure has raised regulatory concerns for the commission primarily because of the risk of cost shifting between ACTEW and ActewAGL's separately regulated businesses, or between its regulated businesses and other, unregulated commercial activities. As a result the commission has given particular attention to the issue of cost allocation between the relevant entities in the ACTEW-AGL group of businesses. The outcome of the commission's deliberations in this area is discussed in Section 7.

² Independent Competition and Regulatory Commission, December 2002, *Investigation into prices for electricity and water services in the ACT*, Information Paper, p. 7.

³ ActewAGL, Annual Report 2002, p. 2.

⁴ ActewAGL, Annual Report 2002, p. 2.

2.2 The bushfires and drought

In January 2003 a bushfire devastated much of western Canberra's environs, and had a significant effect on ACTEW's catchments, with particular implications for water quality. It also destroyed or damaged significant amounts of water and wastewater infrastructure. As a result ACTEW has been required to undertake capital and operating expenditure which was not anticipated in the 1999 price direction.

On average, in common with much of south-eastern Australia, Canberra experienced relatively low rainfall and high temperatures over the current regulatory period. Although rainfall from 1998–99 to 2001–02 was slightly above average, in 2002–03 it was the lowest recorded in over 30 years. This has also had water quality implications, and ACTEW has incurred unanticipated costs associated with the low rainfall, including additional treatment and pumping costs. These costs have also occurred partly because the existing water treatment facilities at Stromlo have been unable to cope with the higher levels of impurities present in the water as a result of the bushfires in the catchment.

Water restrictions were imposed in the ACT in January 2003, with Stage 3 restrictions being applied on 1 October 2003. These restrictions, combined with a public awareness campaign, have had the effect of moderating demand.

2.3 Environmental issues and demand management

The bushfires and drought have increased public awareness of water environmental issues and the need for sustainable water use practices. This is reflected in the publication of the ACT Government's *Water ACT: A Draft Policy for Sustainable Water Management* policy discussion paper, which proposes that the Government will:

- investigate alternative supply operations other than a new dam to ensure that infrastructure is in place to secure water supply to the ACT and region in the longer term
- develop a plan to increase the use of treated effluent from the current 5 per cent to 20 per cent by 2013

- challenge the community to decrease per capital potable water use by 12 per cent by 2013 and 25 per cent by 2023.

Other developments in relation to water usage and the environment have occurred at the Commonwealth Government level.

In 2003 the ACT Government, along with state governments and the Commonwealth Government, committed to spending a total of \$500 million to rehabilitate and return flows to the Murray River.

Discussions have also been held between the ACT Government and the Murray–Darling Basin Commission on the application of the cap on water usage from the catchments servicing the ACT.

2.4 The Water Abstraction Charge

The WAC is a charge on water users to send a signal to consumers regarding the true cost of water and to recover the costs of water provision not currently incurred by ACTEW and incorporated in regulated water tariffs. The WAC was first applied at a rate of 10 cents per kilolitre. The ACT Government has announced its intention to increase the WAC to 20 cents per kilolitre on 1 January 2004 and to 25 cents per kilolitre on 1 July 2004.

In May 2003, the Treasurer issued a reference to the commission to investigate and provide advice on an appropriate level for the WAC. The reference also required that the commission advise on an appropriate methodology for the calculation of the WAC in future years.

The commission's final report on the WAC was issued on 10 October 2003. Amongst the commission's findings were that:

- The objective of the WAC should be to recover direct and indirect costs incurred and to provide a price signal which can contribute to the efficient and environmentally sensitive use of water for consumptive purposes.
- The WAC should be determined on an annual basis with any change in the WAC to take effect from 1 July of each year.

- The WAC should not be applied to reuse water and urban stormwater used within urban areas (including water extracted from dams and similar holding areas on golf courses).
- On the basis of the application of the WAC formula as outlined above, the WAC to apply in the current first half of 2003–04 could be 18 cents per kilolitre. To recover expected additional catchment reconstruction costs to be incurred, the WAC to apply from 1 January 2004 could be 20 cents per kilolitre.
- The WAC should be passed directly on to consumers as a separate charge, and should be applied on a per kilolitre basis to all potable water charged for by ACTEW, at the same constant rate per kilolitre for all consumers.
- ACTEW should be able to recover appropriate overheads and costs in administering the WAC. The commission should take this into consideration in its price direction for ACTEW's water and wastewater services.
- The WAC should sit outside of any side constraints applied by the commission to general prices for water and wastewater services through its price direction process.
- The ACT Government should give consideration to allowing the Essential Services Consumer Council to provide access to some extra concession payments in exceptional cases where warranted.

The WAC has implications for customer demand for water, as well as for ACTEW in terms of revenue and operational and administrative costs. Where relevant, these issues are discussed throughout this draft report.

2.5 The regulatory process

In preparing this draft decision and in the transition from this draft decision to the final decision, the commission has engaged, and will continue to engage, in an extensive investigation and process of public consultation. The review process has included the dissemination of information by the commission, and requests for and receipt of a wide range of information from various sources. In particular:

- The commission released an information paper in December 2002.
- In December 2002, the commission issued ACTEW with an information request which required ACTEW to provide extensive financial and performance data on the future capital and operating expenditure which the business believed would be necessary to maintain customer services levels and respond to consumer demands over the next regulatory period.
- ACTEW provided the commission with a pricing proposal on 29 May 2003.
- Halcrow Pacific Limited (Halcrow) conducted a review of ACTEW's capital expenditure program, operating expenditure program and asset management program. McLennan Magasanik Associates (MMA) reviewed cost attributions and demand forecasts.
- The commission released an issues paper in July 2003 inviting comments from all sectors of the community.
- The commission received comments from ACTEW on 29 August 2003, in the form of a second pricing proposal, and from other members of the community in response to the 2003 issues paper.
- On 1 September 2003, ACTEW provided the commission with an updated submission regarding the information request of December 2002, including the actual levels of expenditure for 2002–03 and actual budgeted expenditure for 2003–04.
- Following receipt of the final draft of the consultant's report, the commission invited ACTEW to participate in a discussion, involving Halcrow, MMA and the commission, on the draft final report. The commission subsequently received formal written submissions from ACTEW on the consultant's report.

In preparation for the final report and price direction to be released in March 2004, the commission will provide an additional opportunity for all members of the community to respond to this draft decision through:

- formal written submissions on matters included in this draft decision—these submissions are to be provided by 23 January 2004
- a public hearing—to be conducted in the first week of February 2004.

A full timetable is set out in Section 1.4.

Appendix 3 provides a list of submissions regarding the water and wastewater pricing investigation received by the commission to date.

2.6 The 1999 price direction

In 1999 the commission issued a price direction to ACTEW in respect of its water and wastewater functions. The price direction was based on a number of assumptions and forecasts. This section compares the reported outcomes over the existing regulatory period with the forecasts made at the time of the 1999 price direction.⁵

2.6.1 Revenue and price outcomes

The 1999 price direction applied a price control to ACTEW's services based on a separate maximum average revenue per property for both water and wastewater services. The average revenue per property was permitted to increase each year on the basis of a CPI plus X factor, with the X factors defined as shown in Table 2.1.

Table 2.1 X factors, 1999–2000 to 2003–04

	2000–01	2001–02	2002–03	2003–04	2004–05
Water	4%	4%	3%	3%	3%
Wastewater	1%	1%	1%	0%	0%

The 1999 price direction also incorporated two side constraints:

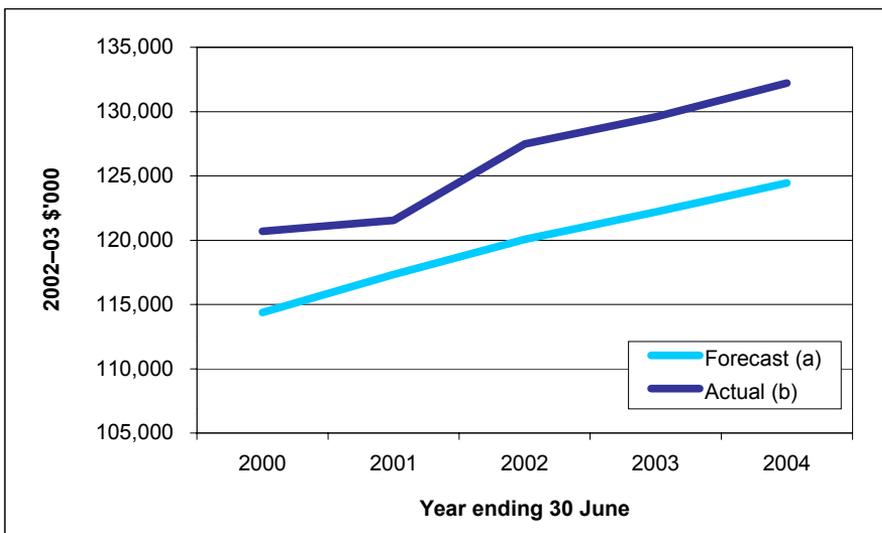
- no single domestic household bill (for the same level and pattern of consumption of water) was to increase by more than 6 per cent real over the same bill in the same period of the previous year, for consumption up to 850 kilolitres per annum

⁵ For the purposes of this section, reported actuals have been used to 30 June 2003 and ACTEW's budgets or forecasts have been used for the final year of the price direction.

- no single domestic household bill (for the same number of fixtures or pattern of consumption) was to increase by more than 1 per cent in real terms over the same bill in the same period of the previous year.⁶

These X factors were expected to generate steadily increasing revenues for ACTEW, as a result both of the real price increases and growth in customer numbers. Adjusting for the difference between actual and forecast inflation, aggregate actual revenues exceeded forecast revenues by \$6–8 million in most years, as shown in Figure 2.1.

Figure 2.1 Forecast revenue versus actual revenue



Note: Actual revenues include customer service obligation and subvention payments and revenue from sales to Queanbeyan.

(a) Revenue as forecast in the 1999 price direction.

(b) ACTEW reported revenue to 2003, revised forecast from 2003.

The prime reason for the greater than anticipated revenues is the relatively rapid growth in customer numbers. The 1999 price direction was based on an assumption of an increase in customer numbers of 0.8 per cent per annum. Actual customer numbers grew by more than double this amount from 1998–99 to 2002–03, consistent with rapid growth in the housing market. In particular, growth in units was 5 per cent per annum. At the end of 2003–04

⁶ Independent Competition and Regulatory Commission, May 1999, *ACTEW's Electricity, Water and Sewerage Charges for 1999–2000 to 2003–04—Price Direction*, p. 76.

there will be approximately 5600 more water customers and 5000 more wastewater customers than originally envisaged.

Another source of the increase in revenue has been bulk water sales to Queanbeyan, which have increased by close to 85 per cent in nominal terms across the regulatory period, reflecting the growth in housing and population in the Queanbeyan area.

Table 2.2 Actual versus forecast increase in customer numbers, 1999–2000 to 2003–04

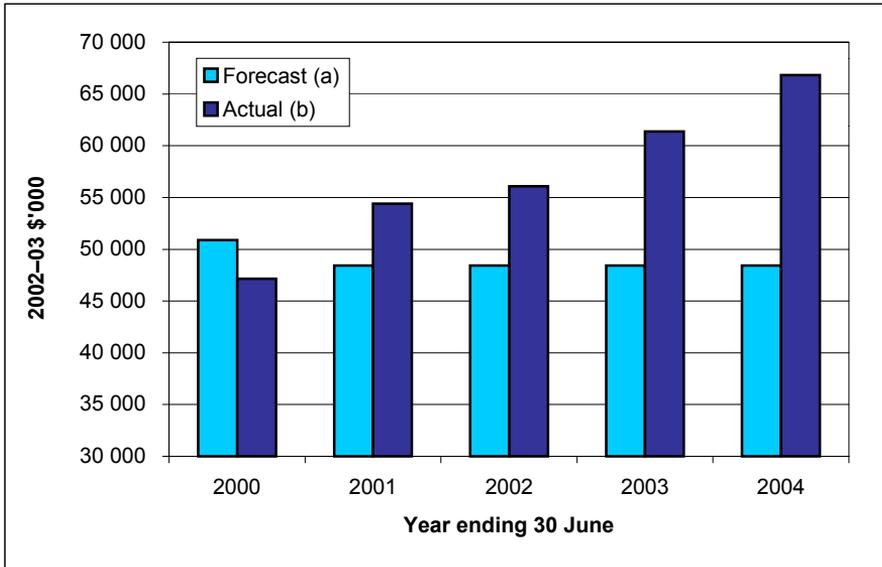
	1999–2000	2000–01	2001–02	2002–03	2003–04	Total
Water						
Forecast customer number growth	958	966	974	981	989	4 869
Actual customer number growth	2 411	1 810	2 180	2 363	1 738	10 502
Wastewater						
Forecast customer number growth	936	943	951	958	966	4 753
Actual customer number growth	2 198	1 772	2 023	2 228	1 568	9 789

Note: 2003–04 forecast growth figures provided by ACTEW.

2.6.2 Operating expenditure

Aggregate operating expenditure over the regulatory period has been significantly higher than expected in the 1999 price direction. With the exception of the 1999–2000 year, and commencing in the year the joint venture was formed, operating expenditure increased each year; and the gap between forecast and actual expenditure widened each year. This is shown in Figure 2.2.

Figure 2.2 Forecast operating expenditure versus actual operating expenditure



Notes:

(a) Operating expenditure as forecast in the 1999 price direction.

(b) Actual operating expenditure to 2003, budget from 2003.

Part of the reason for expenditure being much higher than forecast was the additional customer numbers. However, in a major infrastructure-based business such as this, the marginal expenditure associated with the addition of new customers is relatively small.

The 1999 forecasts were based on, among other things, efficiency savings of around 14 per cent over the regulatory period. This was slightly higher than the 10 per cent efficiencies suggested by ACTEW. ACTEW has fallen well short of both of these targets, although some efficiency gains have been achieved. ACTEW has indicated that cost increases were due to a number of internal and external factors, including:

- additional publicity, treatment and pumping costs resulting from drought conditions
- fire recovery and ongoing catchment remediation and management costs resulting from the January 2003 bushfires
- additional regulatory and compliance costs
- an increase in insurance costs

- increased maintenance costs resulting both from higher than anticipated asset failure and from drought conditions
- increased security and surveillance costs at major infrastructure sites
- ACTEW's enterprise bargaining agreement, which has resulted in annual pay increases to staff of 5 per cent in nominal terms.⁷

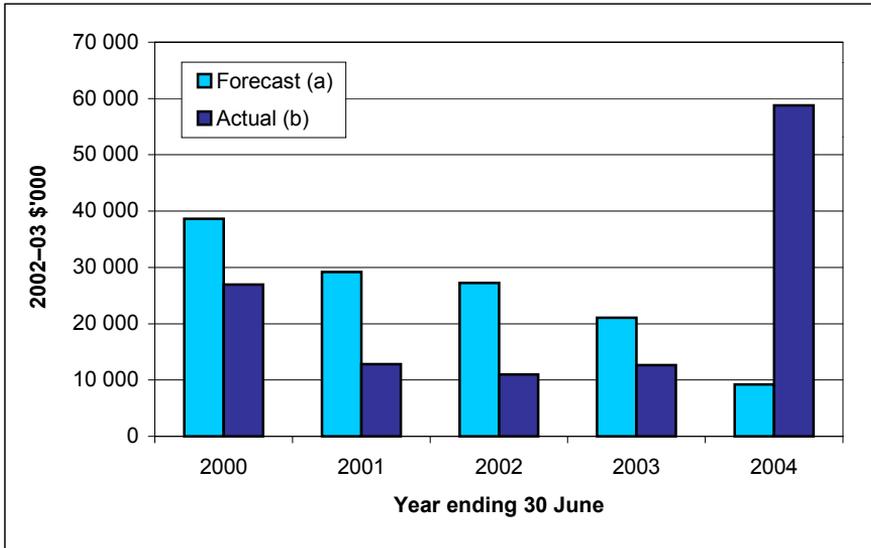
ACTEW has argued that the cost increases have been partially offset by cost efficiencies through changes to shift arrangements, the instigation of a maintenance job dispatch centre, the establishment of a health, safety and environment management system, and better monitoring arising from the installation of major electrical monitoring and control improvements. However, ACTEW has not provided quantitative evidence of these efficiencies.

2.6.3 Capital expenditure

In aggregate, capital expenditure on water and wastewater services over the five-year period to 30 June 2004 is expected to be very similar to the forecasts used in the 1999 price direction. In 2002–03 dollar terms, actual capital expenditure is expected to be \$122.2 million, slightly under the \$125.3 million predicted in the 1999 price direction. However, there have been significant changes in projects actually undertaken by ACTEW, as well as the timing of particular projects, as shown in Figure 2.3.

⁷ ACTEW, August 2003, Pricing proposal and response to the commission's 2003 issues paper, water and wastewater services, pp. 72–73.

Figure 2.3 Forecast capital expenditure versus actual capital expenditure



Notes:

(a) Capital expenditure as forecast in the 1999 price direction.

(b) Actual capital expenditure to 2003, budget from 2003.

In relation to the water function, a number of projects were deferred and new projects were introduced. The key difference to the forecast water capital program is in relation to the proposed \$24 million water treatment plant at Stromlo and the \$10 million refurbishment of the Googong water treatment plant, as well as an increase in its hydraulic capacity. Work on the Stromlo project was originally scheduled for 1999–2000 to 2002–03, and work on the Googong project from 1999–2000 to 2000–01. Both projects were originally expected to be completed before January 2003.

As recently as May 2003, ACTEW claimed that both projects had been prudently deferred on the grounds that there was not a need for the two projects, due to the continuing high quality of water from the Cotter catchment. ACTEW informed the commission in June 2003 that the need for both projects had become immediate, and both have been brought forward to address pressing water quality problems within the Cotter catchment. ACTEW commenced construction of both projects in November 2003. The cost of both projects is now around 50 per cent more than originally envisaged, at \$35 million for the Stromlo plant and \$15.1 million for the Googong plant. The regulatory treatment of both projects is discussed in Section 5.

As with water, a number of wastewater projects have been either deferred or delayed. ACTEW has advised that additional expenditure on fine screens, better inflow management to the Lower Molonglo Water Quality Control Centre (LMWQCC) and remote monitoring have enabled certain projects to be deferred. ACTEW has also indicated that better capacity management at LMWQCC has enabled the deferral of expenditure which had been planned for a tertiary treatment plant at Fyshwick.

2.6.4 Financial outcomes

ActewAGL's financial performance and rate of return over the existing regulatory period has been generally stronger than anticipated in the 1999 price direction. This has been driven by a rapid growth in customer numbers, reduced capital expenditure and increased bulk water sales, more than offsetting the effect of higher operating expenditure.

It is only in 2003–04 that returns are expected to fall below those forecast in the 1999 price direction. This is an outcome of the significant capital expenditure on the Stromlo and Googong treatment plants, additional operating expenditure associated with the drought and bushfire events, and the generally higher base level of operating expenditure.

Figures 2.4 and 2.5 compare ACTEW's actual rate of return with the rates of return expected in the 1999 price direction for ACTEW's water and wastewater businesses respectively. Despite experiencing higher revenues than expected in the 1999 price direction, ACTEW's performance in terms of return on its assets has been relatively in line with the 1999 price direction. This has been largely driven by increased operating costs, which have swamped any additional benefit in terms of higher rates of returns normally associated with such relatively higher revenues.

Figure 2.4 Actual versus expected rate of return on the regulatory asset base over the period of the 1999 price direction—water

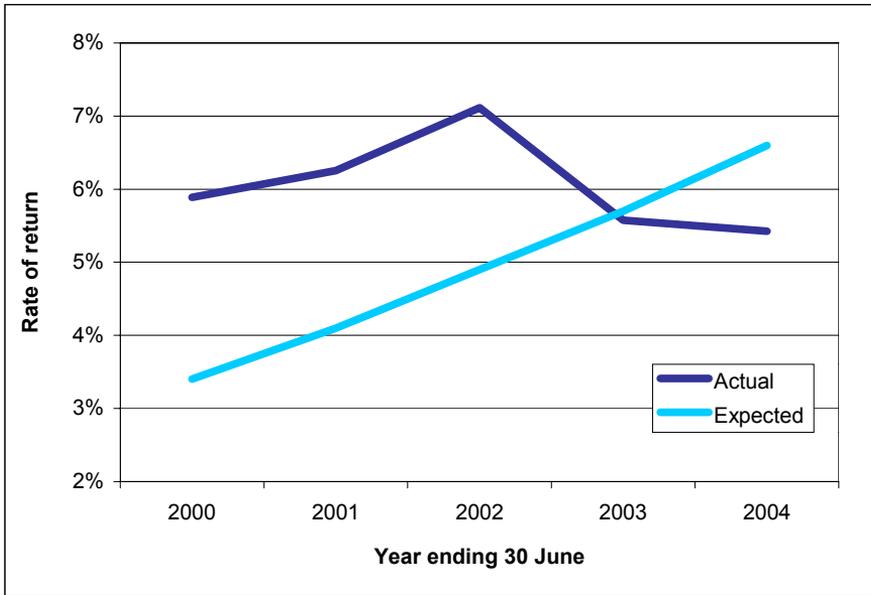
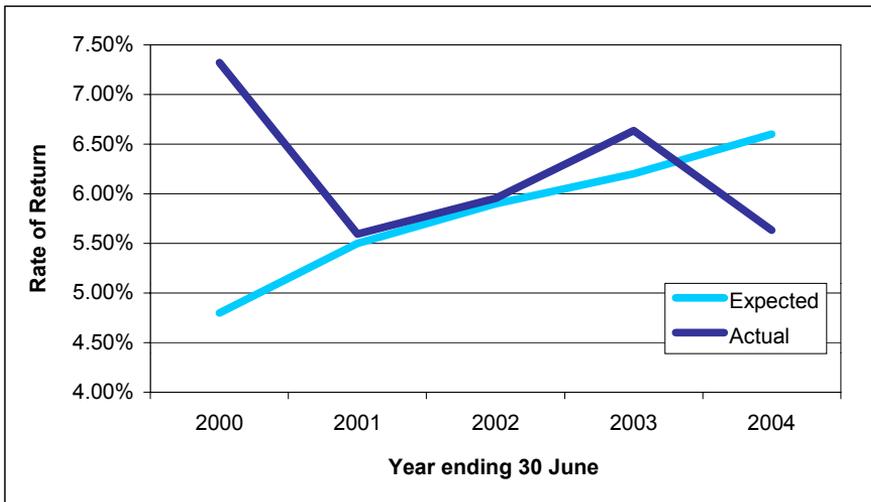


Figure 2.5 Actual versus expected rate of return on the regulatory asset base over the period of the 1999 price direction—wastewater



2.7 Conclusion

The commission notes the increased operating cost environment apparent since the introduction of the joint venture between ACTEW and AGL and the subsequent contracting out to ActewAGL of the operating activities of the water and wastewater businesses. Furthermore, the commission has noted that the relatively high growth in property numbers experienced during the existing regulatory period has resulted in higher revenues.

This draft decision and draft price direction will factor in the benefits of the higher revenue outcomes in prices for the next regulatory period, while continuing to allow ACTEW to earn an appropriate rate of return on its efficient investment and recover the efficient costs of operating a water and wastewater business.

3 Regulatory methodology

In this section the commission has set out the regulatory methodology used in determining the revenue settings contained in this draft report and the draft price direction. The regulatory methodology includes:

- the services to be regulated
- the length of the regulatory period
- the ‘cost building block’ methodology.

3.1 Services to be regulated

The Treasurer’s reference requires the commission to consider which services should be regulated and which should be left unregulated.

3.1.1 Current arrangements

The 1999 price direction provided that prices and revenues for the following services be directly regulated:

- the provision of water services by ACTEW (including the availability of supply) to domestic, commercial and industrial premises
- the provision of wastewater services by ACTEW (including the availability of supply) to domestic, commercial and industrial premises
- miscellaneous monopoly services provided by ACTEW, including
 - special meter readings
 - testing of water meters
 - the provision of rate certificates
 - tapping into water mains
 - installation of fire hydrants

- disconnection
- installation and removal of stop valve locking cover
- meter relocation.

The following services are not currently directly price regulated by the commission:

- bulk water—in the 1999 price direction the commission recommended that ACTEW be free to negotiate with bulk water customers, provided they are charged no less than the avoidable costs of supply
- trade waste—ACTEW has a small number of trade waste customers
- reuse water—as with bulk water, in 1999 the commission recommended that ACTEW be allowed to negotiate with customers to provide reuse water on the basis that customers pay at least the avoidable costs.

3.1.2 Proposed arrangements

The commission believes that the existing regulated services should continue to be directly regulated. Urban water and wastewater services are clearly monopoly services, which are provided to a large number of customers and represent a material cost to households. The provision of these services and the standard at which they are provided is critical to individual household and community wellbeing. Additionally, declining average costs, resulting from the relatively large initial infrastructure costs, have led to limited or no competition in the market for large-scale water and wastewater networks in the ACT, providing ACTEW with a natural monopoly in these businesses. Given concerns over the abuse of monopoly power, the public benefits associated with equitable access to clean water and sufficient sanitation provide a compelling rationale for the continued regulation of ACTEW's water and wastewater businesses.

The miscellaneous monopoly services represent a relatively small proportion of ACTEW's revenue; however, the fees may be significant for individual users. Although some of these services (for example, special meter reading) are potentially contestable, there are no firm proposals to introduce contestability, nor analyses of whether the benefits of doing so outweigh the costs. The commission is therefore inclined to continue to subject these

miscellaneous services to regulation. The manner in which miscellaneous services should be regulated is discussed in more detail in Section 8.

In the absence of evidence that the current approach is not operating effectively, the commission also proposes to leave bulk water charges unregulated for the forthcoming regulatory period. Again, the commission reiterates its requirement that ACTEW charge a price which is no less than the avoidable costs of supply. In adopting this approach, the commission notes that in its current forecasts ACTEW has included the costs of bulk water supply in its forecast of regulated costs, but that the building-block approach subtracts the revenue received from the total revenue requirement, with the effect that bulk water is effectively netted out from the regulated activities. This matter is discussed further in Appendix 1.

In respect of reuse water, in the 1999 price direction process ACTEW argued that because of substitutability with treated potable water, the price for potable water represented a de facto maximum charge for reuse water. Therefore, ACTEW argued, there was no need for reuse water to be price regulated.

Since 1999 the reuse water market has developed further. ACTEW undertakes a number of effluent reuse activities and has forecast some small amounts of capital expenditure on additional schemes.

The case against direct price regulation of reuse water includes the following arguments.

- Reuse water is an emerging product and market—regulatory restrictions on prices or revenues could limit benefits for market participants and make investment less attractive, or have the impact of stifling innovation, particularly in terms of the price–service quality trade-off.
- At start-up, customers will have a choice of whether to take the product, and can enter into long-term arrangements regarding price, meaning there is a degree of contestability and competition for the service.
- Reuse water faces some competition from other water sources.
- Large customers will have material levels of bargaining power and can be expected to have some ability to negotiate and deal in a sophisticated way with a reuse water provider, including through formal contractual arrangements.

Conversely, the case for price regulation includes the following arguments.

- There are important linkages between the prices and costs of reuse water and the prices and costs of potable water.
- There are ‘level playing field’ issues between reuse water and other water sources; that is, similar rules and regulations are needed to ensure that one service does not have a competitive advantage over the other.
- Delivery of some services (for example, third-pipe systems) may become compulsory, meaning that customers have no choice regarding whether to take the product.

Given the relatively small customer numbers and volumes of reuse water in the ACT, the commission believes that the case for direct price regulation is not compelling at this time.

The commission also proposes not to price regulate trade waste services directly, given the small number of customers involved, and the fact that customers typically have on-site treatment alternatives should they believe that prices offered by ACTEW are not competitive.

However, reuse water and trade waste services are not left out of the regulatory equation entirely. Because these services share infrastructure and hence costs with the directly regulated services, it is necessary for the commission to remove the impact of these services from the total revenue requirement. As set out in Section 8, the commission has done this by removing the forecast revenue from these services before calculating the X factor to apply to the directly regulated services.

3.2 The length of the regulatory period

In the 2003 issues paper, the commission raised the issue of whether a four-year regulatory period would be preferable to a five-year period.

The commission noted that benefits of a longer (five-year) regulatory period include:

- greater incentives for achieving increased efficiency, by allowing the businesses to retain any gains arising from cost reductions

- a more stable and predictable regulatory environment for the businesses, which could lower business risk and lead to better investment decisions
- fewer regulatory reviews and lower costs for the regulator and the interested parties.

The disadvantages of a longer regulatory period include:

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

The commission noted in particular that with the change in the structure of the services that ACTEW now provides, and the emergence of ActewAGL, it may be more appropriate to split the regulatory period for water and wastewater services from that for electricity.

ACTEW has acknowledged that there may be practical advantages in splitting the regulatory control period for water and wastewater from that for electricity. However, ACTEW has also suggested that there are a number of benefits from joint regulatory studies across sectors, including economies of scale, improved efficiency incentives and reduced regulatory risk. On balance, ACTEW indicated that a five-year period aligned with the electricity review period was preferable.⁸

The commission has considered ACTEW's views but has decided that a four-year regulatory period for water and wastewater is preferable for a number of reasons, including the following.

- There are a number of uncertainties impacting on medium-term water usage, caused by the current drought, water restrictions, and increases in the WAC. A slightly shorter regulatory period will be preferable while these out-of-the-ordinary events pass through.
- Observations made by the commission's consultants on ACTEW's five-year planning horizon suggest that there may be some fluidity in ACTEW's longer-term operating and capital expenditure projections,

⁸ ACTEW, August 2003, Pricing proposal, pp. 69–70.

reflecting in part the current drought conditions and bushfire effects and a degree of renegotiation of arrangements between ACTEW and its service provider ActewAGL.

- Government policy parameters and objectives are currently under review and may result in a commitment to a major new water source.
- A shorter time period will separate the timing of the water and wastewater price direction from that of the electricity distribution price review. Conducting the reviews simultaneously provides the commission, a relatively lightly resourced regulator, with a significant logistical challenge which should be avoided if possible.

At the end of the next regulatory period, the commission will consider the benefits of returning ACTEW to a five-year regulatory period for water and wastewater services. However, it is likely that the commission will return to a five-year regulatory period after this. The mooted return to a five-year regulatory period is to ensure consistency with the approaches in gas and electricity and to ensure that the commission's regulatory work program is evenly spaced.

3.3 The building-block methodology

In the 2003 issues paper the commission also indicated its intention to adopt a 'cost building block' approach in order to calculate the efficient levels of costs which will become the notional or total revenue requirement for ACTEW. The purpose of this total revenue requirement is to provide the opportunity for the business to recover all the legitimate costs incurred in providing water and wastewater services.

The total revenue requirement for a particular year can be expressed as:

$$\text{Total revenue requirement} = \text{efficient operating costs} + \text{return on capital} + \text{return of capital}$$

where:

- efficient operating costs include efficient operating, maintenance and administration costs
- return on capital includes the return on the regulatory asset base

- return of capital is the allowance for depreciation in each year.

The building-block approach has been adopted by other regulators of utility industries in Australia and the commission has continued its use of the methodology in this draft decision. The commission notes that alternative regulatory models are available, including approaches based on measures of total factor productivity. These alternatives have been discussed recently amongst regulators and at industry meetings. However, further research and analysis on their practical implementation needs to be undertaken before they can be applied in a practical sense. For the purposes of this draft decision the commission has not received any submissions proposing that an alternative methodology be adopted.

Once the commission has set the total revenue requirement applicable to water and wastewater services it is able to define the relevant CPI minus X price control mechanism. This mechanism is discussed further in Section 8.

3.4 Working capital

The 2003 issues paper sought comments regarding the inclusion of a return on working capital as a building-block component.

The commission notes that different approaches have been taken by different regulators on this matter, with the Essential Services Commission of Victoria (ESCV) and the Australian Competition and Consumer Commission (ACCC) not allowing a return on working capital, while other regulators such as the Independent Pricing and Regulatory Tribunal have permitted such a return to be included.

A working capital requirement exists where expenditure is paid in advance of receipts, creating a financing cost which reflects the difference between current assets and current liabilities.

ActewAGL has argued for the inclusion of a return on working capital on the basis that working capital is universally accepted as a necessary and efficient cost incurred by businesses as part of their ordinary activities. ActewAGL considers that a return on working capital is analogous to a return on capital invested, and has calculated a working capital requirement based on a simplified payment cycle, making assumptions about the timing of cash flows.

The commission accepts that there may be cash-flow timing differences in respect of operating costs but, in line with arguments expressed by the ESCV, believes that in order for the regulator to permit an allowance for working capital a more holistic approach must be taken.⁹ In particular, the commission would need to consider whether the tariffs resulting from the building-block approach would provide a stream of cash flows with a net present value of zero, taking into account the true timing of cash flow within each year.

Two implications of this requirement are that:

- an allowance for working capital is not required if the understatement of the financing cost associated with operating activities is offset by an overstatement of financing cost of financing capital programs, having regard to the true timing of cash flow within each year
- the question of whether an allowance in respect of working capital is required will depend upon the specific building-block and revenue-smoothing methodology that is adopted.

ACTEW's case for a working capital requirement does not address these two issues.

The building-block methodology and revenue-smoothing approach, set out in Section 8, implicitly make a number of assumptions regarding the intra-year timing of cash flows. The commission accepts that, in the regulatory model used, the timing of the receipt of that part of revenue in respect of operating activities is slightly biased against ACTEW, in that cash operating payments may have to be made before cash income is received. This is likely to imply a small working capital requirement.

However, the commission also believes, consistent with analysis undertaken by the ACCC and ESCV, that the implicit assumption included in this methodology is that the return-on-assets component of the revenue requirement is received at the end of the year, thus giving a cash flow advantage to ACTEW. That assumption is likely to be strongly biased in favour of ACTEW, as revenue is actually received at regular intervals

⁹ Essential Services Commission of Victoria, October 2002, *Review of Gas Access Arrangements, Final Decision*, p. 149.

throughout the year. Due to the relative size of the return-on-assets component of the building-block approach and the nature of the assumption, this benefit is likely to outweigh the small working capital requirement created by the operating cost assumption.

The commission has therefore not been persuaded that, in the calculation of regulated revenues using the building-block approach to regulatory modelling adopted by the commission, there is a justification for the inclusion of a separate return on working capital. While not denying that a return on working capital is a normal requirement of business, the commission has declined to include an additional return-on-working-capital component in the building-block approach, as it believes that the financial modelling used more than compensates for this cost.

4 Service standards and demand forecasts

In determining the efficient costs and forecast revenues that will be used in the determination of the X factor, the commission must make assumptions regarding the level of service that will be provided. The assumed level of service is an important driver of the capital and operating expenditure programs. Furthermore, the commission seeks to ensure that the service standards are maintained over the regulatory period and are not neglected in favour of increasing profits. The 2003 issues paper signalled that the commission was considering providing incentives to encourage ACTEW to maintain service standards through the introduction of a service factor (S factor) in the CPI minus X control. Under an S factor, revenue would vary according to the service standards attained. The potential introduction of an S factor is discussed in Section 10.

4.1 Service standards

The commission's proposed form of incentive regulation links revenues to the efficient costs of providing services. Information on service standards forms an integral part of the cost assessment and revenue determination process.

In the water sector, key service standard issues include:

- water quality
- water pressure
- wastewater discharge quality
- the frequency of service interruptions and disruptions
- how quickly customers' services are restored after interruptions or disruptions
- the speed and quality of telephone responses

- making and keeping appointments
- replying to correspondence.

Protection for customers in relation to service standards is provided through a number of codes of practice, including the Consumer Protection Code and the Water Supply and Sewerage Service Standards Code, which is issued pursuant to the *Utilities Act 2000* (the Utilities Act). These codes set minimum service standards that must be met, and below which service is considered unacceptable. However, these minimum standards do not necessarily represent optimal service levels; nor do they provide the regulated businesses with an incentive to provide services of a higher standard.

Service performance targets are also set out in ACTEW's Corporate Plan and the Water Quality Improvement Plan that forms part of the Water Quality Management Plan. In its Asset Management Plan, ACTEW states that these standards form the basis for determining the effectiveness of operation and maintenance activities and assessing the needs for asset development and creation, and have been defined in a manner that enables ActewAGL's performance against them to be measured.

In its 2003 issues paper, the commission indicated that it was considering the introduction of a mechanism that provides the regulated businesses with opportunities to improve service quality by linking the prices paid by customers to service quality, and sought comments on the use of such an approach in future directions. This is discussed in Section 10.

4.1.1 Service standards in the existing regulatory period

No formal service standard targets underpinned the commission's 1999 price direction, so it is not possible to assess ACTEW's subsequent delivered service standards against any benchmarks set at the time.

With the introduction of the Utilities Act, a fully operational compliance and service standard monitoring and reporting process came into effect on 1 July 2001.

As a consequence, the commission has commenced the collection and analysis of compliance and service standard information, with data for 2001–02 and 2002–03 now available to the commission. The commission's

report for the 2001–02 year is to be released soon. Naturally, with only one year’s data available to date, it is difficult to form a picture of ACTEW’s longer-term performance in respect of service standards, or trends in that performance. However, as information is collected over the coming years the commission will become better placed to form a view on these matters.

Table 4.1 provides a summary of ACTEW’s performance with respect to the service standards measures set out in relevant consumer protection codes for the first year of regulatory reporting on these measures, 2001–02.

Table 4.1 Service standards, 2001–02

Service	Service standard performance measure	Target	2001–02 Actual
Water	Bursts or leaks causing substantial or moderate harm (Customer Protection Code)	90% attended within three hours	91.32%
	Bursts or leads causing no impact (Customer Protection Code)	90% attended within 24 hours	89.38%
Wastewater	Sewerage overflows into dwellings	Attendance within one hour (Customer Protection Code)	98.4%
	Sewerage overflows into dwellings	Containment within five hours (Customer Protection Code)	93.8%

Data for 2001–02 also suggest that:

- ACTEW received more complaints than comparable Victorian retailers in relation to both water and wastewater services—sewer blockages were the chief cause of complaints
- ACTEW had very few unplanned water supply outages, and where they did occur they were of similar duration to the Victorian water retailers’
- no customers were left without drinking water for more than 12 hours.

ACTEW did not provide information as required in relation to planned outages.

4.1.2 ‘Willingness to pay’ study

In the 2003 issues paper, the commission noted that while ACTEW’s customers enjoyed a very high level of service, there was little information

available on whether customers are prepared to pay a premium for higher service levels.

Earlier this year ACTEW conducted a ‘willingness to pay’ study. The commission supports ACTEW’s decision to conduct the study and was provided with a copy of some of the study’s results on 1 September 2003. The commission notes that the study provides a useful assessment both of the additional price that customers may be willing to pay for increases in certain aspects of ACTEW’s service levels, and of the discount that customers would require in order to accept reductions in service.

The commission also notes that customer ‘willingness to pay’ analysis represents only half of the service-level picture. The other essential element is an understanding of ACTEW’s cost of providing various service levels. In this way the value that customers place on a particular service level can be weighed against the cost of its provision, and hence a decision on the optimal price–service trade-off can be made. The study report recognises this, and ACTEW has committed to further analysing and examining the study findings, and to providing additional material to the commission over the next few months. This will enable the commission to take this information into account when preparing its final report.

4.1.3 ACTEW proposal

In its August submission ACTEW has noted that prices are fundamentally linked to expectations of future service standards. Table 4.2 summarises ACTEW’s service targets for 2002–03.¹⁰

¹⁰ ACTEW, August 2003, Pricing proposal, p. 38.

Table 4.2 ACTEW's service targets

Service	Performance measure	Target 2002–03	Actual to Dec 2002
Wastewater	Disruptions per 1000 properties	< 62.5 pa	29.44 pa
	Percentage of disruptions corrected within five hours	> 90%	96.1%
Water	Interruptions per 1000 properties	< 80 pa	16.84 pa
	Percentage of interruptions corrected within five hours	> 95%	99.8%
Contact centre	Percentage of calls answered in 20 seconds or less	> 80%	87.0%
	Percentage of calls abandoned	< 5%	2.7%
Staff safety	Lost-time injury frequency rate per million hours worked	6.8 or fewer	9.5
Wastewater treatment	LMWQCC Effluent Discharge license compliance	100%	100%
	Southwell Park Water Reuse licence compliance	100%	100%
Water quality	Meet the requirements of the Australian Drinking Water Guidelines for aesthetics	95%	99.4%
	Meet the requirements of the Australian Drinking Water Guidelines for health	100%	99.9%

4.1.4 Conclusion

The commission notes the key service targets set out in ACTEW's submission and underpinning its pricing proposals. However, the commission also notes that:

- in many cases ACTEW is easily surpassing the above targets (although the commission notes that only six months worth of actual data was provided)
- there are a number of other minimum service standards in the Consumer Protection Code and the Water Supply and Sewerage Service Standards Code which are not included in the key service targets above
- ACTEW has provided its targets for 2002–03 only, and not for any years of the next regulatory period.

Prior to preparing its final report, the commission would welcome a more detailed submission from ACTEW on the service standards it intends to meet over the next regulatory period, and which underpin its current pricing proposals. This submission should ideally include any proposal to adjust standards as a result of analysis of the ‘willingness to pay’ study. The commission expects, based on current performance, that these service standards will in most cases exceed the minimum values set out in the relevant codes.

In general, the commission expects that over the next regulatory period ACTEW will provide services at or above levels currently being achieved.

4.2 Demand forecasts

Demand forecasts are an important factor underlying the determination of the total revenue requirement, for two reasons. Firstly, water usage and the number of new connections to the system will have implications for ACTEW’s capital and operating expenditure programs.

Secondly, demand will influence the unit price of services. For a given total revenue requirement, the higher the demand the lower the unit price. As discussed in Section 8, the commission proposes to adopt an average revenue control based on a maximum revenue per customer. For this reason, the forecast number of customer numbers is an important variable. In addition, the forecast amount of water sold in any one year is an important variable in checking the compliance of proposed prices against the maximum average revenue requirement.

Demand is a function of a number of factors, some of which are within ACTEW’s control and some of which are not. Important factors are:

- rainfall, which influences outdoor use
- temperature (and resultant evaporation)
- the number of new dwellings constructed
- the nature of the new dwellings and, in particular, garden size
- the number of persons per household

- the price of water and wastewater services, and customer reactions to changes in price (elasticity of demand)
- household appliance types
- economic growth
- system losses and leakages, and stormwater infiltration into the wastewater system
- public education and attitudes towards water conservation.

To assist the commission to consider the implications of all these factors on demand projections, and as part of the review of ACTEW's capital and operating expenditure programs, McLennan Magasanik Associates (MMA) conducted a review of the demand forecasts prepared by ACTEW. This is discussed further in Section 4.2.3.

4.2.1 ACTEW proposal

ACTEW has had long experience in estimating future demand requirements in the ACT. Drawing from this experience, ACTEW prepares two separate sets of water and wastewater forecasts. The first set of water forecasts is prepared for operational and cost forecasting reasons and is generated at three levels: catchment, bulk supply and reticulation.

At the catchment level, adjusted actual consumption per capita and adjusted actual river flows for the past 90 years are used in combination with projected population estimates to assess the capability of the system to cope with a range of potential future supply and demand scenarios.

At the bulk supply level, peak requirements (measured in litres per capita per day) are used in combination with projected population by suburb to forecast peak demand on any given part of the bulk supply system. The planning of future capital investment in the bulk supply system is based on these forecasts.

At the reticulation level, peak flow by suburb (measured during peak hour in litres per second per hectare) is used in combination with population forecasts by suburb to forecast the peak demand on any given part of the

reticulation system. Projections of system costs at the reticulation level, including capital investment, are based on these forecasts.

Each of the above forecasts is based on population figures provided by the ACT Government. ACTEW also advises that, as part of its demand projection estimation process, it has also considered trends in the number of persons per household, average block size, the price of water, leakage control, the potential effects on demand of further public education on the need to conserve water, and the uptake of rainwater tanks by households in response to the drought and the present watering restrictions.

At the sewerage network level, forecasts of peak flow are determined by two components. The dry weather component of wastewater flow is forecast as a relationship between litres per second per equivalent person and the number of equivalent persons ‘upstream’ of the part of the system in question. Forecasts of the wet weather component (infiltration and inflow) are based on the relationship between litres per second per hectare and the number of hectares ‘upstream’ of the part of the system in question. These relationships reflect the fact that flow at the top of the system is much more ‘peaky’ than flow at the lower end of the system. The planning of future capital investment in the sewerage network is based on these forecasts.

At the sewage treatment level, ACTEW produces a number of different forecasts. Forecasts of demand on the Lower Molonglo Water Quality Control Centre take into account trends in base flow, average daily volumes, daily peak ratio, peak wet weather flows and daily peak flows.

ACTEW’s second forecast set is concerned with predicting water demand for revenue purposes. This forecast set is concerned with average and total consumption, the quantity of water that is metered and billed, and the number of customers.

These forecasts, and the assumptions underlying them, are set out in Table 4.3 below.

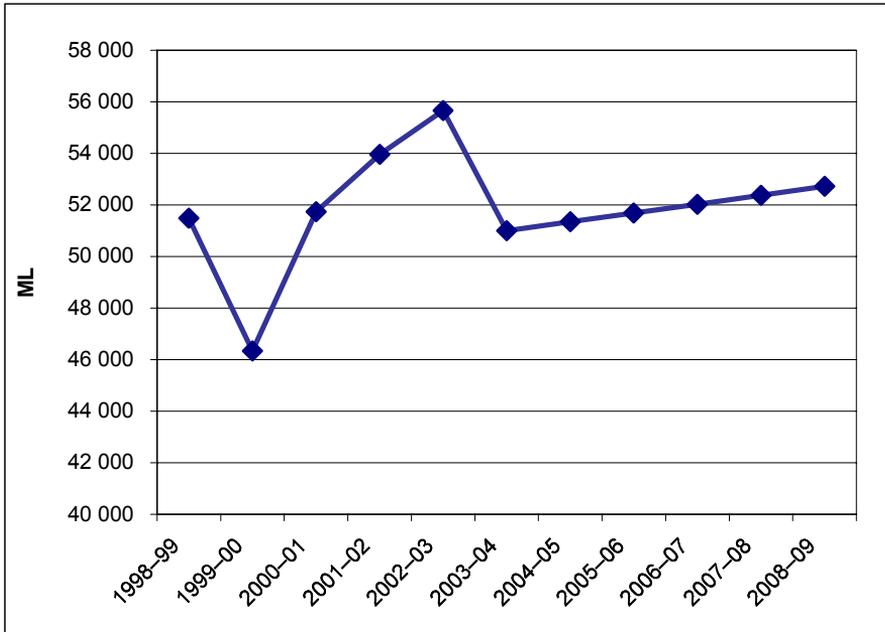
Table 4.3 ACTEW's forecast customer numbers, 2002–03 to 2008–09

	2002–03 (actual)	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09
Water							
Customer numbers	129 113	130 851	132 905	134 992	137 111	139 264	141 450
Increase		1 738	2 054	2 087	2 119	2 153	2 186
Percentage increase		1.35%	1.57%	1.57%	1.57%	1.57%	1.57%
Wastewater							
Customer numbers	125 869	127 437	129 307	131 204	133 129	135 082	137 063
Increase		1 568	1 870	1 897	1 925	1 953	1 982
Percentage increase		1.25%	1.47%	1.47%	1.47%	1.47%	1.47%

ACTEW has advised that the customer number forecasts are based on historical growth rates both at an aggregate level and by customer class for the period 1997 to 2002. The forecast annual increases in customer numbers from 2003–04 to 2008–09 of 1.57 per cent and 1.47 per cent for water and wastewater services respectively can be compared with average annual increases of 1.77 per cent and 1.70 per cent for the same services over the period 1998–99 to 2002–03.

Water consumption is forecast by ACTEW to increase steadily at around 0.66 per cent per annum from 2003–04, after a sharp fall from 2002–03 levels, which were the highest on record, despite water restrictions being implemented in January 2003 (see Figure 4.1).

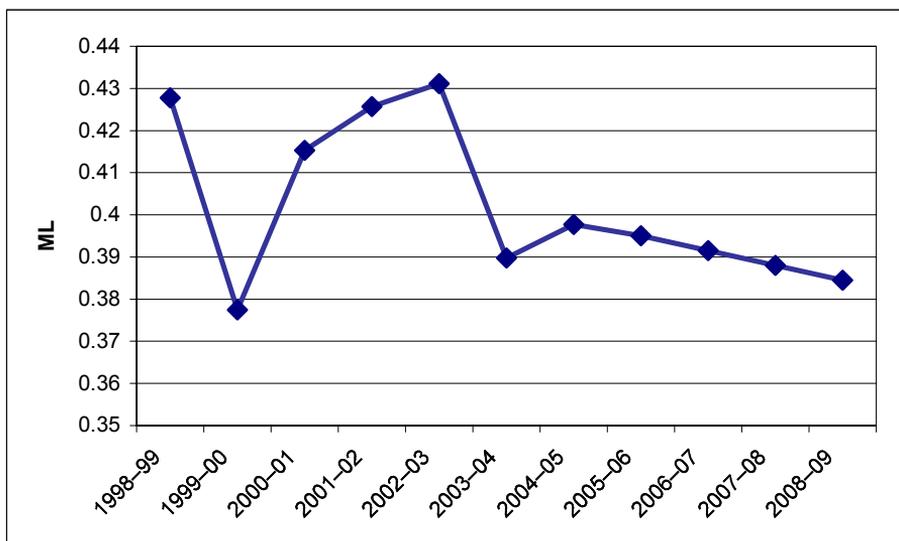
Figure 4.1 ACTEW's water consumption estimates, 2002–03 to 2008–09



Note: Total metered consumption (excluding bulk sales).

In line with significant changes in pricing structure, mandatory restrictions and improved community attitudes to conservation of water, average consumption per customer is forecast by ACTEW to decline, as growth in customer numbers exceeds population growth (see Figure 4.2). The increase in household numbers is directly related to smaller household formations resulting in more properties for the same number of people.

Figure 4.2 ACTEW's per capita water consumption estimates, 2002–03 to 2008–09



Note: Average water use per customer.

4.2.2 Submissions

While a number of submissions addressed demand management issues, none directly commented on the veracity of ACTEW's demand forecasts.

4.2.3 Consultant's position

MMA reviewed ACTEW's demand forecasts, with the aim of identifying the drivers of demand growth and deriving a conclusion regarding whether ACTEW's demand forecasts for the next regulatory period are reasonable.

The consultants found that the methodology adopted by ACTEW to produce demand forecasts was generally sound. However, MMA expressed some concerns with certain aspects of the application of the methodology, including that:

- the demand forecast adopted by ACTEW for operational purposes was different from (and higher than) that used for pricing purposes
- ACTEW used 1998–99 to represent a 'typical year' for the purposes of generating consumption profiles—MMA noted that average rainfall in 1998–99 was 80 millimetres above the long-term rate, and suggested that

1999–2000 or 2000–01 may be a better choice of years; if 1998–99 were to be used, the consultants believed that data should be adjusted to reflect the variance in rainfall

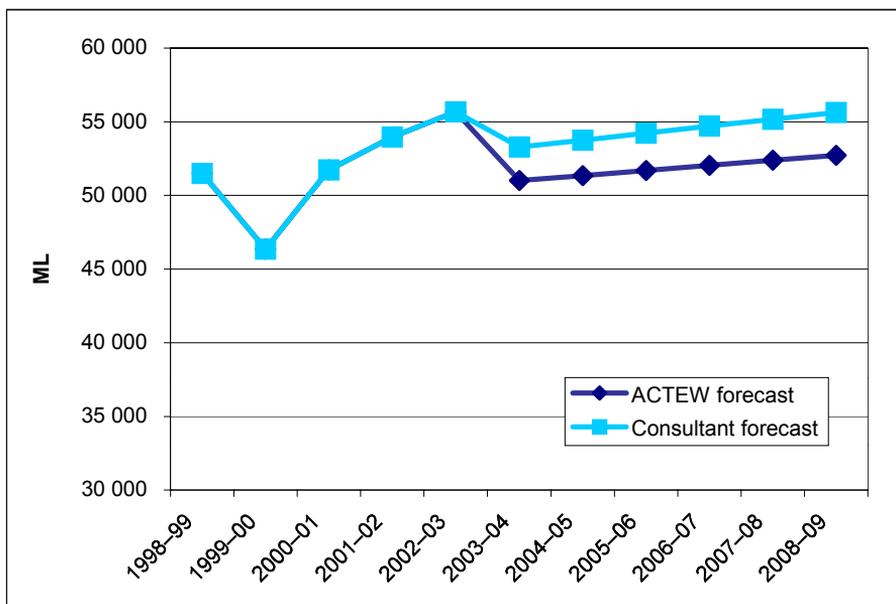
- the continued use of historical planning rates, notably a factor of 1.5 litres per second per hectare used to develop the reticulation level forecasts, may overstate likely consumption
- the decline in consumption per customer implicit in ACTEW’s forecasts was greater than the historical decline.

MMA also noted that the longer-term impact of water restrictions imposed from January 2003 (and subsequently lifted to a higher level from 1 October 2003) was not recognised in ACTEW’s forecasts, due to lack of data on the effects of these restrictions.

On balance, MMA’s view was that the water demand forecasts provided by ACTEW were somewhat understated and should be reviewed. However, they might be achievable if stronger restrictions and more aggressive demand management programs were introduced. This difference is displayed in Figure 4.3.

The consultants also concluded that the approach adopted to forecasting wastewater revenue was reasonable as long as the tariff structure remained unchanged.

Figure 4.3 Forecasts of water consumption, 2002–03 to 2008–09



MMA did not comment directly on whether it believed ACTEW’s forecasts of customer numbers were high or low, except to note that historical growth rates vary significantly and therefore analysis of the forecasts’ sensitivity to a range of growth rates should be undertaken.

4.2.4 ACTEW’s response

ACTEW made two key comments in response to MMA’s report. Firstly, ACTEW maintained its position that the use of 1998–99 for the indicative consumption profile is reliable. ACTEW indicated that the choice of an indicative consumption year relies on a band of normal conditions, not just rainfall. ACTEW felt that any adjustment to the 1998–99 data would be highly subjective and unnecessary, particularly given the bounds of error placed on the forecasts by other assumptions and uncertainties in the forecasting process.

Secondly, ACTEW acknowledged that similar assumptions need to be adopted for forecasting revenue purposes to those used in forecasting the capital expenditure plan. ACTEW has indicated that this will be incorporated in future business practice.

4.2.5 Discussion

The commission has carefully reviewed the information provided by ACTEW and MMA in relation to demand forecasts.

The commission is concerned about the existence of dual demand forecasts, with the higher forecast driving the operating and capital plan and the lower forecast being submitted for revenue-setting purposes. This type of approach is consistent with the behaviour of a regulated utility that is attempting to maximise its regulated revenue outcomes.

At the same time, the commission notes the difficulty in preparing accurate forecasts of demand for water services, given the number of influencing variables and, in particular, uncertainty regarding the extent to which demand management activities and the current water restrictions will drive longer-term reductions in usage.

The consultants have provided a demand forecast (in terms of water use) which is lower than that submitted by ACTEW for revenue determination purposes. However, the commission notes that the difference between the two forecasts is not so great as to generate significant differences in either capital or operating cost requirements. The commission also notes that, under the form of price control proposed to be adopted, the forecasts of water use and wastewater generated do not have a direct impact on the price path to be established by the commission at this time. Rather, the usage forecasts are more important in determining annual tariffs during the regulatory period.

The commission is therefore inclined to accept the usage forecasts provided by ACTEW at this time. Demand forecasts used for the purposes of tariff setting are discussed in detail in Section 8.

In terms of the forecasts of customer numbers provided by ACTEW, the commission notes that the growth forecasts are below the growth rates experienced by ACTEW in recent times. However, the commission accepts that recent growth rates have been at historically high levels that may not continue. On the basis of a review of data provided by relevant planning agencies, the commission is prepared to accept the growth rates implicit in ACTEW's customer number forecasts for the period 2004–05 to 2008–09.

One area where the commission has concerns is the growth rate in customer numbers for the period 2002–03 to 2003–04. The growth rates of 1.35 per cent and 1.25 per cent for water and wastewater customer numbers respectively are both below the growth rates experienced in the prior years and below those forecast in the subsequent years. The commission has not been provided with any material to suggest that this ‘dip’ in growth is justified. It therefore requires ACTEW to adjust its customer number forecast for 2003–04 to reflect a 1.57 per cent and 1.47 per cent growth in water and wastewater customer numbers (compared to 2002–03 numbers).

4.2.6 Conclusion on demand forecast

The commission requires ACTEW’s forecast of customer numbers for the period 2003–04 to 2008–09 to be amended as set out in Table 4.4.

Table 4.4 Commission’s forecast customer numbers, 2002–03 to 2008–09

	2002–03 (actual)	2003–04	2004–05	2005–06	2006–07	2007–08	2008–09
Water							
Customer numbers	129 113	131 140	133 199	135 290	137 414	139 572	141 763
Percentage increase		1.57%	1.57%	1.57%	1.57%	1.57%	1.57%
Wastewater							
Customer numbers	125 869	127 719	129 597	131 502	133 435	135 396	137 387
Percentage increase		1.47%	1.47%	1.47%	1.47%	1.47%	1.47%

5 Regulatory asset base

As part of this review, the commission must determine the value of the regulatory asset base (RAB). The value assigned to the RAB, together with the weighted average cost of capital (WACC), is used to calculate the return on capital. This represents a significant component of ACTEW's revenue requirement. It also establishes the base against which regulatory depreciation is determined.

The key determinations that the commission must make in respect of the RAB are:

- the value of the opening RAB at 1 July 2004
- the forecast value of the RAB in the 2004–05 to 2007–08 regulatory period, bearing in mind forecast capital expenditure and depreciation.

5.1 The opening asset base

5.1.1 Broad approach

In the 1999 price direction, the commission established the value of the RAB as at 1 July 1998 as \$329.6 million for water assets and \$367.3 million for wastewater assets. These values were used to underpin the forecast roll-forward of the RAB from 1999–2000 to 2003–04, upon which prices in the 1999 price direction were based.

In setting the initial RAB in the 1999 price direction, the commission had to consider what was the most appropriate value to use for the investment in an asset that had essentially been undertaken outside of the normal economic constraints of the need to justify the level of expenditure incurred. This was particularly relevant for the ACT, which had been the recipient of extensive direct funding support from the Commonwealth Government as part of the process of establishing Canberra as the nation's capital.

Options available to the commission at the time were:

- to treat all the investment to date in the water and wastewater services as sunk costs (and thus valued at nil); relevant considerations were that
 - the investment had already been made without the need to seek justification in terms of some elementary form of economic and financial cost–benefit assessment
 - much of the new investment had been undertaken for purely political, rather than economic, purposes (namely, building a capital city)
 - as a consequence, the level of investment in the ACT in these areas was by all estimates significantly above the level that would have been supported had ACT consumers to that time been required to pay prices for water and wastewater services that would have justified the investment made
- to adopt some form of current cost replacement approach which reflected the ‘cost’ that would have been incurred by a new entrant seeking to establish the water and wastewater business; relevant considerations were that
 - this approach would have required some form of optimisation of the asset structure as it existed at the time, to take into account those assets which had been built and were now no longer in use, and to discount for those assets which were superfluous to requirements
 - depreciated optimised replacement cost (DORC) methodology would have been the method used to arrive at a ‘replacement cost’ estimate under this option
- to adopt a ‘depreciated historical value’ assessment of the asset base, drawing on the asset register and other information held by ACTEW; relevant considerations were that
 - this approach effectively values the asset at its purchase cost, with these purchase costs being in different years’ values, as the value of the dollar changes over time with inflation

- notwithstanding the differences in currency values, this approach has the advantage of being simple to apply, assuming the asset registers have been fully maintained and the assets have not been repeatedly revalued for accounting purposes
- to adopt some form of optimised deprival value (ODV) as a means of assessing what the value of the asset is to the business, ODV being defined as the cost that the asset owner would incur or the revenue that the asset owner would forego were they to be deprived of the asset and its associated revenue stream; a relevant consideration was that
 - the ODV is derived from the minimum of the DORC valuation or the net present value of the future revenue stream that the assets would have generated.

The problem of determining a value for the assets used in the provision of water and wastewater services for regulatory price determination purposes was not unique to the commission in the ACT. Other jurisdictional regulators had considered the matter, and there had been extensive discussions and reviews involving all jurisdictions to try to arrive at an approach which took into account all the issues that a regulator must consider in reaching a decision for price determination purposes.

To treat the asset as having no value, that is, as being sunk costs, and therefore not forming part of the price determination process, did not seem appropriate. Clearly the assets had some value in the supply of services in the ACT, and although they had been fully funded by the Commonwealth Government and the ACT Government up until the time of the setting of the first price path, the commission was of the view that there was a need to have some level of recognition of their ‘value’ in the price path.

To adopt a replacement cost valuation (albeit optimised in some way) also did not seem to be appropriate. Not only were there fundamental questions about the equity of such an approach, given that the Commonwealth and territory governments had already paid for the assets, but there was also a likely significant price shock which could have lifted water prices by factors of two to three times the existing price levels. The commission therefore dismissed this as an option.

An ODV approach offered some logic, as it allowed for the possibility that the value would be based on the value of the future revenue stream to the

owner should the owner be deprived of the asset. In this way it recognised not only the likely future value of the asset as part of an ongoing business, but also that the future revenue stream would be unlikely to equate to the full replacement cost of the asset in its present form (even after some form of optimisation). An ODV approach also had the added advantage, in the circumstances where ACTEW was fully owned by government (and at that time there was no suggestion that it should be otherwise owned, by private sector interests), that the ‘new entrant’ test that a DORC approach tries to replicate was unlikely to be relevant to the circumstances in the ACT.

To implement an ODV approach, the commission undertook a return on assets test (RAT), as a means of estimating, over a 40-year period, the likely revenue that could be generated by the asset in its existing form (taking into account the demand projections that were made at that time). This revenue stream could then be discounted back to the implied value of the asset base for the purposes of the ODV assessment.

Recognising that the asset was wholly owned by government, and the need to provide a degree of regulatory certainty for the owner going forward, the commission adopted an approach which effectively said that the asset valuation made at that time was a ‘line in the sand’ for purposes of setting the value for future years. Effectively this allowed the commission to set an initial opening assets base, and then over the period of the current price control, to roll into the asset base all new (prudent) investment at current costs, with the resulting combined ‘line in the sand’ valuation and new investment being indexed for inflation to provide a ‘current’ cost estimate of the asset base for future periods.

Thus the initial asset base set for ACTEW’s water and wastewater assets was a form of ODV valuation, setting a starting point for the future roll-in of new investment and for the indexing of the values to approximate a current cost value for regulatory purposes.

For purposes of determining the opening asset valuation for the period commencing 1 July 2004, the commission is faced with two main choices.

It can either:

- roll forward the existing RAB by including prudent capital expenditure over the existing regulatory period, indexing the RAB, and deducting the amount of regulatory depreciation which has been returned to the business over the existing regulatory period

or

- revalue the RAB, possibly using one of three main valuation methodologies—depreciated historic cost, DORC, or ODV.

5.2 ACTEW's revaluation proposal

In its submissions to the current inquiry, ACTEW has argued that the current RAB, as determined in the 1999 price direction, should be recalculated to better reflect the value of the revenue stream as at 2003–04 prices. This would have the effect of increasing the prices paid for water in the ACT. ACTEW claims that the current valuation effectively undervalues the RAB and, in so doing, means the price of water and wastewater services does not adequately reflect the true costs of providing these services.

To assist in this process, and as part of the preparation for the current review, ACTEW engaged Meritec Proprietary Limited (Meritec) to provide an independent DORC valuation of its water and wastewater assets. ACTEW has advised the commission that Meritec's revised DORC valuation as at 1 July 2004 is \$929.7 million for water assets and \$842.3 million for wastewater assets.

As discussed, the commission adopted an ODV approach to asset valuation when determining the opening RAB for the 1999 price direction. ACTEW has argued that it agreed with the commission's approach to valuing assets at the 1999 price direction because the adoption of DORC value would have resulted in an unacceptable price shock for customers. ACTEW has noted that the adoption of a full DORC valuation, as provided by Meritec, would

still cause a significant price shock that would not be an acceptable outcome for consumers in the ACT.¹¹

In addition to the DORC valuation undertaken by Meritec, ACTEW has calculated an updated deprival value of its assets, using the same methodology outlined in the 1999 price direction. However, ACTEW has used the prices as at 2003–04 and projected demand to determine an ‘updated’ valuation of the RAB for water and wastewater.

ACTEW’s calculation of the ‘updated’ valuation is \$459.3 million for water assets and \$475.6 million for wastewater assets. ACTEW has noted that these valuations remain substantially below the DORC valuation of its assets.

5.3 The commission’s consideration of the RAB value

In its 1999 price direction, the commission gave consideration to the relative merits of the DORC approach versus the ODV approach to assessing the opening asset value for ACTEW’s water and wastewater assets. The basis for its decision is outlined above, and was presented as a ‘line in the sand’ from which the commission and the business could move forward with some degree of confidence as to the future regulatory value of the asset base.

The commission notes the valuation adopted did not present any difficulties for the National Competition Council (NCC) in terms of its consideration of whether the principles adopted under the Council of Australian Governments National Competition Policy (NCP) agreements had been met in the ACT. The NCC made the following assessment of the ACT’s water reform process:

In regard to full cost recovery, the Council’s second tranche NCP assessment concluded that ACTEW ... earns a real rate of return on capital.¹²

¹¹ As a broad guide, the Meritec DORC estimates are approximately double the value of a RAB based on a roll-forward of the commission’s 1999 determination of the asset value.

¹² National Competition Council, June 2001, *Assessment of governments’ progress in implementing the National Competition Policy and related reforms: ACT*, p. 24.

The NCC therefore concluded that ACTEW was fully compliant with the full cost recovery commitments for urban water and wastewater.

ACTEW has argued that the asset valuation adopted at the time of the 1999 decision, and by implication a rolled-forward amount adjusted for subsequent new investment, undervalues the asset in today's terms. It is important to recognise that this does not claim to be a valuation of the water itself. Rather, as ACTEW has argued, the 'undervaluation' that is claimed is in terms of the prices that are paid for ACTEW's water reticulation and wastewater treatment services.

To justify its position, ACTEW has repeated the RAT that was applied in 1999, but in so doing has used upwardly revised demand estimates. The effect of the upward revisions under a RAT is to increase the net present value of the future revenue stream of the business and therefore, by implication, the implied valuation of the asset base.

At the time the original RAB was set, the commission used the demand assumptions that were held by ACTEW and confirmed by the commission. Those demand projections have proven to be below what has eventuated over the last five years. Had demand declined below the assumptions that had been made, an updated RAT test would have produced a 'revised' asset valuation below that set by the commission in 1999 (in the absence of price increases). Should the commission in these circumstances reduce the value of the asset base, and should the commission adopt, as a precedent for future regulatory periods, the possibility that the asset valuation may move in either direction, up or down?

5.4 Investment signals sent by the commission

When setting the current five-year price path for ACTEW's services, the commission undertook to roll forward the initial asset base by adjusting the opening asset base for projected new capital expenditure, inflation (based on the forecast CPI) and estimated depreciation. In so doing, the commission undertook to roll into the RAB all prudent capital expenditure over the existing regulatory period, thereby ensuring that all new investment received a rate of return consistent with current market conditions and calculated on the inflation-adjusted depreciated replacement cost of that investment over its economic life.

This approach should create an incentive to the business to invest in the network efficiently. This investment is not exposed to the prospect of optimisation or bypass under the roll-forward arrangements adopted. Neither is it exposed to the possibility of a significant shift in demand as a result, for example, of a paradigm shift in the availability of water and its use in the ACT.

As part of the investigations for the current price review, the commission engaged a consultant to assess the prudence of ACTEW's investment decisions over the existing regulatory period. The commission agreed to roll this investment into the RAB if prudence could be established. This approach sends ACTEW a clear signal regarding its capital expenditure over the regulatory period. However, under the revaluation approach proposed by ACTEW, the RAB would be open to a reset at each price reset, regardless of the prudent expenditure test.

The commission considers that the link between prudence of past investment decisions and the valuation of the RAB should not be broken. In rolling prudent investment into the RAB, the commission provides appropriate incentives to ACTEW to invest efficiently.

5.5 The commission's draft decision on the RAB

In general, the roll-forward approach has been used by almost all Australian regulators for asset valuation in the gas and water industries and is consistent with the commission's approach in electricity. Where asset revaluations have occurred in the electricity sector, they have been in the context of special provisions in the National Electricity Code that relate to the transfer of regulatory responsibility over the assets from the jurisdiction regulators to the Australian Competition and Consumer Commission, or have involved state governments exercising their powers over wholly owned state assets to 'set' asset valuations. Under the National Gas Code, the asset valuation, once set, is rolled forward. This is the approach that was preferred by the predominantly privately owned gas industry when the code was developed.

In the water and wastewater sector there is no precedent for the revaluation of assets after the initial asset valuation has been set. The Independent Pricing and Regulatory Tribunal in New South Wales has used a similar approach to that adopted in the ACT, in that a 'line in the sand' approach has been used, and the assets have not been revalued in subsequent periods, but

rather the roll-forward of the asset base has occurred along the lines outlined above. It is understood that the Victorian Government is looking at a similar approach to the regulation of the water sector in that state. The commission is therefore of the view that a roll-forward of the 1 July 1998 RAB is the most appropriate methodology for determining the opening RAB as at 1 July 2004. The commission believes that this approach is most likely to promote certainty and stability for both ACTEW and customers, reduce ACTEW's risk, and achieve regulatory consistency between both industries and regulatory jurisdictions.

Given the background of the initial investment in water and wastewater assets in the ACT, and the public ownership of those assets, the commission does not agree with ACTEW that a revaluation is necessary to ensure the long-term financial sustainability of the water and wastewater business in the territory. As identified in the analysis presented in Section 14, the commission's draft decision ensures that ACTEW remains in a sound financial position going forward, with a positive incentive and appropriate financial rewards for new investment.

Based on a consideration of all these issues, it is the commission's decision to roll forward the current RAB in order to determine the opening valuation of the next RAB. The roll-forward arrangements will take the RAB determined for the 1999 price direction and adjust it for prudent investment, indexation, asset write-offs, and depreciation.

5.6 Capital expenditure 1999–2000 to 2003–04

5.6.1 Capital expenditure 1999–2000 to 2002–03

The commission engaged Halcrow Pacific Limited (Halcrow) to assess the prudence of ACTEW's capital expenditure over the current regulatory period. In undertaking this task Halcrow reviewed a range of ACTEW's capital projects. ACTEW has noted (in its May submission) that it has been able to achieve considerable savings in capital costs via prudent assessment and deferral of major water and wastewater projects. However, Halcrow has commented that no evidence has been presented to substantiate these claims.

As noted in the commission’s issues paper, the backward test of the prudence of actual capital expenditure does not involve a check against the performance of the business in achieving the efficient level of capital expenditure set at the previous determination. Rather, it is a test against the entire capital expenditure program over the regulatory period. This allows a business to adapt its capital expenditure program during a regulatory period in response to the changes in available information or circumstances that inevitably occur during the regulatory period. As long as changes to the capital program are considered by the commission at the next price investigation to have been prudent, the business will be able to earn a rate of return on the changed capital expenditure program during the next regulatory period.

Consistent with standard regulatory practice, the commission has elected to roll into the RAB all of the prudent capital expenditure from the previous regulatory control period, irrespective of whether it is above or below the efficient allowance made in the 1999 price direction.

Table 5.1 shows ACTEW’s reported capital expenditure in the period 1999–2000 to 2003–04 (using ACTEW’s most recent forecast for 2003–04).

Table 5.1 Actual capital expenditure, 1999–2000 to 2003–04

Year ending 30 June (2002–03 dollars)	1999–2000 (\$'000)	2000–01 (\$'000)	2001–02 (\$'000)	2002–03 (\$'000)	2003–04 (\$'000)	Total (\$'000)
Water	8 634	5 641	6 946	7 497	47 298	76 016
Wastewater	18 328	7 169	4 037	5 164	11 485	46 182
Total	26 962	12 809	10 983	12 661	58 782	122 198

Halcrow concluded that, despite some concerns about ActewAGL’s project approval and record-keeping processes, the capital expenditure undertaken over the existing regulatory period had generally been prudent.

Halcrow's report stated:

The files for projects undertaken during the period are generally not cross-referenced and consolidated. Where available, the files tend to indicate that projects suffered from the same issues as being experienced on projects currently being progressed. However, where assets were considered in the review undertaken ... and had been renewed or augmented as part of the capital programme, these assets were found to be fulfilling their need and generally designed to an appropriate specification.¹³

Therefore, the commission considers that it is appropriate to roll all capital expenditure undertaken by ACTEW during the period July 1999 to June 2003, with the exception of the performance fee paid to ActewAGL for management of the capital expenditure program, into the opening RAB for the regulatory period commencing 1 July 2004.¹⁴

5.6.2 Capital expenditure in 2003–04

Actual capital expenditure for 2003–04 will not be known prior to the next price direction being put in place. Accordingly, an estimate of capital expenditure for 2003–04 must be used when rolling forward the RAB to 1 July 2004.

The commission essentially has two choices for estimating this expenditure. Firstly, it can use the original estimates of capital expenditure made in the 1999 price direction. The second alternative is to use ACTEW's most recent estimate of capital expenditure for 2003–04.

Given ACTEW's decision to proceed with the Stromlo and Googong treatment plants in 2003–04, the impact of the commission's decision on the RAB at 1 July 2004 is quite material. Table 5.2 displays the difference between the forecast capital expenditure in the final year of the 1999 price direction and the capital expenditure forecast by ACTEW in its most recent submission to the commission.

¹³ Burns and Roe Worley, October 2003, *Review of expenditure, demand forecasts and cost attribution for the electricity and water services in the ACT, Final Report*, Section 7.8.4, p. 244.

¹⁴ The performance fee is discussed in more detail in section 5.11.

Table 5.2 Forecast versus actual capital expenditure, 2003–04

Measure	Expenditure in 2003–04 (2002–03 \$'000)
1999 forecast	9 219
Current estimate	58 782
Difference	49 563

In order to more accurately reflect likely outcomes, the commission has elected to use ACTEW's most recent estimate of expenditure in 2003–04 for the purposes of rolling forward the asset base.

In calculating the RAB at the end of the 2004–05 to 2007–08 regulatory period (which will apply in the subsequent regulatory period) the commission will use the actual prudent expenditure in 2003–04, rather than the current estimate.

5.6.3 Stromlo and Googong water treatment plants

These projects formed a major element of the capital expenditure program in the 1999 price direction. In its May 2003 submission ACTEW advised that the projects had been deferred—Stromlo on the basis that the water from the Cotter catchment continued to meet health and environmental standards, and Googong on the basis that water restrictions had enabled the project to be deferred.

However, in its August 2003 submission, ACTEW advised that the construction of both projects would commence in the 2003–04 financial year. ACTEW has indicated to the commission that in June 2003 it received advice that there was a real possibility that the combined effects of drought and bushfires would prevent it accessing water at the standard acceptable for consumption from the Cotter catchment. ACTEW's analysis then suggested that the most effective option to mitigate the problem would be to undertake the work in relation to the two treatment plants at Stromlo and Googong.¹⁵

¹⁵ ACTEW, August 2003, Submission (confidential version), p. 64.

The cost of both projects is now around 50 per cent more than originally envisaged, at \$39.3 million for the Stromlo plant and \$15.8 million for the Googong plant. Halcrow reported that the ‘fast-tracking’ of the Stromlo treatment plant was appropriate, given the urgency of the supply situation and the fact that that the proposed procurement methodology was in line with ‘best practice’ for fast-tracking construction projects.¹⁶

The treatment of these projects has attracted criticism from Halcrow, which was advised by ACTEW that the original decision to defer the upgrades, particularly the Stromlo plant, was made because water quality standards were continuing to be met. However, Halcrow indicated that ACTEW had some difficulty providing historical water quality data confirming that this was the case for the Stromlo water treatment plant, when requested. The commission notes that the water quality data provided by ACTEW indicated that the Stromlo water treatment plant had experienced spikes in measures for both turbidity and manganese above the water quality standards imposed by ACT Health before the January 2003 bushfires.

In the light of the information provided, Halcrow was of the view that the Stromlo plant should in fact have been commissioned earlier and not deferred as ACTEW has claimed was efficient.

ACTEW has responded to the commission that manganese and turbidity spikes were common occurrences in the Cotter system and usually occurred at the end of summer, corresponding to water temperature inversions in the Cotter, Bendora and Corin dams. These water temperature inversions cause the water in the dams to turn over, thus stirring up the nutrients at the bottom of the dams and increasing both the concentration of manganese and the turbidity of the water. In the past these events have been managed by drawing water from the Googong catchment until the spikes have settled.

The commission does not dispute that, following the bushfires and with current low water storage levels, the Stromlo and Googong projects are now needed. It does, however, have some concerns regarding the original decision by ACTEW to delay the projects, and is concerned that the current fast-tracking of the projects may have resulted in higher capital costs than

¹⁶ Burns and Roe Worley, October 2003, p. 257.

would have been the case had they proceeded in accordance with the original timetable.

5.7 Regulatory depreciation

There are two ways that regulatory depreciation for the current regulatory period can be determined. Under one approach, the depreciation allowance that was used in establishing the existing tariffs is adopted for the purposes of rolling forward the RAB. This approach is consistent with the view that regulatory depreciation should be interpreted as a return of capital (funds) to the regulated business. The amount of capital that is reflected in the tariffs during any particular period (and so returned to the business) is independent of the level, or nature, of capital expenditure during that period. This approach also has the benefit of simplicity, as it does not require detailed information on the difference between the mix of forecast and actual expenditure.

Under the alternative approach, the depreciation allowance is calculated over the current regulatory period by adjusting the RAB for the actual capital expenditure undertaken during the period. This approach calculates a higher depreciation amount than forecast at the time of the previous direction if capital expenditure is higher than forecast, and a lower depreciation amount if capital expenditure is lower than forecast.

The commission's preferred approach is to use the regulatory depreciation as defined by the commission in the 1999 price direction. Table 5.3 details the amounts defined in the price direction, expressed in 2002–03 dollars. Additional capital expenditure incurred over the existing regulatory period will be included in the depreciation projections for the next period.

Table 5.3 Regulatory depreciation

Year ending 30 June (2002–03 dollars)	2000	2001	2002	2003	2004
Water	6 895	7 507	7 770	8 249	8 661
Wastewater	8 471	9 739	10 633	11 239	11 445
Total	15 366	17 245	18 404	19 488	20 107

Source: 1999 price direction, pp. 52 and 54.

5.7.1 Asset disposals 1999–2000 to 2003–04

ACTEW has advised that there were no material asset disposals during the period.

5.7.2 Conclusion on the opening RAB

The commission is of the opinion that rolling forward the current RAB is the most appropriate methodology for determining the opening RAB for the next regulatory period. Tables 5.4 and 5.5 show how the commission has rolled forward the opening asset base from the 1999 price direction to determine the opening RAB for the next regulatory period. The opening RAB will be \$426.550 million for water and \$438.988 million for wastewater. The RAB proposed by ACTEW is also shown for comparison purposes.

Table 5.4 1999 price direction RAB rolled forward—water

Year ending June 30 (nominal dollars)	1998–99 \$'000	1999–2000 \$'000	2000–01 \$'000	2001–02 \$'000	2002–03 \$'000	2003–04 \$'000
Water						
Opening value	329 600	330 484	338 817	357 551	365 739	377 164
Capital expenditure — additions (net of capital contributions)	4 858	7 659	5 282	6 720	7 497	48 480
Disposals/assets written off						
Depreciation	6 869	6 895	7 507	7 770	8 249	8 661
Indexation	2 895	7 568	20 959	9 238	12 447	10 029
Less performance fee paid by ACTEW to ActewAGL					(270)	(461)
Closing value	330 484	338 817	357 551	365 739	377 164	426 550
ACTEW's proposed revised valuation						459 300

Table 5.5 1999 price direction RAB rolled forward—wastewater

Year ending June 30 (nominal dollars)	1998–99 \$'000	1999–2000 \$'000	2000–01 \$'000	2001–02 \$'000	2002–03 \$'000	2003–04 \$'000
Wastewater						
Opening value	367 296	378 570	395 111	416 544	420 528	428 376
Capital expenditure/additions (net of capital contributions)	14 578	16 258	6 713	3 905	5 164	11 772
Disposals/assets written off						
Depreciation	6 570	8 471	9 739	10 633	11 239	11 445
Indexation	3 266	8 754	24 458	10 712	14 253	10 850
Less performance fee paid by ACTEW to ActewAGL					(330)	(564)
Closing value	378 570	395 111	416 544	420 528	428 376	438 988
ACTEW's proposed revised valuation						475 600

5.8 Capital expenditure 2004–05 to 2007–08

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 efficient amount of capital expenditure required to achieve the service outcomes desired by customers. The efficient amount of capital expenditure is assessed by a combination of internal historical benchmarking, benchmarking against similar businesses, and expert analysis. An assessment of typical productivity improvements in similar industries is often used as a guide. The efficient capital expenditure allowance is used as the basis for determining the revenue requirements of the business in the building-block methodology. By implication, only efficient capital expenditure earns a rate of return for the regulatory period.

The commission engaged Halcrow to review the efficiency and prudence of ACTEW's proposed capital expenditure program over the period from 2004–05 to 2008–09. As part of this process the commission provided ACTEW with an opportunity to comment on Halcrow's draft findings.

Having reviewed the consultant’s report and ACTEW’s responses, the commission has made comments, as set out below, on particular aspects of ACTEW’s proposed plan. While the commission has considered both the findings of Halcrow’s review and the comments made by ACTEW, any adjustments made to ACTEW’s proposed capital expenditure program in the following sections have been made by the commission alone.

5.8.1 ACTEW’s position

ACTEW has proposed a capital expenditure program amounting to \$107.2 million (in 2002–03 dollars) over the next regulatory period for the water and wastewater businesses. ACTEW has provided the commission with a breakdown of its forecast capital expenditure program, using the following categories:

- asset renewals
- growth
- mandatory standards
- efficiency
- allocated corporate.

ACTEW has based its capital expenditure program on the continuation of the current service levels and performance of both the water and wastewater networks. ACTEW’s capital expenditure program is summarised in Tables 5.6 and 5.7.

Table 5.6 ACTEW’s forecast capital expenditure, 2003–04 to 2008–09—water

Year ending 30 June (2002–03 dollars)	2004–05 \$’000	2005–06 \$’000	2006–07 \$’000	2007–08 \$’000	2008–09 \$’000	Total \$’000
Asset renewal/replacement	4 253	3 333	2 161	2 471	2 379	14 597
Growth	82	83	492	1 714	592	2 963
Mandatory standards	18 377	3 193	102	102	102	21 875
Efficiency	1 901	138	85	86	187	2 397
Allocated corporate	507	598	657	504	57	2 324
Total water	25 120	7 345	3 497	4 876	3 318	44 156

Table 5.7 ACTEW's forecast capital expenditure, 2003–04 to 2008–09—wastewater

Year ending 30 June (2002–03 dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000	Total \$'000
Asset renewal/replacement	3 530	2 713	3 566	5 075	4 512	19 397
Growth	7 805	5 423	6 484	4 582	579	24 872
Mandatory standards	4 137	4 349	255	662	4 466	13 870
Efficiency	1 555	0	268	268	0	2 091
Allocated corporate	620	732	803	616	70	2 840
Total wastewater	17 647	13 217	11 377	11 202	9 627	63 070

The total program across the two business units is shown in Table 5.8.

Table 5.8 ACTEW's forecast capital expenditure, 2003–04 to 2008–09—combined

Year ending 30 June (2002–03 dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000	Total \$'000
Total water	25 120	7 345	3 497	4 876	3 318	44 156
Total wastewater	17 647	13 217	11 377	11 202	9 627	63 070
Total	42 768	20 562	14 874	16 078	12 945	107 226

This capital forecast includes revisions made since ACTEW's May submission, notably for the water network as a result of the decision to proceed with the upgrades to the Stromlo and Googong water treatment plants.

Major drivers of the capital expenditure proposed by ACTEW include:

- the completion of the planned Stromlo and Googong water treatment plants, with costs of \$8.7 million and \$3.7 million in 2004–05
- a continuation of the water meter replacement program, at a total cost of \$6.9 million from 2004–05 to 2008–09
- trunk water augmentation expenditure of \$2.9 million from 2004–05 to 2008–09
- sewer mains rehabilitation expenditure of \$12.7 million from 2004–05 to 2008–09

- trunk sewer augmentation expenditure, including the Belconnen trunk sewer augmentation project which was deferred in the current regulatory period, of \$10.5 million
- treatment plant works, including upgrades of the Lower Molonglo sewage treatment plant and the Fyshwick sewage treatment plant—this work will cost some \$28.7 million over the period and include asset renewal, growth and mandatory standards expenditure.

5.8.2 Consultant's overview

The commission requested that the consultants review ACTEW's proposed level of capital expenditure to provide an overall strategic view of whether expenditure levels are efficient, including whether costs are being attributed appropriately to the regulated services.

In undertaking this review, the consultants made a number of broad observations on ACTEW's asset management practices, including that:

- the justification for projects in the early part of the capital program is generally satisfactory; however, the need for some projects in subsequent years is less soundly based
- a significant proportion of the capital program lacks a robust audit trail, and the quality assurance of supporting documents is generally poor
- ACTEW lacks an integrated asset management philosophy, and delegates too much of its management planning to ActewAGL, with processes being geared to the management of the water and sewerage managing contractor alliance agreement rather than being part of an integrated philosophy—overall asset management policies are not succinctly argued and communicated
- with the exclusion of the discharge requirements at the Lower Molonglo Water Quality Control Centre (LMWQCC) and the high incidence of pipe blockages caused by tree roots, ACTEW is not faced by significantly different external influences from those faced by other Australian water utility companies
- assets are at, or in some cases are better than, the condition to be expected for their age

- ACTEW is generally performing above the average of comparable water utilities in Australia and provides a high standard of service.

5.8.3 Consultants' efficient capital plan

As part of its review Halcrow was requested to prepare its own efficient capital expenditure plan for ACTEW. The consultant's view was that ACTEW's capital plan was overstated, due to general factors such as provisions, contingencies and unit rates that were too high, as well as the existence in the plan of individual projects that were not fully justified or could be deferred or deleted.

The consultant's efficient capital expenditure plan was developed using ACTEW's July 2003 capital plan after making the following adjustments:

- keeping sewer rehabilitation expenditure at 2004–05 forecast levels for the whole of the forecast period until better justification is provided. The consultants believed that estimates of expenditure for years beyond 2004–05 were significantly uncertain because of their reliance on engineering judgement and statistical extrapolation.
- reducing the provision for sewer augmentation during the period 2005–06 to 2008–09. The consultants believed that the justification for augmentation for 2005–06 and subsequent years had not been demonstrated, and that the allowance for design and supervision in the estimates was too high.
- reducing the estimate for the Belconnen trunk sewer to reflect ring-fenced costs associated with sewage mining (effluent reuse).
- removing the Fyshwick tertiary treatment (effluent reuse) project from the plan. The consultant's view was that none of ACTEW's effluent reuse projects could be justified on purely financial grounds. While the consultant recognised that a full cost–benefit analysis may provide a justification for the projects, such analysis had not been conducted by ACTEW. For similar reasons, the consultant also reduced the estimate for the Belconnen trunk sewer to omit costs associated with sewage mining.
- removing the Cotter and Googong mini-hydro schemes from the capital expenditure program. The consultants were of the view that these

projects were essentially a commercial venture and should not be included in regulated costs.

- deletion of the Kinleyside service reservoir. The consultants believed that the Kinleyside reservoir was not justified, on the basis that the planning authority is now likely to limit development in this area, and the cost provision is excessive.
- delaying district metering. In the consultant's view the district metering program could not be justified.
- reducing the 20-millimetre meter replacement program. In the consultant's view the longer life of more recently installed meters means that the efficient meter replacement program is smaller than that forecast by ACTEW
- reducing the reactive meter replacement program. The consultants believed that a small reduction in the reactive meter replacement program was also desirable, again on the basis of existing meters lasting longer.
- deleting the ActewAGL performance fee. The capital plan includes a \$1 million fee paid by ACTEW to ActewAGL. The consultant recommended that this be removed.
- making reductions for systematic unit cost overestimation. In the consultant's view, unit rates were above reasonable levels.
- making reductions in design and supervision costs. The consultants noted that benchmarked in-house design and project management costs tended to be of the order of 10 per cent to 15 per cent of the cost of work in progress. ACTEW's design and supervision costs were substantially more than this and the consultants recommended that they be scaled back accordingly.

Table 5.9 illustrates the percentage change between Halcrow's efficient capital plan and ACTEW's proposed plan.

Table 5.9 Halcrow's efficient capital plan versus ACTEW's proposal

Year ending 30 June (2002–03 dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000	Total \$'000
Halcrow's proposed capital plan	35 778	13 022	10 543	11 010	8 336	35 778
ACTEW's proposed capital plan, water and wastewater	42 768	20 562	14 874	16 078	12 945	42 768
Percentage difference	16%	37%	29%	32%	36%	16%

5.8.4 ACTEW's response to the consultant's review

ACTEW did not support the majority of the consultant's findings and views. At a higher level, ACTEW expressed concern on several matters, including that ACTEW felt the proposed adjustments to the program were arbitrary, with programs being excluded simply on the basis of their planning not being fully scoped. In ACTEW's view this is an unrealistic expectation for complex capital projects, some with five-year planning horizons.

In some places the consultants suggested that projects be treated as pass-throughs once they had been fully justified. ACTEW did not support such an approach, arguing that this would be unprecedented in the Australian regulatory environment and would represent a shift towards 'rate of return' regulation.

In respect of the adjustments to ACTEW's capital plan, ACTEW commented as shown in Box 5.1.

Box 5.1 ACTEW's response to Halcrow's efficient capital plan

Adjustment made	ACTEW comments
Keeping sewer rehabilitation levels as per the 2004–05 forecast	The consultants have not substantiated this reduction. The program is based on extensive records and analysis of sewer blockages and trends and is thus well justified.
Reducing the provision for sewer augmentation	The consultants have not substantiated this reduction. The estimates are based on system modelling.
Reducing the estimate for Belconnen trunk sewer	Effluent reuse is being driven by the recently released government water policy which has a 20 per cent reuse by 2013 policy. The additional cost of sewer mining to the overall project is marginal, but would be substantial if required as a future modification.
Removing the Fyshwick effluent reuse project	Effluent reuse is being driven by the recently released government water policy which has a 20 per cent reuse by 2013 policy.
Removing the Cotter and Googong mini-hydro schemes	These projects are consistent with ACTEW's environmental responsibilities. Planning of mini-hydro schemes is predicated on the basis that the projects are economically justified.
Deleting the Kinleyside service reservoir	The project is justified on the available data and given the ACT Government's current best planning predictions.
Delaying district metering	Detailed economic analysis supports the project proposal.
Reducing the 20-millimetre meter replacement program	The consultants have not substantiated this reduction. The current level of replacement is required under Metering Code requirements.
Reducing the reactive meter replacement program	The consultants have not substantiated this reduction. Replacement is undertaken in response to customer complaints and cannot be reduced without affecting service levels.
Deleting the ActewAGL performance fee	ACTEW strongly disagrees with there being no recognition for the significant risks and costs of working capital borne by its contractor in carrying out its activities.
Making reductions for unit cost overestimation	Cost estimates for projects into the future are best estimates. Some unit rates have been market tested with the result that they are higher than elsewhere, due to the small size of the Canberra contractor market. Unit costs are constantly under review.
Making reductions in design and supervision costs	The consultant has misinterpreted this estimate. The estimates include some construction costs.

5.9 Mini-hydro schemes

ACTEW proposes to construct a number of mini-hydroelectric (mini-hydro) schemes near Cotter Dam, at Corin Dam and Googong Dam, and on the LMWQCC outfall.

ACTEW proposes to sell electricity generated through the schemes back to ActewAGL, as 'green energy'.

ACTEW has justified the mini-hydro schemes on the basis of the ACT Government's renewable energy policy, customer preferences, and the provisions of the *Territory Owned Corporations Act 1997* (TOC Act), which places a degree of responsibility on ACTEW to conduct its operations in compliance with the principles of ecologically sustainable development.

However, Halcrow recommended that the commission consider excluding these projects from the forecasts on technical and economic feasibility grounds, and also because the projects are not required to provide water and wastewater services to ACTEW's customers.

In its plan, ACTEW has shown the mini-hydro projects by subtracting the revenue received from the total regulated revenue requirement, rather than separately identifying the costs. This approach has merit in that, by assuming that revenue equals costs, it means detailed cost allocation calculations to determine the 'true cost' of mini-hydro schemes do not need to be made. However, from a regulatory perspective it also means that if revenue is less or more than the true cost, ACTEW's ACT customers are either subsidising, or being subsidised by, mini-hydro activities.

The commission therefore requested ACTEW to provide it with further information on the costs and revenues for the mini-hydro program. In doing so, ACTEW identified that a number of the mini-hydro costs had not been included in the operating cost forecast.

ACTEW's forecast cost and revenues showed a forecast return of approximately 6 per cent. The commission was therefore satisfied that the projects could be included in the forecast capital plan at this time, and that any cross-subsidisation would be likely to be small.

However, the commission emphasises that this decision does not mean that mini-hydro investments planned for the next regulatory period will automatically be considered as 'prudent' when a review is undertaken at the time of the next price direction. The Corin and Googong projects are not projected to be operational until 2006–07. If circumstances at the time (including experience gained through the Stromlo and LMWQCC mini-hydro schemes) suggest that constructing additional mini-hydro schemes is not economic or justifiable on other grounds, then the commission will not permit any expenditure to enter the RAB.

5.10 Effluent reuse

ACTEW has constructed a number of effluent reuse schemes in the existing regulatory period, and has proposed additional schemes in the next regulatory period, including a sewer mining project at Belconnen (which will also relieve capacity pressures) and the completion of the tertiary treatment plant located at Fyshwick.

ACTEW has indicated that the projects are driven in part by its obligations under the TOC Act. ACTEW has cited targets, announced in the ACT Government's recent draft water policy and draft strategy for sustainable water management, of increasing reuse within the ACT to 20 per cent by 2013 as justification for the projects. It has also indicated that the reuse projects assist in reducing hydraulic load and can divert nitrogen flow from the LMWQCC. However, ACTEW has also conceded that the projects are marginal from an economic viewpoint.

Effluent reuse schemes are expensive by nature both to construct and to operate, due to the quality standards for effluent reuse being relatively high. To achieve the ACT Government's draft water reuse target of 20 per cent will require considerable investment over the coming years on additional water mining projects, if this is to be the mechanism used to achieve this target. The projects currently proposed by ACTEW for the next regulatory period will fall short of this target.

The commission recognises the ACT Government's overall targets. Individual projects of the size proposed by ACTEW will not readily achieve the reuse target, or at least will not achieve the target in the most economically efficient manner. An alternative approach may involve an option canvassed in the draft strategy, whereby water from the LMWQCC is recycled for consumptive use. This may prove to be a more economically efficient means of meeting the reuse targets set by the ACT Government.

The commission believes that the achievement of the reuse targets will therefore need to be the subject of more detailed discussion involving the ACT Government, ACTEW and the community. As the draft water strategy proposes, further work is needed to identify cost-effective and innovative ways to meet the reuse target.

For the purposes of this price direction, the commission has allowed expenditure on effluent reuse projects in the current regulatory period to

enter the RAB at 30 June 2004. However, the commission intends to remove this expenditure in the actual roll-forward of the RAB for the regulatory period commencing 1 July 2008 unless ACTEW can clearly demonstrate that the proposed projects were the most effective and efficient schemes in terms of meeting the ACT Government's effluent reuse objectives, and minimising ACTEW's costs. This will also require ACTEW to demonstrate that the projects are likely to be superior to any reuse options involving the LMWQCC.

5.11 The ACTEW–ActewAGL performance fee

In its capital expenditure estimates provided to the commission, ACTEW identified a performance fee that is to be paid to ActewAGL against the achievement of a capital works program and various unidentified outcomes. ACTEW has argued that this fee should be treated as a capital cost, to be rolled into the RAB. The amount involved is \$1 million (in 2002–03 dollars) per annum.

ACTEW has argued that the performance fee should be allowed as it provides recognition for the significant risks and costs of working capital borne by its contractor, ActewAGL.¹⁷

In reviewing ACTEW's capital costs, Halcrow commented that if a performance fee were paid, it should consist of two elements. The first element would consist of an appropriate return on the cost of the contractor in managing the capital program. The second element would be a gainshare mechanism which would be paid to the contractor if it was able to produce specified outcomes at a lower than expected price. The first element would effectively form part of the efficient cost of the contractor, and thereby recognise that a contractor needs to generate a profit on its activities. The second element would be funded out of any efficiency savings between the capital costs allowed by the regulator and the actual costs of the work undertaken. This is consistent with incentive price path regulation.

The commission notes that the commercial benchmark level provided by Halcrow in terms of the costs of project management and internal design is

¹⁷ ACTEW, September 2003, *Response to consultants' draft report to the Independent Competition and Regulatory Commission, water and wastewater services*.

in the range of 10 per cent to 15 per cent of the capital program. ACTEW has provided evidence to the commission that the current project capital plan already includes an allowance for these costs.

The commission is of the view that ACT consumers should not be required to meet costs which are above efficient costs for the services provided. Thus the commission will not support the concept of an additional cost to fund an incentive payment which may or may not be passed through to the intended recipient. To the extent that an incentive payment is required, this should be paid out of the efficiency benefits generated by the consultant or out of the profits of the contracting agency.

This is not to imply that the commission does not endorse some form of incentive payment or other inducement to a contractor to perform at a level above the generally accepted benchmark. Rather, the commission's approach is consistent with the overall aims and objectives of incentive regulation, that is, if the regulated entity (or its consultants) are entitled to benefit financially from that overall improvement in productivity.

In assessing the appropriate mark-up to allow on capital works costs to account for the direct costs, overloads profit of the consultant undertaking the capital works planning and management role, the commission has adopted the 10 per cent allowance identified by Halcrow as being at the lower end of their range of legitimate costs, and allowed a further 5 per cent for profit. This is broadly consistent with the cost allocation within consulting firms where costs are broadly allocated on the basis of one-third for labour costs, one-third for office overheads and associated costs, and one-third for profit.

The final form of the service agreement between ACTEW and ActewAGL whereby ActewAGL is provided with a gainshare–painshare incentive is entirely at the discretion of ACTEW as part of its negotiations with ActewAGL. The funding of any gainshare would come from savings achieved by ActewAGL as part of its administration of the capital works program. The commission simply needs to be satisfied that the service contract agreement between the two (related) parties is arm's-length and reflective of commercial rates. The inclusion of a 10 per cent to 15 per cent margin in the projected capital works costs for ActewAGL management and project planning purposes would appear to be consistent with industry benchmark standards, and therefore the commission will allow this cost.

However, the commission will not allow a separate additional ‘performance fee’ cost.

Consistent with the commission’s draft decision for electricity, any gainshare mechanism, or profit-sharing arrangement, should not be funded by ACT consumers. Rather, it should be funded from the benefits arising out of the increased performance of the contractor. The commission considers that it is inappropriate to include the performance fee paid to ActewAGL to manage the capital expenditure program in the capital expenditure program.

5.12 Unit cost overestimation

Halcrow reported to the commission its belief that, due to the use of higher than normal unit rates, provisions and contingencies, ACTEW has a capital expenditure program that is overestimated by at least 7.5 per cent. In response, ACTEW has provided the commission with a list of the numerous factors which impact on the unit rates used in the ACT as compared to other jurisdictions.

The commission undertook a further review of the unit rates used by ACTEW and the method used by ACTEW for forecasting future capital expenditure. It is evident from a review of these practices that ACTEW relies upon various industry benchmarks for purposes of forecasting its capital expenditure requirements, and that these estimates of costs are progressively refined as the timing for the capital works project concerned passes the various managerial and board sign-off processes within the company. Ultimately, when the project goes to tender, the tender process will in all probability bring forward an appropriate market price (although the commission has noted incidents where ACTEW has not accepted unanticipatedly high tenders because of perceived vagaries in the market at the time of the bids being reviewed).

The forward capital expenditure estimates provide a context for the price path over the next regulatory period. However, it is the actual prudent capital expenditure that is ultimately rolled into the RAB and carried forward for the life of the asset. Some latitude in the forward estimates of capital expenditure may be need to be allowed, given the nature of the estimates that are used. However, the commission needs to ensure that the final value rolled into the RAB and carried forward for the assets’ life reflects efficient costs of a prudent capital program.

5.13 The commission's draft conclusion on efficient capital expenditure

The commission has found the comments of the consultant and the responses from ACTEW extremely valuable in arriving at a conclusion regarding capital expenditures over the regulatory period. Halcrow has suggested to the commission that there is significant room for capital efficiencies, with a number of projects being uncertain or having their potential scope overstated. The commission notes that ACTEW has replied to a number of these criticisms and, in particular, has noted difficulties in finalising the capital expenditure program on a project-by-project basis so far in advance.

The commission accepts that over the next regulatory period there will be a number of decisions taken to defer some projects and bring forward other projects. Future capital plans should not be seen as being sufficient to cover all potential eventualities—just those considered to be likely over the period. Providing in the price path for a capital expenditure program which covers all potential developments would leave the business with very limited exposure to normal commercial risk and would therefore require an appropriate adjustment in the WACC to reflect that lower than normal risk.

Based upon the findings of the consultant's report, ACTEW's comments on the consultant's review, and its own deliberations, the commission has decided that it will accept the broad capital program proposed by ACTEW for the next regulatory period.

However, in accepting this broad program the commission still holds concerns regarding the estimated costs of the program. These relate in particular to:

- concerns expressed by Halcrow regarding unit rates and the use of excessive contingencies
- high design and project management costs.

There are two ways the commission can deal with its concerns. Firstly, it could reduce the estimated cost of the program by a defined amount. Secondly, the commission might accept the cost of the program proposed, but require a relatively detailed review of the prudence of the capital program at the end of the regulatory period.

On balance, and partly due to the regulatory period being four years rather than five (which limits the gains to ACTEW from overestimating capital costs), the commission has decided to accept the forecast program cost, but will impose a relatively rigorous review of the capital expenditure program at the next price review. Amongst other things, this will involve ACTEW being required to provide the following information:

- full business cases with detailed cost–benefit assessments, including for business decisions which are signed off as deferred
- for any work above a defined cost threshold externally contracted outside of the ACTEW–ActewAGL alliance contract, details of tenders received from the successful tenderers as well as from all unsuccessful tenderers
- for any work above a defined cost threshold completed within the ACTEW–ActewAGL alliance contract, a justification that this represented the highest value for money
- the final costs of all projects completed within the regulatory period
- for any projects included in the current capital forecast but subsequently not carried out, a full justification of why the projects were not carried out, including the external factors that changed after the forecasts were made.

The commission will also seek from ACTEW a detailed project-by-project capital expenditure program for the next regulatory period.

This information will be audited by a person nominated by the commission. If ACTEW is unable to provide the supporting documentation in relation to projects completed, the commission will need to be satisfied that there is a very good reason why this information is not available and why the commission should therefore roll the relevant capital expenditure into the RAB at the end of the regulatory period. Similarly, where the commission is not convinced that projects have been prudently deferred, this will be taken into account in the commission’s consideration of prices for the subsequent regulatory period.

The revised aggregate expenditure figures used for purposes of the regulatory modelling and forward RAB adjustment are provided in Tables 5.10 and 5.11 for water and wastewater respectively. These estimates

include the 10 per cent to 15 per cent benchmark estimates of the capital program planning and management fees paid to ActewAGL. However, the performance fee has been excluded. A comparison of Halcrow's proposed efficient capital expenditure program is also provided.

The adjustment to the total value of the capital expenditure program does not prevent ACTEW from spending money on any specific investment activity over the regulatory period. Importantly, the prudence of all capital expenditure will be considered when the RAB is determined for purposes of the 2009–10 price path determination.

Table 5.10 The commission's efficient capital expenditure program—water

Year ending 30 June (2002–03 dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000	Total \$'000
ACTEW's proposed water capital expenditure program	25 120	7 345	3 497	4 876	3 318	44 156
Less the ActewAGL performance fee	450	450	450	450	450	2 250
Commission's capital expenditure allowance	24 670	6 895	3 047	4 426	2 868	41 906
Halcrow's proposed capital expenditure program	21 616	5 221	1 947	2 574	1 801	33 159

Table 5.11 The commission's efficient capital expenditure program—wastewater

Year ending 30 June (2002–03 dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000	Total \$'000
ACTEW's proposed wastewater capital expenditure program	17 647	13 217	11 377	11 202	9 627	63 070
Less the ActewAGL performance fee	550	550	550	550	550	2 750
Commission's capital expenditure allowance	17 097	12 667	10 827	10 652	9 077	60 320
Halcrow's proposed capital expenditure program	14 162	7 801	8 596	8 436	6 535	45 530

5.14 Indexation of the RAB

In determining the RAB for each year of the regulatory period, the commission must consider how the opening RAB is to be adjusted for changes in real prices. Usual practice is to use some form of measurement of the rate of inflation to index the RAB moving forward. The national consumer price index (CPI) is the standard indicator of inflation for this purpose. The commission has a number of options regarding which CPI forecasts should be used in the forward indexation of the RAB. ACTEW's estimate is shown in Table 5.12.

Table 5.12 CPI forecasts used by ACTEW

Year ending 30 June	2004–05	2005–06	2006–07	2007–08	2008–09
CPI forecast—Econtech	1.7%	1.8%	2.6%	3.0%	2.5%

Source: ACTEW's 29 August submission.

It is the commission's expectation that inflation will continue to remain relatively low and within the 1 per cent to 4 per cent range. Unless presented with compelling evidence to the contrary, the commission will use ACTEW's forecast of CPI to index the RAB for the purposes of determining the total revenue requirement.

The commission will continue to roll the forecast capital base forward by adjusting the opening RAB for inflation, estimated depreciation, and projected capital expenditure. This is consistent with the commission's view that the RAB represents a financial asset of the shareholder and should be maintained in real terms over the course of the determination.

5.15 Depreciation of the RAB

The commission will also deduct the value of the forecast regulatory depreciation allowed in the cost build-up from the RAB in each year of the regulatory period. The depreciation allowance is returned to ACTEW directly from consumers as part of the building-block methodology. ACTEW does not receive a rate of return on any assets whose value has already been recovered by way of depreciation.

In the 2003 issues paper, the commission stated a preference to adopt straight-line depreciation to calculate depreciation. This approach was

supported by ACTEW in submissions to the commission. The commission has used an average of remaining asset lives of 44 years for water and wastewater to calculate the rate of depreciation applicable to existing assets and a 66-year depreciation cycle for new assets.

5.16 The forecast RAB over the next regulatory control period

Tables 5.13 and 5.14 summarise the commission's draft decision in respect of the opening RAB, the capital expenditure program, depreciation, indexation of the RAB, and finally the forecast rolled-forward RAB in each year of the next regulatory period.

Table 5.13 Rolled forward RAB—water

Year ending 30 June (nominal dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000
Opening value	423 822	452 225	462 110	467 805	474 996
Capital expenditure	26 392	7 909	3 861	5 517	3 848
Disposals/assets written off	Nil	Nil	Nil	Nil	Nil
Depreciation	8 914	9 430	9 766	10 090	10 422
Indexation	10 925	11 404	11 601	11 764	11 923
Closing value	452 225	462 110	467 805	474 996	480 344

Table 5.14 Rolled forward RAB—wastewater

Year ending 30 June (nominal dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000
Opening value	438 537	458 365	473 841	487 551	501 264
Capital expenditure	18 541	14 234	12 558	12 674	11 164
Disposals/assets written off	Nil	Nil	Nil	Nil	Nil
Depreciation	9 907	10 395	10 851	11 307	11 764
Indexation	11 195	11 637	12 003	12 347	12 671
Closing value	458 365	473 841	487 551	501 264	513 335

6 Cost of capital

The cost of capital, when multiplied by the regulatory asset base (RAB), determines the return-on-assets component of the total revenue requirement. The weighted average cost of capital (WACC) is the method preferred by most Australian regulators for determining a regulated utility's cost of capital.

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

6.1 Calculating the WACC

6.1.1 Form of the WACC

The WACC can be applied in a number of different forms, including in pre- and post-tax, and real and nominal terms. Theoretically, the expression of the WACC as pre-tax or post-tax should have little impact on the revenue outcome for the regulated business when the building-block methodology is applied. In practice, differences arise.

If a post-tax WACC is used, the building block needs to reflect this by including the tax costs. If a tax block is excluded where a post-tax WACC is used, the rate of return on assets will in practice be lower, because part of the return to assets will need to be used to pay taxes. Where a pre-tax WACC is adopted, the payment of tax is incorporated into the rate of return, and no separate allowance is made for taxes.

In the 2003 issues paper, the commission indicated its preferred approach was to use a pre-tax real WACC, with tax calculated at the statutory rate. The commission expressed this view on the basis that:

- it would be consistent with the commission’s previous price directions and investigations
- the level of intrusion, complexity and cost required to calculate the effective taxation rate (which will be lower than the statutory rate) is likely to exceed any potential benefits.

This approach was supported by ACTEW in its August response to the 2003 issues paper. The commission therefore confirms its adoption of this approach.

6.1.2 WACC formula

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

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

where:

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

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

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

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

where:

- t is the tax rate
- γ is the value of imputation credits.

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

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

The CAPM formula is presented in equation (3) below:

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

where:

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

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

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

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

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

where:

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

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

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

- the risk-free rate and inflation
- the market risk premium
- the debt margin
- the gearing ratio
- the value of dividend imputation credits (gamma)
- the equity beta and debt beta.

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

6.2 ACTEW's proposal

ACTEW has proposed a WACC of 7.53 per cent pre-tax real. ACTEW engaged Network Economics Consulting Group (NECG) to provide an independent assessment of this WACC. The parameters and assumptions used by ACTEW for determining this WACC are set out in Table 6.1 below.

Table 6.1 Parameters used by ACTEW in the weighted average cost of capital calculation

Parameter	Value
Risk-free rate	4.99%
CPI	2.11%
Market risk premium	6.5%
Debt margin	1.3%
Debt issuance	0.125%
Gearing	50%
Gamma	0.40
Asset beta	0.45
Debt beta	0.00
Tax rate	30%
Equity beta (calculated)	0.90
WACC (nominal post-tax)	6.83%
WACC (pre-tax nominal)	9.8%
WACC (pre-tax real)	7.53%

ACTEW has stated that this WACC is based on the full application of its cost pass-through mechanism, discussed in Section 8. ActewAGL has advised the commission that it would need to recalculate and resubmit a commensurately higher WACC to reflect the true risk it faces if the commission did not apply ActewAGL’s cost pass-through provisions.

6.3 Parameters used

This section sets out the commission’s views on the relevant WACC parameters.

6.3.1 Risk-free rate and inflation

The following assumptions have been used in the derivation of the risk-free rate and inflation (that is, the change in CPI):

- the nominal risk-free rate is derived from a 20-day average of the yields on the 10-year Commonwealth Government bond rate

- the real risk-free rate is derived from the 20-day average of the yields on treasury indexed bonds, adjusted to reflect a 10-year maturity
- the change in CPI is derived from the difference in the two bond indices using the Fisher equation.

The Australian Competition and Consumer Commission (ACCC) has opted to use the nominal risk-free rate derived from shorter-term government bonds, on the grounds that the period of the bond should more closely reflect the period of the regulatory price path. The commission, along with most other jurisdictional regulators in Australia, has decided to continue using the longer-term bond rate, reflecting the long-term lives of the assets included in the RAB.

The commission has updated the risk-free and inflation rates used in the calculation of the WACC to account for interest rate movements over the 20-day period ending on 19 November 2003. This has resulted in the use of a higher interest rate than was used in the commission's decision on electricity, which was released in early November 2003.

6.3.2 Market risk premium

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

ACTEW's submissions propose the use of a market risk premium of 7 per cent, reflecting the range assessed by NECG on ACTEW's behalf.¹⁸ This assessment was based on a view that finance professionals in Australia tend to use a market risk premium of between 6 per cent and 8 per cent, and that 7 per cent was the midpoint of that range. NECG also noted that, at the 1999 investigation, the commission's market risk premium of between 5 per cent and 6 per cent was relatively low compared to those of other Australian regulators.

¹⁸ ACTEW, August 2003, Pricing proposal, p. 53.

Table 6.2 provides a summary of recent regulatory decisions in Australia on the market risk premium in the water industry, and regulators' current thinking in respect of the market risk premium in the electricity distribution industry.

Table 6.2 Review of market risk premiums

Entity	Industry	Market risk premium
ICRC (1999)	Water and wastewater, electricity distribution	5.0–6.0%
IPART (2000)	Water and wastewater	5.0–6.0%
OTTER (2001)	Water	6.0%
QCA (2002)	Water	6.0%
QCA (2003)	Water	6.0%
IPART (2003)	Water and wastewater	5.0–6.0%
OTTER (2003)	Electricity distribution	6.0%
IPART Secretariat (2003)	Discussion Paper 2004 electricity review	5.0–6.0%
ICRC (2003)	Electricity distribution	6.0%

While acknowledging the arguments presented by ACTEW, the commission believes that using a market risk premium of 6 per cent is appropriate to balance the risks of investing in equities relative to the risk-free rate. The commission notes this value is in line with the upper end of recent decisions from other Australian regulators and, in part, is a reflection of the allowance made for the riskiness of the water and wastewater business at a time of continuing drought conditions.

6.3.3 Debt margin

The debt margin represents the percentage margin, above the risk-free interest rate, associated with debt. It reflects the risks in the regulated business's ability to pay back debt. The debt margin is related to current market interest rates on corporate bonds, the maturity of the debt on issue, the assumed capital structure and the credit rating. All other things being equal, higher credit ratings should result in a business having a lower required debt margin.

ACTEW has argued for a debt margin of 1.425 per cent, reflecting in part an allowance for the cost of debt issuance of 0.125 per cent.

Table 6.3 provides a summary of recent regulatory decisions in Australia on the debt margin in the water industry, and regulators' current thinking in respect of the debt margin in the electricity distribution industry.

Table 6.3 Review of debt margins

Entity	Industry	Debt margin
ICRC (1999)	Water and wastewater, electricity distribution	1.00–1.20%
IPART (2000)	Water and wastewater	0.80–1.00%
OTTER (2001)	Water	0.70%
QCA (2002)	Water	1.60%
QCA (2003)	Water	1.80%
IPART (2003)	Water and wastewater	0.70–1.00%
OTTER (2003)	Electricity distribution	1.25%
IPART Secretariat (2003)	Discussion Paper 2004 electricity review	1.40–1.50%
ICRC (2003)	Electricity distribution	1.425%

The commission has decided to accept an increase in the debt margin, from the range of 1.0 per cent to 1.2 per cent used at the 1999 price investigation to 1.425 per cent, inclusive of an allowance for the cost of debt issuance. This is consistent with a range of recent relevant decisions made by other Australian regulators and also reflects an allowance being made for the level of riskiness of the water and wastewater business at a time of continuing drought conditions.

6.3.4 Gearing ratio

In making its decision on the gearing ratio, the commission was not convinced by the arguments made by ACTEW in support of its submission for an assumed gearing ratio of 50 per cent. This proposal was based on using the midpoint between the gearing ratios used by the commission at the 1999 price investigation—40 per cent to 60 per cent—in the absence of better information on the efficient gearing ratio for these businesses.

Table 6.4 provides a summary of recent regulatory decisions in Australia on benchmark gearing ratios in the water industry, and regulators' current thinking in respect of the gearing ratios in the electricity distribution industry.

Table 6.4 Review of gearing ratios

Entity	Industry	Gearing ratio
ICRC (1999)	Water and wastewater, electricity distribution	40–60%
IPART (2000)	Water and wastewater	60%
OTTER (2001)	Water	50%
QCA (2002)	Water	60%
QCA (2003)	Water	50%
IPART (2003)	Water and wastewater	60%
OTTER (2003)	Electricity distribution	60%
IPART Secretariat (2003)	Discussion Paper 2004 electricity review	60%
ICRC (2003)	Electricity distribution	60%

The commission has accepted general regulatory practice in Australia that the efficient gearing ratio is 60 per cent for regulated businesses.

6.3.5 The value of dividend imputation credits

The WACC is modified by the value of dividend imputation credits (γ) to reflect the value of dividend imputation credits to investors, which will impact on the return to equities. The choice of γ reflects a view as to whether the capital asset pricing model is based on a marginal domestic investor or a marginal international investor. In a freely operating international investment market, the return to equity will be equalised between countries. If the marginal investor is an international investor, they receive no benefits from the dividend imputation credit, and the γ is most appropriately set at zero. Conversely, if the marginal investor is a domestic investor, the dividend imputation credit will have some value. However, companies do not normally distribute all of their earnings in dividends in one year. Franking credits will therefore not reach a value of 100 per cent.

Table 6.5 provides a summary of recent regulatory decisions in Australia on the value of imputation credits in the water industry, and regulators' current thinking in respect of imputation credits in the electricity distribution industry.

Table 6.5 Review of value of imputation credits (gamma)

Entity	Industry	Gamma
ICRC (1999)	Water and wastewater, electricity distribution	0.25–0.50
IPART (2000)	Water and wastewater	0.30–0.50
OTTER (2001)	Water	0.50
QCA (2002)	Water	0.50
QCA (2003)	Water	0.50
IPART (2003)	Water and wastewater	0.30–0.45
OTTER (2003)	Electricity distribution	0.50
IPART Secretariat (2003)	Discussion Paper 2004 electricity review	0.30–0.50
ICRC (2003)	Electricity distribution	0.50

As with the value of the asset beta (discussed below) the commission notes that, given existing government ownership of water utilities, the value of gamma in the water industry is a theoretical construct rather than an observable value.

ACTEW has submitted that gamma should be set at the midpoint of the historical range of 0.25 to 0.5 used by the commission in the 1999 price direction—therefore, gamma should be 0.4. The commission notes that since the 1999 decision there has been extensive debate and discussion on the question of the appropriate level for gamma. Arising from that debate has been a general acceptance by all regulators—other than the Independent Pricing and Regulatory Tribunal (IPART), which uses a range—that gamma should be set at 0.5. Accordingly, the commission intends to adopt a value of 0.5.

6.3.6 Calculation of the equity, debt and asset betas

ActewAGL submitted that the asset beta should be 0.45 and the debt beta should be zero, which would result in an equity beta of 0.89 rounded to 0.90.

The asset beta, β_a , is the correlation between the return to assets of the business and the market. The higher the asset beta, the greater the relative fluctuation in returns compared to the market, for a given debt level.

In order to estimate asset and equity betas, information is needed on the returns for the business or industry in question, compared to the market. This effectively requires the business, or other businesses in the industry, to be

listed on a stock exchange. This is problematic in the Australian water industry, where no regulated water or wastewater entities hold such a listing, primarily due to their government ownership.

Asset beta information is available for water businesses in the United Kingdom and the United States, and regulators (for example, IPART and the Queensland Competition Authority) have made estimates of asset beta in the past 12 months for water businesses such as Sydney Water (0.3–0.45), Gladstone Area Water Board (0.45), and Burdekin River Irrigation Area (0.35). However, in the absence of actual empirical data, these must remain estimates.

Other regulatory decisions in the electricity distribution and transmission industries have adopted an asset beta between 0.35 and 0.5.

In the past, there has been a general view amongst practitioners that asset betas in the water industry are less than those in energy industries such as natural gas and electricity. The comparison of historic asset betas in these industries in the United Kingdom and the United States tends to support this view, although the differences appear small. However, recent droughts, the imposition of restrictions on water use, greater trends towards pay-for-use pricing, and the emergence of environmental issues, together mean that the water industry may not be as immune to movements in the general economy and volatility in returns as has previously been the case. Unfortunately, as noted above, at present there is no empirical evidence in Australia to prove or disprove this theory. Nevertheless, recent asset betas awarded by regulators in the gas and electricity industries are not inconsistent with the range of asset betas in the water industry, suggesting that this theory has some broader support.

Therefore, given:

- that regulatory precedents and anecdotal evidence suggest the difference between asset betas in the water and energy industries is small
- the difficulties associated with obtaining empirical evidence on asset betas in the water industry
- that the same customer base is being served by the ActewAGL and ACTEW electricity, water and wastewater networks

the commission believes that it is not unreasonable for the same asset beta to be applied to both ActewAGL's electricity and ACTEW's water and wastewater assets in the ACT. Such an approach would be consistent with ACTEW and ActewAGL's submissions, which proposed an identical asset beta for both the electricity function and the water and wastewater function.

The commission has therefore elected to use an asset beta of 0.4.

The commission notes recent regulatory decisions in the water industry suggesting a debt beta of between 0.06 and 0.30. The commission agrees with the general conclusions of the NECG advice to ACTEW that the debt beta should be low, but believes it is likely to be non-zero, and has therefore selected a value of 0.06. This represents a reduction from the debt beta of 0.12 used in the 1999 price investigation.

The commission's parameter decisions result in an equity beta of 0.90, which is the same as that proposed by ACTEW, although the underlying parameters applied in the Monkhouse formula are marginally different.

6.4 The commission's draft conclusion on the cost of capital

The commission has used the parameters set out in Table 6.6 to calculate the appropriate rate of return for ACTEW to earn on its investment in water and wastewater assets in the ACT. The parameters were chosen after consideration of the submissions received from ACTEW and a review of recent regulatory decisions within Australia.

Based upon these parameters, the pre-tax real weighted average cost of capital calculated by the commission is 7.1 per cent.

Table 6.6 Parameters used by the commission in the WACC calculation

Parameter	Value
Risk-free rate	5.82%
CPI	2.34%
Real risk-free rate	3.48%
Market risk premium	6.0%
Debt margin	1.425%
Gearing	60%
Gamma	0.50
Asset beta	0.40
Debt beta	0.06
Tax rate	30%
Equity beta (calculated)	0.90
WACC (nominal post-tax)	6.74%
WACC (pre-tax nominal)	9.62%
WACC (pre-tax real)	7.1%

This is the commission's draft position on the WACC. A number of the key parameters will change between the draft price direction and the final direction. The commission will be using an updated WACC to reflect current market conditions, including inflation and the risk-free rate as at 1 March 2004, in the final decision.

As shown in Table 6.7, the WACC of 7.1 per cent pre-tax real is relatively generous when compared to that granted by regulators in recent regulatory decisions. This in part recognises slight increases in real interest rates since earlier in the year, but also reflects allowances made by the commission for increased risk faced by ACTEW at this time of prolonged drought.

Table 6.7 Comparison of WACCs

Entity	Industry	WACC (pre-tax, real)
ICRC (December 2003)	ACTEW water and wastewater	7.1%
IPART (May 2003)	Sydney Water water and wastewater	5.2%–6.7%
OTTER (September 2003)	Aurora Energy electricity distribution	6.6%
ACCC (October 2003)	Eastern Australia Pipeline gas transmission	6.56%
ACCC (September 2003)	Transend electricity transmission	6.51%

7 Operating costs

7.1 Introduction

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

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.

Against these requirements for funding, the commission must establish an efficient level of operating expenditure for ACTEW for the next regulatory period that can, in turn, be incorporated into the regulatory model for determining cost-reflective revenue requirements.

7.2 General approach

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

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

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

The commission has considered basing its review of operating costs on this approach, using 2002–03 as the benchmark year. However, following discussions with ACTEW, it became apparent to the commission that relying solely on this approach would be difficult, particularly for operational (as distinct from administration or maintenance) costs, given that 2002–03 was atypical for a number of reasons. These include the impact of the drought, the imposition of water restrictions, the bushfires and associated clean-up and remediation costs, and low sewage treatment volumes at the Lower Molonglo Water Quality Control Centre (LMWQCC).

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

At the same time, in some cases the commission has focused on some individual cost categories in more detail, particularly where there are significant changes in these items or where Halcrow Pacific Limited (Halcrow) has highlighted the items in its review.

The approach adopted by the commission is consistent with the manner in which Halcrow has reviewed ACTEW's operating forecasts.

7.3 ACTEW's position

ACTEW provided the commission with forecasts of operating expenditures for the next regulatory control period as part of its April 2003 information return. ACTEW provided the commission with an updated information return to the commission on 1 September 2003.

Since the September return, ACTEW has also advised the commission of three adjustments to the forecast, namely:

- the full cost of operating ACTEW's existing and proposed mini-hydro schemes was not included in the forecasts

- ACTEW has advised of revised, lower anticipated operational costs associated with the new Stromlo and Googong water treatment plants
- ACTEW has reduced the management fee allowance it is seeking from \$2.439 million per annum to \$1.5 million per annum.

ACTEW's forecasts, including these adjustments, are set out in Table 7.1.

Table 7.1 ACTEW's projected operating expenditure, 2003–04 to 2008–09

Year ending 30 June (2002–03 dollars)	2003–04 \$'000	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000
Water	32 095	29 812	29 959	30 079	31 195	31 746
Wastewater	34 723	35 277	34 147	34 626	36 232	36 755
Total	66 818	65 089	64 106	64 705	67 427	68 501

It is important to note that ActewAGL is contracted to provide the majority of the day-to-day operating activities associated with the operation of ACTEW's water and wastewater businesses. Therefore many of these costs relate to the costs of employing ActewAGL's resources to undertake the day-to-day operation and control of the water and wastewater networks.

Table 7.2 provides a breakdown of these operating costs into the various categories of operations undertaken by ACTEW and its contractor ActewAGL.

Table 7.2 Breakdown of ACTEW's projected operating expenditure, 2004–05 to 2008–09

Year ending 30 June (2002–03 dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000
Asset Management Plan projects	32 804	33 339	33 927	34 673	35 215
Other operational costs	26 802	27 322	27 767	29 149	29 678
ACTEW corporate costs	3 969	3 445	3 011	3 605	3 608
Drought and fire recovery costs	1 514	0	0	0	0
Total	65 089	64 106	64 705	67 427	68 501

The following summarises broadly what costs and activities are included under each of the subgroups identified in Table 7.2.

‘Asset Management Plan projects’ represent the total budgeted operating and maintenance expenditure attributable to individual assets.

‘Other operational costs’ include:

- asset planning and management—labour costs associated with producing capital and operating plans for ACTEW’s assets (exclusive of those project management costs included in the capital expenditure budget)
- project management labour and management fee—the senior management cost of managing the water and wastewater functions and the charge made by ActewAGL for the water and wastewater management role
- information management—the labour costs of ACTEW’s asset management system, including the cost of operating various water and wastewater databases
- customer service—activities associated with meeting customer demands, requests and other deliverables
- environmental projects—including work required under environmental protection legislation and ACTEW’s licences
- ActewAGL service provision—corporate costs which have not been attributed directly to operating and maintenance activities, including billing and processing customer accounts and the cost of providing investment finance and human resources functions to ACTEW Corporation
- effluent reuse and water quality research—activities associated with ACTEW’s reuse water schemes and water quality research.

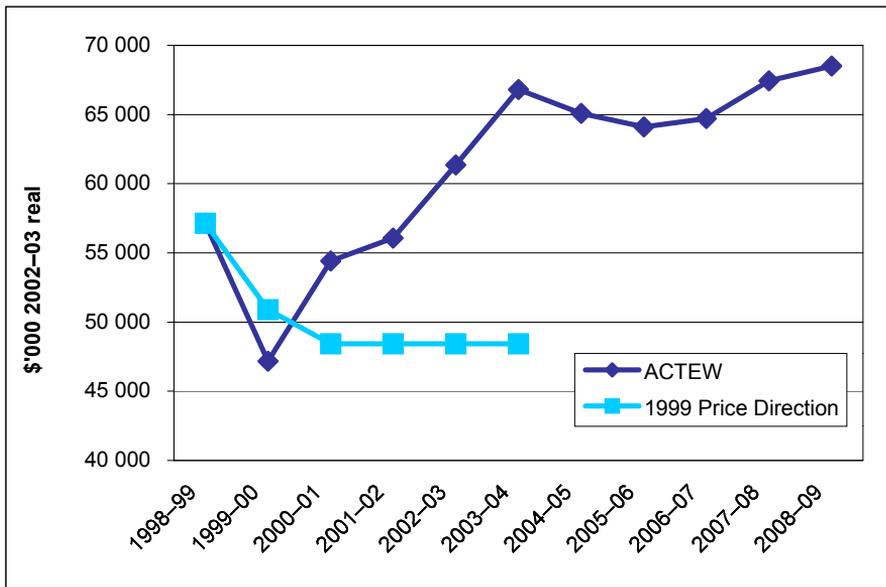
‘Corporate costs’ are costs directly incurred by ACTEW Corporation’s corporate division.

‘Drought costs’ are the costs associated with the current public awareness campaigns. ‘Fire recovery costs’ reflect the catchment remediation works associated with repairing damage resulting from the January 2003 bushfires.

ACTEW’s expenditure forecasts reflect continuing increases in operating costs since 1998–99, as shown in Figure 7.1 below. On ACTEW’s forecasts,

operating costs will have increased 45 per cent in real terms between 1999–2000 and 2008–09.

Figure 7.1 ACTEW actual and projected operating expenditure, 1998–99 to 2008–09



Note:

- (a) ACTEW actual and forecast.
- (b) 1999 price direction forecast.

The 1999 forecasts were based on, among other things, efficiency savings of around 14 per cent over the regulatory period. This was slightly higher than the 10 per cent efficiencies suggested by ACTEW. ACTEW has fallen well short of both of these targets, although efficiency gains have been achieved. ACTEW has indicated that steady cost increases from 1999–2000 to 2003–04 were due to a number of both internal and external factors, including:

- additional publicity, treatment and pumping costs resulting from drought conditions
- fire recovery and ongoing catchment remediation and management costs resulting from the January 2003 bushfires
- additional regulatory and compliance costs
- an increase in insurance costs

- increased maintenance costs resulting from both higher than anticipated asset failure and drought conditions
- increased security and surveillance costs at major infrastructure sites, including dams and water treatment facilities
- ACTEW's enterprise bargaining agreement, which has resulted in annual pay increases to staff of 5 per cent in nominal terms.¹⁹

ACTEW has argued that these cost increases have been partially offset by cost efficiencies through changes to staff shift arrangements, the instigation of a maintenance job dispatch centre, the establishment of a health, safety and environment management system, and better monitoring arising from the installation of major electrical monitoring and control improvements. Quantification of these efficiencies was not provided in ACTEW's submission, although ACTEW has provided the commission with information showing a decline in staff numbers over the period.

In terms of the future forecasts, ACTEW has identified that many of the cost pressures experienced in the 1999–2000 to 2003–04 period are expected to continue. In particular ACTEW has cited:

- increased costs associated with routine maintenance as a result of
 - the ageing of ACTEW's asset base
 - the adoption of improved asset monitoring practices
 - the need to undertake maintenance deferred from the current period as a result of resources being diverted to deal with bushfires and drought
- major maintenance activities, including repainting major assets and relining some sewerage assets
- continued increases in insurance costs

¹⁹ ACTEW, August 2003, Pricing proposal, p. 63.

- continued increases in costs associated with compliance requirements, including those under the *Utilities Act 2000* and occupational health and safety standards
- an allowance to cover costs associated with drought conditions
- 5 per cent per annum growth in wages and salaries costs
- increased operating costs associated with construction of the Stromlo and Googong water treatment plants.

ACTEW has also highlighted the cost of its role in strategic and policy issues in the ACT water sector. ACTEW's August submission made the point that shortly after the joint venture arrangement had commenced it became clear that ACTEW's original annual budget of \$0.9 million would not be sufficient. ACTEW has indicated that the operational costs associated with the discharging of its asset owner corporate governance and policy responsibilities will be in the order of \$3.0 million to \$4.0 per million each year.

7.4 Operating expenditure 2004–05 to 2007–08

The commission engaged Halcrow to review the efficiency of ACTEW's proposed operating expenditure program over the period of 2004–05 to 2008–09. As part of this process, the commission gave ACTEW an opportunity to comment on Halcrow's draft findings. While the commission has considered both the findings of Halcrow's review and the comments made by ACTEW, any adjustments made to ACTEW's proposed operating expenditure program in the following sections for regulatory pricing purposes have been made by the commission alone.

7.4.1 Consultant's overview

The commission requested Halcrow to review ACTEW's proposed level of operating expenditure, and to provide an overall strategic view of whether expenditure levels are efficient, including whether costs are being attributed appropriately to the regulated services. McLennan Magasanik Associates (MMA) provided input on matters of operating cost allocation.

In undertaking the review, Halcrow made a number of broad observations on ACTEW's asset management practices. These included comments outlined in Section 5 that:

- ACTEW lacks an integrated asset management philosophy.
- ACTEW's assets are at, or in some cases are better than, the condition to be expected for their age.
- ACTEW is generally performing at above-average levels compared to other water utilities in Australia and provides a high standard of service.
- With the exception of onerous discharge requirements at the LMWQCC and the frequency of pipe blockages by tree roots, ACTEW is not faced by external influences, significantly different from those faced by other Australian water utilities, that are likely to impact on operating costs.

Halcrow also made a number of specific comments relating to ACTEW's operational plan, including the following.

- There are concerns regarding the lack of transparency for the incentive payment made by ACTEW Corporation to ActewAGL for its management of the operating plan.
- ACTEW is possibly understaffed, given the organisation's responsibilities, while the opposite is true of ActewAGL.
- As with the capital plan, the operating plan tends to be unduly focused on the short term.
- In general, the frequency and thoroughness of condition inspection is appropriate to the type of assets involved, their accessibility, and the inspection methodology required.
- Although ACTEW has identified a number of areas where it considers operating efficiencies have been made, it did not present the consultant with any quantitative substantiation of such claims.
- Potential savings have not been recognised in ACTEW's forecast operating plan; potential savings could arise from
 - general productivity gains

- savings in operational expenditure as a result of capital investment initiatives such as district metering
 - the potential benefits from market testing of utility supplies and maintenance activities.
- The only area where significant additional expenditure is justified is in sewerage reticulation, as some assets are deteriorating due to increasing blockage rates.
 - A number of opportunities exist where operational expenditure is unwarranted or efficiencies can be gained.
 - It appeared that there was an overallocation of joint costs to the water function.

7.4.2 Consultant's efficient operating plan

The commission requested Halcrow to prepare its own efficient operating plan for ACTEW. Halcrow's plan adopted ACTEW's reported 2002–03 operating expenditure as a baseline where the level of detail in cost statements permitted—otherwise, the 2003–04 forecast was generally used. The consultant then made a number of adjustments to this baseline figure.

Halcrow's final efficient operating plan is set out in Table 7.3.²⁰

²⁰ Note that the consultant's efficient plan was based on ACTEW's preliminary actual expenditure figures for 2002–03. Actual expenditure for 2002–03, notably on Asset Management Plan (AMP) projects and ActewAGL service provision costs, was higher than the preliminary figures. Had this information been available to the consultant at the time, the expenditure in the consultant's efficient plan may have been higher than that based on the preliminary data.

Table 7.3 Halcrow's efficient operating plan, 2004–05 to 2008–09

Year ending 30 June (2002–03 dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000
ACTEW (revised) proposal	65 089	64 106	64 705	67 427	68 501
Halcrow's efficient plan (including cost allocation reduction)	59 198	58 444	57 753	57 140	56 467
Halcrow's percentage reduction	10.16%	9.96%	11.86%	16.32%	18.62%

In arriving at this efficient operating plan, Halcrow made key adjustments to ACTEW's forecasts in relation to the following issues:

- *the increase in AMP project costs.* Halcrow could find no justification for some of the increase in AMP costs between 2002–03 and 2003–04. Halcrow therefore provided for only 50 per cent of this unexplained increase (equal to \$2.159 million) in projecting these costs forward.²¹
- *general reductions for specific AMP projects.* Halcrow made a number of adjustments to eliminate certain AMP expenditures which it believed were unnecessary or overstated. These included adjustments in relation to ventilation monitoring, sewer gauging and stopcocks, and the elimination of costs associated with mini-hydro projects which Halcrow believed should not be included in regulated costs.
- *effluent reuse.* The operating costs associated with effluent reuse schemes were eliminated on the basis that Halcrow believed that these projects had not been economically justified.
- *efficiency savings on AMP projects.* Halcrow noted that ACTEW Corporation was in the process of introducing activity-based costing and believed that the better management control arising from this initiative, together with the incorporation of elements of business process re-engineering and zero-based budgeting, should allow for annual efficiency gains of 1 per cent

²¹ At the time of its report the consultant had been provided with preliminary actual AMP costs for 2002–03 of \$24.732 million. Actual AMP costs were \$28.270 million.

- *asset planning*. A reduction in asset planning costs was made to a level that Halcrow believed was more consistent with the level of capital expenditure.
- *general efficiency savings*. Halcrow believed that a 2 per cent general annual efficiency saving could be achieved on a range of overhead costs.
- *ActewAGL service provision at 2002–03 levels*. Halcrow could find no reason why ActewAGL service provision costs should rise above 2002–03 levels other than through real labour cost increases. Hence, Halcrow allowed only 50 per cent of the unidentified increase in costs to be incorporated.
- *ACTEW Corporation costs*. Halcrow made an allowance for ACTEW corporate costs at forecast 2004–05 levels (rather than 2002–03 actuals or 2003–04 estimates). However, MMA reduced this amount by \$0.72 million to reflect a view that information technology and help-desk functions were being overallocated to the water and wastewater functions.
- *ActewAGL management fee*. Halcrow made no provision for a management fee.
- *drought costs and fire recovery*. Halcrow made no provision for drought costs and fire recovery in 2004–05 as, in its view, the levels of costs indicated by ACTEW were unsubstantiated.

7.4.3 ACTEW's response to the consultant's review

In its response to Halcrow's draft report, ACTEW indicated that it 'strongly disagrees with the overall extent of the reductions of the [operating] expenditure areas nominated'. ACTEW expressed a view that, if implemented, the cuts would require significant staff reductions, result in a reduction in customer service standards, and mean that ACTEW would be unable to meet its land-servicing and other obligations.²² In relation to the specific adjustments and comments made by the consultants, ACTEW's response was as shown in Box 7.1.

²² ACTEW, September 2003, *Response to consultants' draft report*, p. 6.

Box 7.1 ACTEW's response to Halcrow's efficient operating plan

Adjustment made	ACTEW comments
Using 2002–03 as the base year	No reason was given as to why 2002–03 was considered to be a typical year and should be used as a base. Significant changes in operations are reflected in 2002–03 operating costs and thus this is not an appropriate base year.
Making no allowance for a management fee to be paid to ACTEW's contractor	ACTEW Corporation strongly disagrees with there being no recognition of the significant risks and cost of working capital borne by its contractor in carrying out all activities associated with the water and wastewater businesses.
Making major reductions in asset management and planning, based on a benchmark of 10 per cent to 15 per cent of capital expenditure	The consultant has not understood the nature of this cost and, therefore, the benchmark used is inappropriate. The report does not reference data provided which clearly show that the asset management and planning function of ACTEW's contractor is not only for planning capital expenditure but is also for whole-of-life asset management including the forming, scheduling and monitoring of maintenance and operation plans.
Using preliminary rather than final 2002–03 AMP expenditure figures	References in the report to the base AMP are to the draft rather than the final figures. The final figures were provided to the consultant on 1 August 2003. The draft figures had not been reconciled to the activity profile which was finalised at the end of July 2003.
Decreasing major planned maintenance	The report sets planned major maintenance at 2002–03 levels without explanation. As the definition of planned major maintenance is 'work over \$50 000 of a non-capital nature and conducted on a cycle of greater than five years', ACTEW disputes the logic behind this change.
Ring-fencing of reuse water projects	The report's arguments for this are not consistent with the current regulatory model used in the ACT; nor are they consistent with ACTEW's environmental responsibilities under the <i>Territory Owned Corporations Act 1997</i> .
Requiring efficiencies in AMP operational expenditure projects	The calculation appears to be arbitrary and no evidence has been given that current practices are inefficient.
Reducing the growth of preventative maintenance programs	The Halcrow report provides no explanation.
Making no allowance for the continuation of drought marketing campaigns and catchment remediation in 2004–05	The report does not reveal the reason these have been excluded. ACTEW considers that this work is integral to the protection of the ACT's scarce water resources.
Excluding any growth in water quality testing	Water quality testing is an integral part of ensuring maintenance of water quality standards and is especially important following the bushfires.
Using incorrect base data for ActewAGL service provision costs	The report references draft figures rather than the final 2002–03 figures provided to the consultant.
Calculating general efficiency savings at 2 per cent per annum compound	The calculation appears to be arbitrary and no evidence has been given that current practices are inefficient.
Making cost allocation adjustments	Adjustments identified by consultant total \$712 000, not \$1.0 million as stated. In any case, the adjustments are incorrect as management of gas distribution is carried out by a separate entity which has its own IP infrastructure. KMPG benchmarks for call costs have been used inappropriately.

7.5 The commission's review of ACTEW's operating expenditure

The following section sets out the commission's views on the operating program proposed by ACTEW. While the commission has considered both the findings of Halcrow and MMA and the comments made by ACTEW, the adjustments made to ACTEW's proposed operating expenditure projections have been made by the commission alone.

As noted above, the building-block approach requires the commission to establish an efficient level of operating expenditure for ACTEW's regulated activities for the period 2004–05 to 2007–08. 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.

In arriving at a decision on allowable operating costs for regulatory modelling purposes, the commission has ignored the consultant's and ACTEW's detailed comments on aspects of the expenditure forecast. Any expenditure program represents the sum of its constituent parts and the commission has taken great care to examine the arguments put forward in respect of particular items by both parties. Indeed, the commission has provided comments on detailed and specific aspects of the forecast expenditure plan below. However, at the end of the day, the commission is required to arrive at a figure which in aggregate represents the efficient level of operating expenditure required to meet ACTEW's obligations given its operating environment.

7.5.1 ACTEW's forecasts

Operating cost trend

As shown in Figure 7.1 above, the forecasts provided by ACTEW reflect a significant increase in costs between 1999–2000 and 2008–09. These cost increases reflect, in part, an overall increase in costs over the next regulatory period. However, they predominantly reflect large step increases in expenditure from 1998–99 to 2003–04.

The commission notes that some of these increases, particularly in the years 2002–03 and 2003–04, are due to costs associated with fire recovery and low rainfall in 2002–03. These events have created additional costs for ACTEW in respect of fire recovery and public awareness campaigns as well as increased pumping and treatment costs. However, the aggregate level cost increases over time far exceed the impact of these individual once-off items. While the commission acknowledges that there has been a relatively rapid growth in connection numbers in recent years, this growth does not explain the increases. The commission notes in particular that the operating cost of the wastewater function is projected to increase by 20 per cent between 2002–03 and 2003–04; however, there appears little in ACTEW’s external environment to suggest why this should be the case.

The commission is also concerned that in 2004–05 and beyond, when the effects of the once-off bushfire and drought items should cease, ACTEW’s forecast costs fall only slightly and remain at a higher level than in 2002–03.

Efficiency savings

A possible reason for the operating cost increases appears to be that ACTEW does not appear to have made material net levels of efficiency savings in recent years; nor has it explicitly forecast any efficiency savings over the coming regulatory period.

ACTEW has advised the commission that ‘efficiencies [have been] achieved in relation to operating costs over the current regulatory period’.²³ As noted in Section 2, ACTEW has identified a number of specific areas where it believes efficiencies have occurred. Nevertheless, neither the commission nor Halcrow have been presented with any quantitative substantiation of these cost savings (as Halcrow notes, this may be due to the lack of available historical information).

The trend in operating costs indicates to the commission that at a minimum any efficiency savings that have been achieved have been outweighed by cost increases in other areas. However, even taking into account the low-rainfall and fire events, it appears to the commission that there have not

²³ACTEW, October 2003, *Response to key issues arising from Consultants’ Draft Report and presentation to the Independent Competition and Regulatory Commission, water and wastewater services*, p. 10.

been such significant changes in ACTEW's operating environment as to justify such an increase in costs in these other areas.

In terms of the forward forecasts, ACTEW has argued that no efficiency reductions should be reflected in cost forecasts. In its response to Halcrow's report, it expressed the view that:

... the efficiency targets suggested of 1% or 2% per annum compounded over the five years of the regulatory period is onerous and could not be achieved in conjunction with the other recommendations made. ACTEW suggests that the requirement for multiple efficiencies displays an unrealistic emphasis on cost cutting in the report and ignores previous efficiencies and the service standards currently enjoyed by Canberra residents. Nor do the benchmarks used in the report take adequate account of the unique nature (and costs) of the Canberra environment.²⁴

ACTEW has also argued that 'no evidence has been given that current practices are inefficient'.²⁵

This view misses the point that, regardless of whether the existing starting point is efficient or not, advances in technology, improved operational knowledge, and better business practices should lead to sustained cost reductions. While the commission accepts that changes in external factors (such as higher standards) can impose higher costs, it is not apparent to the commission that unique external cost pressures exist such that ACTEW should be treated differently from its regulated business peers and should not be able to achieve efficiencies going forward.

Halcrow has identified a number of areas where it believes cost efficiencies can be achieved, including as a result of the introduction of activity-based costing.

The commission notes that recent regulatory decisions made by the Queensland Competition Authority, the Independent Pricing and Regulatory Tribunal (IPART) and the Essential Services Commission of Victoria, and IPART's decision in relation to Sydney Water's prices, have all assumed that annual (compounding) efficiency savings can be made.²⁶ Indeed, Halcrow

²⁴ ACTEW, September 2003, *Response to consultants' draft report*, p. 8.

²⁵ ACTEW, September 2003, *Response to consultants' draft report*, p. 6.

²⁶ Queensland Competition Authority, *Final Decision*, pp. 260–1; IPART, July 2000, *Final Decision (AGL)*, pp. 131–8.

has identified a number of areas where reductions in unit operating costs should be easily achievable.

Short-term focus

Halcrow concluded that ACTEW's operating plan tended to be unduly focused on the short term (one year), and that a number of cases existed where operational expenditure in future years was unjustified or uncertain at this time. On this basis, Halcrow recommended that pass-through provisions apply in respect of certain cost items.

While the commission accepts the consultant's comments regarding the focus on the short term, it does not agree that the pass-through approach is appropriate. The commission acknowledges that the longer the period over which forecasts are made the more uncertain those forecasts will be. This applies to both the need for a particular project and the cost of that project. While this uncertainty is not desirable, the pass-through approach also has a number of disadvantages, which cause the commission to eschew this approach wherever possible (see Section 8 for discussion on this point).

The commission has been mindful of the need to estimate appropriate operating costs out to four or five years hence. However, this is not an issue that is unique to ACTEW: it equally applies to other regulated businesses and, therefore, should be a factor in ACTEW's forward-planning procedures and timetabling.

7.5.2 The WSMCAA and the ACTEW–ActewAGL relationship

A number of issues in the operating cost forecasts concern the relationship between ActewAGL and ACTEW and the nature of the agreement between the parties as defined under the Water and Sewerage Managing Contractor Alliance Agreement (WSMCAA).

Essential Services Commission of Victoria, October 2002, pp. 98–108.
IPART, May 2003, Sydney Water Corporation—Prices of Water Supply, Wastewater and Stormwater Services from 1 July 2003 to 30 June 2005, pp. 10–14.

Operation of the WSMCAA

ACTEW devolves many of its functions to ActewAGL under the WSMCAA. As a consequence, the price paid by ACTEW for the provision of these services is not directly market tested, although ActewAGL does contract out a significant proportion of its direct operating and capital expenditure to third parties. Nevertheless, a number of administrative and corporate functions are not contestable and the commission is unable to assess whether or not the costs as reported by ACTEW represent efficient expenditure levels.

Further, ACTEW currently makes and proposes to continue making management fee payments to ActewAGL under the WSMCAA.

The commission had no role in the establishment of the WSMCAA and it is not the commission's role to determine its contents. Nevertheless, if the outcomes of the WSMCAA are to increase costs above efficient levels then these costs cannot be reflected in the building-block revenues. The following sections discuss the implications of the WSMCAA and the ACTEW–ActewAGL relationship for:

- payments from ACTEW to ActewAGL for undertaking activities on behalf of ACTEW
- the level and lack of transparency and clarity in the contractual mechanisms for the management fee payments
- cost allocation issues
- the proposed replacement for the WSMCAA.

Payments for certain activities

The Halcrow report highlighted a number of areas where costs incurred by ActewAGL on ACTEW's behalf were increasing significantly or appeared to be in excess of benchmark levels. The most material of these to the operating cost forecasts were:

- increases in AMP costs between 2002–03 and 2003–04
- asset planning and management costs that were above reasonable benchmarks and were inconsistent with the level of projected expenditure

- increases in ActewAGL's service provision costs, rising from 2002–03 to 2003–04.

Some of Halcrow's concerns in relation to AMP costs and ActewAGL's service provision costs became less relevant with the availability of actual costs for 2002–03 (to which Halcrow did not have access at the time of its review). However, the majority of the consultant's comments still apply.

Halcrow recommended particularly significant reductions in ACTEW's proposed asset planning and management costs, reducing these costs by over 70 per cent by 2008–09. Halcrow's reductions were based on the assumption that asset planning and management costs should be related to the size of the capital works program. ACTEW has responded that the majority of these costs are not related to capital expenditure and relate to the wide range of activities associated with the day-to-day activities of asset planning and management tasks associated with the maintenance and efficient utilisation of operating facilities.

The commission accepts ACTEW's comments regarding the purpose of these costs. However, the commission is not convinced by ACTEW's justification for increases in these costs across the forecast period, which are centred around increasing asset ages and a less certain future planning environment. While the commission has accepted that some increases in actual maintenance and operating costs will be required, the cost of planning and management is unlikely to be materially affected. Indeed, Halcrow has suggested that asset management planning activities 'will decline as the formation scheduling and monitoring of maintenance and operations plans reach steady state and the planned level of capital expenditure reduces'.

The commission therefore does not accept that asset planning and management costs should increase over the period.

In relation to ActewAGL service provision costs, some of these increases are due to increases in insurance and costs of compliance with occupational health and safety and quality standards. However, the commission has not been provided with a satisfactory reason for the additional increases in these items.

Again, it is not for to the commission to determine the exact levels of activity and costs that are appropriate for specific subcategories of expenditure. However, in general, the commission agrees with the

consultant's comments that ACTEW has failed to adequately justify the cost increases in recent years and the continued level of expenditure going forward, particularly in planning and corporate areas. The commission has taken these factors into account in arriving at an efficient overall operating expenditure program (set out below).

Management fee

ACTEW has made a series of 'management fee' payments to ActewAGL pursuant to the WSMCAA. These amounts totalled \$1.2 million in nine months of 2001, \$2.2 million in 2001–02 and \$1.1 million in 2002–03. The commission understands that the payment amount is calculated on the basis that cost reductions below a predetermined threshold for total operating costs are proportionately shared between ACTEW and ActewAGL, depending upon the level of the savings.

ACTEW had originally forecast management fee payments of \$2.4 million for each year of the next regulatory period.

Halcrow raised a number of concerns with the management fee, and therefore declined to include the management fee in its efficient operating plan.

ACTEW argued that the fee was necessary to ensure a reasonable return on the professional services promised. ACTEW also noted that the requirement for a profit margin was supported by the ACT Government.

It was apparent to the commission that there was some confusion as to the role of the 'management fee'. While referred to as a 'profit margin' in some discussions, the fee was also referred to as an 'incentive payment' to encourage greater efficiency by ActewAGL. In terms of the way the 'management fee' has been paid during the current regulatory period, the intention is clearly that the fee represents an 'incentive payment'. This was subsequently confirmed in correspondence from ACTEW.

The commission does not disagree with the principle of a performance-based incentive payment being included in payments from one party to another. Fees for activities contracted out to third parties will always include an implied level of 'profit margin' for the third party. However, in a fully contestable market the level of profit margin will be subject to market forces which will ensure that costs are set at an efficient level. The potential for fee-contracting parties to agree on an additional incentive payment above

this normal profit is at the discretion of the parties. However, this should not become an additional cost to be borne by the consumer, but rather should be funded out of efficiency savings or out of the profits of the contracting party.

In the context of a situation where the contracting party is negotiating with an associated party, as exists under the arrangements between ACTEW and ActewAGL, it is fundamental to good regulatory practice that the regulator seek to avoid any suggestion that the parties have entered into an arrangement that is at anything less than arm's length and that the agreed fees be reflective of a contestable market. It is this fundamental principle that the commission is determined to apply.

ACTEW has advised that it is negotiating a new utility management agreement (UMA) with ActewAGL, which is to be established by September 2004. ACTEW has proposed that under the UMA the performance incentive will be payable only if ActewAGL meets certain key performance indicators, with the performance indicators to be based on both cost and service standard parameters. This is designed to rectify certain limitations perceived to exist under the previous arrangements.

The commission believes that this approach has the potential to provide improved outcomes for customers. However, it is important that the key performance indicators be set at a level such that they represent challenging targets and not just at current service levels. The commission also believes that, given the relationship between ACTEW and ActewAGL, such arrangements also need to be fully transparent both to the commission and to water and wastewater customers more generally.

This does not imply that the commission wants to intervene in arm's-length negotiations between the parties on contractual matters. However, the commission needs to be assured that the final cost that is passed through to consumers reflects an efficient charge appropriate to the services rendered. Any performance fee that might be negotiated by the parties would need to be found within that efficient charge.

Cost allocation

ActewAGL undertakes a number of activities which are shared across the water, wastewater, gas and electricity activities. These activities occur both in competitive arenas (such as gas and electricity retail) and in non-competitive arenas (such as water and wastewater, and gas and electricity distribution). This enables economies of scale to be obtained, with

associated cost savings available to be passed on to customers. However, it also requires that appropriate cost allocation arrangements be in place.

The commission's consultant, MMA, reviewed the cost allocation arrangements in respect of the water and wastewater functions. It found no major concerns with the cost allocation methodology for most of the \$16.7 million costs allocated to the water and wastewater functions. However, the consultant identified two areas where it believed costs were being overallocated, as follows.

- MMA argued that information technology (IT) costs allocated to the water and wastewater functions were much higher than benchmarks determined by KPMG in its review of relevant costs for Victorian electricity distributors. The benchmark costs were 0.5 per cent to 1.5 per cent of revenue, whereas ACTEW's costs were 4.9 per cent and 3.4 per cent of revenue for water and wastewater respectively. MMA commented that these costs were, therefore, around \$0.5 million above relevant benchmarks for other utilities. In response, ACTEW has argued that its allocation was appropriate and that the consultant's suggested explanation for the overallocation of IT costs to water and wastewater functions—namely, that they were being underallocated to the gas function—was incorrect. Further, ACTEW has argued that because IT hardware depreciation costs were effectively included in operating costs the benchmark comparisons were invalid and that overall costs per computer were consistent with the KPMG benchmarks.
- MMA argued that the unit costs of ActewAGL's switchboard and contact centre (\$13.37) were above the reasonable per unit call benchmarks, also established by KPMG, of \$7.40 to \$11.20 (in 1999–2000 dollars). In the consultant's view this resulted in efficient costs being overstated by around \$220 000 per annum.

The commission has reviewed the consultant's comments and the relevant KPMG report. The commission notes the difficulty of using benchmark comparisons in terms of establishing which cost items are included in the benchmarks. The commission also accepts that, in relation to the call centre, ACTEW is providing a relatively high level of service, and that the upper-end benchmark of \$11.20 is more appropriate to ACTEW given its retail-level interface.

While noting that ACTEW still appears to be operating at the upper end of a reasonable cost range for these two activities, the commission has not made an explicit adjustment in relation to this item.

7.5.3 Mini-hydro schemes, effluent reuse and Queanbeyan bulk water

The consultant's report has raised the issue of whether a number of activities undertaken by ACTEW should be excluded from the operating cost forecasts. These include ACTEW's mini-hydro schemes, the various effluent reuse projects and the costs of bulk water sales to Queanbeyan.

For the mini-hydro schemes, the commission accepts that these activities can form part of an efficiently operating water and wastewater network. However, the commission will be deducting projected revenues generated by the mini-hydro schemes from the total revenue requirements.

The commission's views on the appropriate treatment of the mini-hydro and effluent reuse projects are set out in Section 5. In summary, the commission has included expenditure on these projects in this draft report and draft price direction. However, ACTEW will need to provide information to the commission justifying the projects before they are included in the final report.

In relation to Queanbeyan, Section 3 sets out the commission's view that bulk water sales should not be directly regulated by the commission. This view is supported by ACTEW.

The commission's expectation was, therefore, that the costs of supplying Queanbeyan would be excluded from ACTEW's forecast of operating costs. However, ACTEW has indicated that the bulk sales costs are included in the cost forecast:

ACTEW's treatment of Queanbeyan bulk water supply revenue has been the same as for all other non-regulated activities. That is Queanbeyan bulk water supply costs (as measured by expected revenue received) are included as part of ACTEW's overall revenue needs. But Queanbeyan water sales are excluded from the revenue cap calculation for ACT

customers. In effect the cost of supplying Queanbeyan is matched to the revenue that ACTEW earns from Queanbeyan bulk water sales.²⁷

Revenue from Queanbeyan bulk sales is expected to increase from approximately \$4 million to \$6 million over the period to 2008–09, so that this implied amount of costs (which will include both a capital component and an operating-cost component) is material to the total revenue requirement.

ACTEW's treatment of Queanbeyan sales has merit, in that assuming that revenue equals costs means that detailed cost allocation calculations to determine the 'true cost' of bulk water supply do not need to be made. However, from a regulatory perspective it also means that, if revenue is less or more than the true cost, ACTEW's ACT customers are either subsidising or being subsidised by the bulk sales.²⁸ This means that the commission has a legitimate interest in ensuring that revenues at least match costs.

As a consequence, the commission reaffirms its view (as stated in Section 3) that ACTEW must charge a price which is no less than the avoidable costs of supply. Accordingly, the commission is prepared to accept ACTEW's proposed treatment but requires ACTEW to provide evidence to the commission, prior to its final decision, that the bulk sales revenue at least matches avoidable costs.

7.5.4 Wage increases

In its submission, ACTEW has noted that its operating expenditure forecasts include an assumption of a 5 per cent nominal annual increase in wages. This increase is consistent with the terms of ACTEW's enterprise bargaining agreement, which the commission understands expires on 30 June 2005. Given the inflation assumption adopted, this means that annual real wage increases of between 2.0 per cent and 3.3 per cent have been factored into the forecasts.

As noted above, ACTEW has not included any general efficiency improvements in its operating cost forecasts. The commission believes that a

²⁷ ACTEW, email to the commission.

²⁸ Given ACTEW's approach, this is true of the treatment of all unregulated activities; however, the bulk water sales represent the greatest proportion of unregulated revenue.

forecast of significant real wage increases without the expectation of efficiency improvements is not consistent with industry best practice. It is not for the commission to suggest to ACTEW how it should conduct its wage negotiations. Nevertheless, the commission expects that any enterprise bargaining agreement that replaces the existing one will incorporate an expectation of productivity improvements commensurate with sound business practice.

7.6 The commission's draft conclusion on operating costs

The commission believes that the forecasts of operating costs provided by ACTEW do not reflect the efficient costs of providing water and wastewater services to customers in the ACT. In particular, the commission has not been convinced by arguments put forward by ACTEW in respect of:

- the lack of efficiency savings going forward, particularly bearing in mind forecast increases in real wage costs
- the justification for increases in certain cost items between 2002–03 and 2004–05
- the cost of asset planning and management and ActewAGL's service provision activities.

The commission has therefore prepared its own forecast of reasonable costs. These costs take into account the detailed comments provided by Halcrow and ACTEW's response to them, as well as a broader view regarding ACTEW's operating environment.

The commission believes the level of expenditure provided is sufficient for ACTEW to continue to provide services at or above current levels (noting that the commission has sought further information regarding the exact service standards ACTEW proposes to meet in the next regulatory period). In particular, the forecasts have allowed the full amount of AMP costs sought by ACTEW, including:

- increased expenditure in a number of operational areas, including jet rodding, mains repair, root foaming and bursts

- increased operating expenditure associated with the Stromlo and Googong treatment plants
- increased levels of major maintenance and changes to capitalisation policy
- expenditure to move ACTEW to a maintenance position more consistent with those adopted nationally by other water utilities.

The commission has also allowed:

- the cost of recent insurance increases
- the full amount of drought and fire remediation costs sought by ACTEW
- anticipated expenditure to comply with occupational health and safety standards.

However, the commission has also made a number of reductions, notably in relation to ActewAGL's service provision and asset planning and maintenance activities, where the commission was not convinced of the need for increases in these costs, particularly compared to 2002–03 levels.

The commission has also included a 2 per cent (non-compounding) efficiency factor, primarily to reflect the inclusion by ACTEW of 5 per cent nominal wage growth but also in recognition that some of ACTEW's costs (including IT and call centre costs) are at the upper end of a reasonable range and therefore suggest that productivity improvements are possible. This 2 per cent efficiency factor is calculated on operational costs and corporate overheads.

The commission's operating program for ACTEW is set out in Table 7.4. These forecasts have been used in the calculation of the total revenue requirement as set out in Section 8.

Table 7.4 Commission's estimate of efficient operating costs, 2004–05 to 2008–09

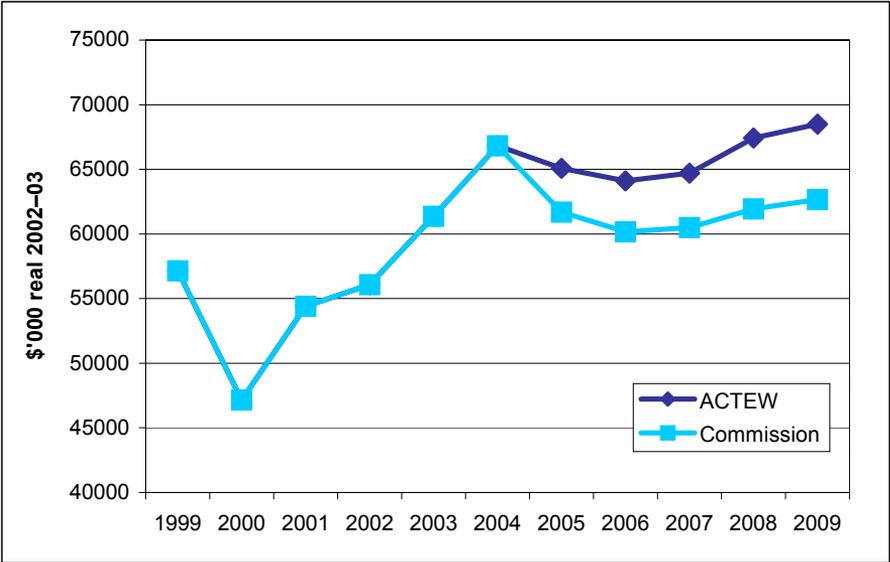
Year ending 30 June (2002–03 dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000
Asset Management Plan projects	32 963	33 339	33 927	34 673	35 215
Other operational costs, including asset planning and management; project management; labour; ActewAGL service provision; overheads	23 785	23 940	24 086	24 217	24 390
ACTEW corporate costs	3 969	3 445	3 011	3 605	3 608
Drought and fire recovery costs	1 514	–	–	–	–
Less efficiency factor	(555)	(548)	(542)	(556)	(560)
Total	61 676	60 176	60 482	61 939	62 653

The operating cost estimates are less than those sought by ACTEW, as shown in Table 7.5 and Figure 7.2 below. However, the commission believes they provide sufficient expenditure for ACTEW to meet its operational needs. In particular, the commission notes that after adjusting for drought and bushfire costs in 2002–03 the commission has allowed ACTEW expenditure higher than that incurred in 2002–03. This contrasts with, for example, IPART's recent decision in respect of Sydney Water, which has sought real reductions in expenditure (compared to 2002–03) in 2003–04 and again in 2004–05.

Table 7.5 Comparison of efficient operating costs for water and wastewater, 2004–05 to 2008–09

Year ending 30 June (2002–03 dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000
ACTEW's revised forecast	65 089	64 106	64 705	67 427	68 501
Commission's efficient operating plan—water	28 325	28 182	28 170	28 716	29 105
Commission's efficient operating plan—wastewater	33 320	31 995	32 312	33 222	33 548
Commission's efficient operating plan—total	61 676	60 176	60 482	61 939	62 653
Commission's reduction	–5.3%	–6.1%	–6.5%	–8.1%	–8.5%

Figure 7.2 Actual and projected operating expenditure, 1998–99 to 2008–09



8 Total revenue requirement

This section brings together the separate building-block elements discussed in the preceding sections, and sets out the calculation of the X factor in the CPI plus X formula and the manner in which it will be applied to prices.

8.1 The cost building blocks

Tables 8.1 and 8.2 provide a summary of the cost build-up and revenue requirement sought by ACTEW in its September 2003 information return, its submission to the 2003 issues paper, and subsequent adjustments made in respect of operating and capital expenditure.

Table 8.1 ACTEW's proposed cost building blocks—water

Year ending 30 June (nominal dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000
Operating costs	31 076	31 809	33 049	34 986	36 491
Return of capital—depreciation	10 816	11 246	11 633	12 036	12 392
Return on regulated asset base	35 470	36 550	36 634	37 432	37 895
Return on working capital	261	692	1 008	1 174	1 333
Total revenue requirement	77 623	80 297	82 324	85 628	88 111

Table 8.2 ACTEW's proposed cost building blocks—wastewater

Year ending 30 June (nominal dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000
Operating costs	36 773	36 236	37 699	40 636	42 249
Return of capital—depreciation	10 949	11 577	12 068	12 601	13 076
Return on regulated asset base	36 553	37 949	39 207	40 407	41 556
Return on working capital	452	572	744	873	1 013
Total revenue requirement	84 727	86 334	89 718	94 517	97 894

Having reviewed and made decisions on the various cost components, as outlined in the previous sections, the commission has used the cost building blocks set out in Tables 8.3 and 8.4 to determine ACTEW's total revenue

requirement for its water and wastewater businesses over the next regulatory period.

Table 8.3 The commission's cost building blocks—water

Year ending 30 June (nominal dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000
Operating expenditure	29 527	29 906	30 671	31 985	33 229
Depreciation	10 126	10 618	10 977	11 294	11 640
Return on fixed assets (pre-tax)	31 402	32 657	32 991	33 306	33 588
Total revenue requirement	71 055	73 182	74 639	76 585	78 457

Table 8.4 The commission's cost building blocks—wastewater

Year ending 30 June (nominal dollars)	2004–05 \$'000	2005–06 \$'000	2006–07 \$'000	2007–08 \$'000	2008–09 \$'000
Operating expenditure	34 734	33 952	35 181	37 004	38 300
Depreciation	10 284	10 710	11 185	11 626	12 090
Return on fixed assets (pre-tax)	31 706	32 636	33 483	34 346	35 133
Total revenue requirement	76 724	77 298	79 849	82 976	85 524

This total revenue requirement includes revenue from the following sources:

- general fixed and volumetric charges
- bulk water sales
- Commonwealth subvention payment
- trade waste and reuse water sales
- sales of electricity generated by mini-hydro schemes
- miscellaneous fees and charges.

The commission's revenue requirement is on average 11.7 per cent lower than ACTEW's revised proposal over the four years of the regulatory period. This difference reflects a number of individual decisions, with four important issues accounting for most of the difference. These decisions are:

- the commission’s decision to roll forward the current RAB to determine the opening asset value, rather than accept ACTEW’s proposal for a revaluation of the asset base, which would have added more than \$70 million to the opening RAB across the water and wastewater functions
- the commission’s decision not to include a return on working capital in the build-up of costs for regulatory modelling purposes, on the grounds that the regulatory model already compensates ACTEW for this cost
- the commission’s decision to reduce the forecast of operating expenditure required by ACTEW to continue to undertake its functions to existing service levels
- the commission’s decision to use parameters in the estimation of the weighted average cost of capital (WACC) that are in line with decisions taken by other regulators across Australia and, in some cases, are lower than those proposed by ACTEW.

The significance of the difference between the commission’s regulated revenue requirement and that proposed by ACTEW should not be overstated. As is discussed further in Section 14, the financial modelling undertaken by the commission indicates that ACTEW will still achieve a credit rating in the A+ to AA+ range.

Therefore, the commission considers that the total revenue requirement, as summarised in Tables 8.3 and 8.4, is sufficient to allow ACTEW to continue to provide services at existing or improved levels while at the same time allowing the water and wastewater businesses to generate appropriate returns.

8.2 Revenue smoothing and calculation of the X factor

8.2.1 Calculating an X factor

An objective of incentive regulation is to provide the regulated business with the incentive to become more efficient. This incentive arises from the fact that initial revenues or prices and the adjustment mechanism are set at the beginning of the regulatory period and any efficiency gains achieved in the

form of cost reductions over the period of the price direction can be retained by the regulated business.

Under CPI minus X incentive regulation, the regulator determines an X factor.²⁹ The X factor is the real change in either prices or revenue each year. In order to determine this X factor, in addition to determining the building-block costs (as outlined in Section 8.1) the regulator needs to make a number of decisions, including decisions about:

- the form of regulation—the variable to which the CPI minus X adjustment factor is applied
- the form of the X factor—the manner in which the X factor will change across the regulatory period.

8.2.2 Form of regulation

The commission must choose the manner in which the CPI minus X factor will be applied to ACTEW. The commission has a number of choices in this respect, including applying the CPI plus X factor to aggregate revenue (a ‘total revenue’ cap), average revenue (an ‘average revenue’ cap), or a weighted average of all prices (a ‘tariff basket’).³⁰

Under a total revenue cap a direct limit is placed on the amount of revenue that can be earned. Adjustment mechanisms provide for over-recoveries to be ‘handed back’ to customers in the following year, with under-recoveries recouped via higher tariffs.

A total revenue cap provides the business with a guaranteed level of income and thus reduces revenue risk. It also provides strong incentives to reduce expenditure. However, it discourages the business from expanding capacity or connecting new customers, as the business will incur additional costs but generate no additional income. It therefore relies on using relatively accurate

²⁹ CPI refers to the inflation rate. The X factor can be positive or negative. The greater the X factor, the greater the reduction in prices. If the X factor is negative the business’s revenue or prices are permitted to increase by an amount greater than the CPI.

³⁰ The commission is not restricted to applying a form of revenue cap to water and wastewater services, in contrast to electricity distribution services.

forecasts of customer numbers and demand—where this is not the case, the business will face substantial profit risk.

Other attributes of a total revenue cap are:

- there is no causal link formed between revenues and costs, potentially leading to sustained returns higher or lower than the regulatory benchmark
- subject to any side constraints, it allows for flexibility in tariffs in order to reflect changing costs.

Under an average revenue cap, a defined limit is placed upon the average revenue per unit that the business is allowed to earn in any year, which varies according to the CPI minus X factor. This is the form of control in place in the current regulatory period, with average revenue being defined in terms of revenue per customer for both water and wastewater.

In this arrangement, regulated businesses have an incentive to reduce costs, expand services and meet growing customer demand. As customer numbers grow, revenues grow also—meaning that there is less profit risk for the business than under a total revenue cap, with the amount of volatility depending upon the level of marginal costs. Each additional customer connected effectively generates the average revenue per customer regardless of the actual tariff and usage pattern of that customer.

Under the existing average revenue cap, the number of customers used when applying the CPI minus X adjustment each year is based on ACTEW's updated forecast of customer numbers in the next year, rather than on the forecast made in the 1999 price direction. This removes risks that would otherwise be associated with actual volumes diverging from forecasts made at the start of the regulatory period, as has occurred in the current regulatory period.

Under a tariff basket, the business has a cap placed upon the weighted average price which changes over time according to the CPI minus X formula. The weight given to services in the basket may be based upon a number of factors—for example, the quantity of the services sold or the proportion of total revenue that is contributed by a service. These weights will often be fixed with reference to the year in which the price control is set,

or they may reflect actual quantities with a lag—for example, the quantity of the service provided in the previous year.

The tariff basket has similar properties to the average revenue cap, in that businesses have an incentive both to reduce costs and to meet growing customer demand. However, under the tariff basket, variations in volumes will yield additional revenues at actual tariff rates rather than at the average tariff.

The commission has elected to maintain the use of an average revenue cap in the next regulatory period, as the commission believes it provides an appropriate balance of risk between ACTEW and customers and at the same time provides incentives for ACTEW to reduce costs and provide services in response to customer demand.

8.2.3 Form of the X factor and smoothing

The X factor could be a constant value over the course of the regulatory period or a different value each year, or there could be an initial adjustment (referred to as a P_0 adjustment) followed by a different X factor in subsequent years. If the X factor is to be the same for each year, the regulator needs to decide how the total revenue requirement is to be ‘smoothed’ over the period in order to allow the use of a stable X factor.

Given the magnitude of the X factors involved in this case, and the desirability of providing customers with stable price paths, the commission believes that a constant X factor for each year of the regulatory period is appropriate. ACTEW has also proposed a constant X factor.

There are two commonly used methods for calculating a constant X factor—straight-line smoothing and net present value (NPV) smoothing. They are calculated in a similar fashion and require similar information. To determine the X factor by either method requires the building-block costs, forecast customer numbers and the average revenue for the last year of the previous regulatory period.

NPV smoothing solves for the level of X so that the net present value of building-block costs equals the net present value of the smoothed revenue where average revenue grows by CPI minus X every year.

Straight-line smoothing solves for the level of X so that the building-block cost in the last period equals the smoothed revenue in the last year of the regulatory period. The businesses' total revenue requirement may be higher or lower than the building-block cost over the intervening years, depending primarily upon the relative cost and revenue position in the last year of the previous regulatory period.

The commission has elected to use NPV smoothing because it balances costs to revenues over the entire regulatory period and not just the last year.

8.3 Determination of the X factor

Table 8.5 provides ACTEW's proposed X factor adjustments consistent with the projected revenue requirements summarised in Tables 8.1 and 8.2.

Table 8.5 ACTEW's proposed X factors

Year ending 30 June	2004-05	2005-06	2006-07	2007-08	2008-09
CPI forecast— Econtech	1.7%	1.8%	2.6%	3.0%	2.5%
ACTEW's proposal— water	CPI + 6.0%				
ACTEW's proposal— wastewater	CPI + 5.3%				

The commission has adopted the inflation forecasts proposed by ACTEW for the purposes of regulatory modelling and setting the X factors. As noted above, it has also opted to adopt NPV smoothing and a single X factor across the regulatory period. Table 8.6 provides the X factors to be used by the commission over the regulatory period.

Consistent with the commission's decision to adopt a four-year regulatory period, the commission's calculation of the X factors excludes data for 2008-09.

Table 8.6 The commission’s draft decision on X factors

Year ending 30 June	2004–05	2005–06	2006–07	2007–08
CPI forecast	1.7%	1.8%	2.6%	3.0%
Water	CPI + 2.4%	CPI + 2.4%	CPI + 2.4%	CPI + 2.4%
Wastewater	CPI + 0.5%	CPI + 0.5%	CPI + 0.5%	CPI + 0.5%

The commission is required to consider which tariff charges and revenue sources are to be included in the definition of ‘average revenue’ and, therefore, will be the services to which the X factor is applied. ACTEW generates revenue from a number of sources, including:

- general fixed and volumetric charges
- bulk water sales
- Commonwealth subvention payment
- trade waste and reuse water
- mini-hydro schemes
- miscellaneous fees and charges.

If all these sources of revenue are included in the average revenue calculation, then any increases or decreases in revenue from one source must be counterbalanced by decreases or increases in revenue from another to ensure compliance with the overall X factor. Under this approach, ACTEW has a relatively more stable revenue stream, although it has a reduced incentive to generate revenue from sources other than general volumetric and fixed tariffs, as any shortfall can be recouped from general tariffs under the CPI plus X factor.

At the other extreme, if the CPI plus X factor is applied only to the fixed and volumetric tariffs, ACTEW is able to fully retain any additional revenues from other sources, and has the incentive to expand its markets in these areas. At the same time, if revenues from these sources fall, ACTEW will experience lower returns.

In Section 3 the commission noted that reuse water, trade waste services, and bulk water should not be subject to direct price regulation. The commission

therefore proposes that these services will not be included in the average revenue calculation.

As discussed in Section 5, revenue from the operation of mini-hydro schemes is a competitive activity and the commission believes that this activity should be excluded from the average revenue calculation.

In relation to miscellaneous services, the commission has also noted in Section 3 that these services are generally not contestable. The customer base being provided with monopoly services is generally the same as that being provided with general water and wastewater services. The commission therefore proposes to include miscellaneous services in the average revenue calculation.

Finally, the commission has elected to exclude revenue from the subvention payment in the average revenue calculation. However, in doing this the commission notes that it has provided for a pass-through mechanism such that, if the level of the payment changes in a material way from current forecasts, ACTEW will be permitted to recoup the revenue from general fixed and volumetric charges. This is discussed in Section 8.7.

8.4 CPI adjustment

In the current price direction, the commission adopted a prospective CPI methodology for the calculation of prices to come into effect on 1 July each year. This approach required ACTEW to make an adjustment each year for the extent to which the prospective or anticipated CPI differed from the actual CPI. This approach is different from that applied for other regulated industries, whereby the commission uses the actual CPI in the most recently completed year, and creates some administrative burden and uncertainty associated with the application of the adjustment mechanism.

Therefore, for the next regulatory period the commission proposes to use the actual CPI for the most recent period, rather than the prospective CPI, in order to reduce the administrative burden and uncertainty.

The commission has previously used the year to March CPI in its price path determinations. However, to make regulation more convenient the commission proposes to use the year to December CPI as the adjustment

factor. The commission has made this decision to ensure that prices are available to all customers well in advance of 1 July each year.

Therefore, the commission will allow ACTEW to adjust regulated revenues using the following formula:

$$\text{Average revenue per customer} = (1 + (\text{CPI} + X)) \times (\text{maximum allowable average revenue in the previous year})$$

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 publish the index, then CPI will mean an index determined by the commission that is its best estimate of the CPI.

The CPI figure will be determined using the following formula:

$$\text{CPI}_t = \frac{\text{CPI March}_{t-1} + \text{CPI June}_{t-1} + \text{CPI Sept}_{t-1} + \text{CPI Dec}_{t-1}}{\text{CPI March}_{t-2} + \text{CPI June}_{t-2} + \text{CPI Sept}_{t-2} + \text{CPI Dec}_{t-2}}$$

where

- year t is the year for which tariffs are being set
- year $t-1$ is the previous year
- year $t-2$ is two years previous
- Dec is December and Sept is September.

Therefore, the CPI adjustment figure for the year commencing 1 July 2004 will be:

$$\text{CPI}_{2004} = \frac{\text{CPI March}_{2003} + \text{CPI June}_{2003} + \text{CPI Sept}_{2003} + \text{CPI Dec}_{2003}}{\text{CPI March}_{2002} + \text{CPI June}_{2002} + \text{CPI Sept}_{2002} + \text{CPI Dec}_{2002}}$$

The CPI adjustment factor for tariffs in 2004–05 will be applied to the estimated actual average revenue per customer earned in 2003–04.

8.5 Setting the average revenue cap

In checking compliance with the average revenue cap the commission will calculate the average revenue for financial year t by multiplying the proposed tariffs by the forecast sales volumes in the next year.

The commission has decided to use forecast sales volumes rather than actual sales volumes (as proposed in the commission's draft decision for ActewAGL's electricity distribution network) because of the potential variability from year to year in the volume of water sold. If actual volumes were used, then in a year following low water sales prices would be relatively high and in a year following high water sales prices would be relatively low. The commission's modelling shows that the potential variability in prices would create relatively large price shocks for customers and revenue volatility for ACTEW.³¹

Thus the calculation for the maximum average revenue (MAR) will be:

$$\text{MAR}_t = \frac{\sum_n (\text{Forecast sales volumes}^n \times \text{Proposed tariffs}_t^n)}{\text{Forecast number of properties}}$$

where n represents the tariff classes.

8.6 Demand forecasts for annual compliance

For checking annual compliance with the revenue constraint set out above, the commission has two choices in relation to the forecasts of demand for water in the next year. Firstly, the commission could choose to use a 'typical' year to determine compliance. Under this arrangement the commission could use, for example, the financial year 1998–99 to effectively preset in its price direction the level of consumption forecast to occur either at an aggregate level or on a per customer basis. The commission could also preset the relative share of sales volumes falling in each tariff band.

³¹ Because electricity volumes are not as sensitive to external factors such as weather, this is not as important an issue in the electricity industry.

Presetting some or all of these variables in advance eliminates the need to prepare annual forecasts of demand and provides the commission and ACTEW with an agreed and understood methodology for assessing compliance.

The drawback of this methodology is that it may not be able to cater for changes in the tariff structure, or reflect changes in customer behaviour over time or short-term issues such as water restrictions or changes in the level of the Water Abstraction Charge (WAC). In addition, debate would still need to occur on which ‘typical’ year should be selected or whether a theoretical average year should be adopted and, if so, how this average should be determined.

The second approach would involve ACTEW preparing ‘fresh’ demand forecasts each year and the commission carefully scrutinising those forecasts. In doing so, the commission could require ACTEW to justify to the commission’s satisfaction the usage forecasts provided. The commission could subject these forecasts to an external audit and subsequently reserve the right to adopt its own usage forecasts for tariff approval purposes if it was not satisfied with the veracity of the figures provided by ACTEW.

This approach would be more time-consuming and costly for both parties but would provide the opportunity for changes in underlying consumption to be considered when preparing the forecasts.

The commission is seeking comments from interested parties on the demand forecasting methodology the commission should employ in determining annual compliance with this price direction.

8.7 Price changes during the regulatory period

Regulatory arrangements typically provide for some opportunities to ‘reopen’ the predetermined price path during a regulatory period should certain defined events occur. This typically occurs via either a cost pass-through mechanism or a trigger event.

8.7.1 Cost pass-through

A cost pass-through mechanism occurs when changes in specific ‘uncontrollable’ cost items are passed directly through to customers, thereby

shielding the business from the impact of those cost changes. The rationale for permitting a cost pass-through is that:

- cost pass-throughs reduce the risk faced by the regulated business, thus reducing its cost of capital and thereby reducing overall costs to customers in the long term
- in a reasonably competitive market these costs may be passed directly through to customers in the short term.

The items for which cost pass-throughs may be permitted need to be limited and clearly defined in order that:

- regulated businesses are given an incentive to minimise the long-term impact of changes in costs
- administrative costs for the business and the regulator are minimised
- consumers have as much certainty as possible regarding future prices.

ACTEW's proposal

ACTEW has proposed that cost pass-throughs apply to the following categories of events:

- a *'change in taxes event'*—the addition of, removal of, or change in the way a 'relevant tax' is applied. A relevant tax is proposed by ACTEW to include any rate, tax, duty, levy or charge payable to any authority of the Commonwealth of Australia, excluding certain items such as income tax, stamp duty, financial institution taxes, or tax penalties and interest.
- a *'service standard event'*—a change to legislation or regulations which affects the service which ACTEW is required to provide or the manner in which services are provided. ACTEW has particularly identified changes in environmental legislation and occupational health and safety requirements and changes in the Commonwealth subvention payment as relevant here.
- an *'insurance event'*—a change in the cost of insurance. ACTEW has pointed out that insurance costs have been particularly volatile in recent years.

- an *'unforeseen external event'*—ACTEW has proposed that this category include unforeseen events that result in costs which are substantially different from those anticipated at the time of the final price determination. In particular, ACTEW has identified terrorism and unexpected climatic or catchment events.
- a *'WAC event'*—ACTEW believes that changes in the WAC that have an effect on its revenue (through elasticity of demand effects) should be able to be passed through to customers.

ACTEW has proposed that cost pass-through applications would be made at the same time as the annual price review. ACTEW would be obliged to provide the details of the pass-through event for the commission to evaluate. The commission would also be able to initiate a pass-through.

Public comment

The ACT Council of Social Service Incorporated (ACTCOSS) did not support the concept of pass-throughs. According to ACTCOSS:

ACTEW appears to have managed these fluctuating costs in the past by rearrangement of its finances and deferment of projects. ACTCOSS believes that this follows commercial precedent and given the possibility of triggers for price resets it appears unnecessary to provide any further relief for ActewAGL on cost risks. Many groups within the community have had to bear such price hikes without the ability to attract additional revenue and have been told that managing such risks is part of their core business.³²

ACTCOSS was in favour of fires, drought or catastrophic events affecting the water catchment being trigger events. ACTCOSS also suggested that the regulatory period should be shortened if the development of a national water policy were to impact on ACTEW and ActewAGL. ACTCOSS did not believe that reduced water consumption due to water savings measures should be a trigger event.

³² ACT Council of Social Service Incorporated, August 2003, *Comment on the ICRC investigation into prices for water and wastewater services in the ACT*, p. 8.

8.7.2 Discussion

The commission is of the view that it is in the longer-term interest of both the regulated business and customers for certain pass-through items to be incorporated in the regulatory framework. However, the pass-through items need to be consistent with the other elements of the regulatory framework. The commission believes that, in general, the proposals put forward by ACTEW are unduly broad-ranging and transfer too great a risk from ACTEW to customers. They are also not consistent with the rate of return allowed by the commission and the proposed length of the regulatory period, which, at four years rather than five, means that the risks that unanticipated events will occur and the likely impacts of such events are less significant than they would otherwise be.

Each of ACTEW's proposed pass-through events is discussed below.

Change in taxes event

The commission supports the adoption of a pass-through mechanism to apply to material changes in taxes. Regulated businesses are generally unable to influence tax payments and the commission therefore supports the premise that the business should not bear the risk of tax changes during the regulatory period.

The commission is satisfied that the definition of 'tax' proposed by ACTEW is appropriate, and notes that the definition excludes taxes such as income tax, stamp duty and similar banking taxes, and taxation penalties and interest.

In any application to the commission for a tax pass-through, ACTEW will need to clearly demonstrate to the commission the impact of the change in tax or new tax on its operations.

Service standard event

The commission does not support ACTEW's proposal for a broad-ranging service standard event.

The risk faced by ACTEW in relation to a change in service standards exists only to the extent that ACTEW may incur higher than anticipated costs from the time the new service standard comes into place to the end of the regulatory period. Once the period end is reached, any new and higher costs

associated with new standards will be incorporated in the price path going forward.

Changes in service standards, particularly those that are imposed by external regulators such as the commission, the ACT Environmental Management Authority and the New South Wales Environment Protection Authority, are likely to be known well in advance. They are also likely to be the subject of extensive consultation with ACTEW. As part of that consultation the impact on ACTEW's costs and returns will be closely and fairly considered. Given that any firm proposals for changes in service standards at the present time can be incorporated into prices from 1 July 2004, and that the regulatory period will be four years long, the commission believes that any risks faced by ACTEW will be manageable without the need for a pass-through.

The commission also notes that ACTEW's forecast operating costs already include an allowance for increases in occupational health and safety requirements.

The exception to this rule is for the subvention payment from the Commonwealth Government. The commission agrees that, due to the magnitude of the payment and the fact that it may change at relatively short notice, an explicit mechanism should be developed to cater for changes in this item.

Insurance event

In relation to ACTEW's proposed insurance event, the commission notes that insurance costs have increased in recent years. The commission has allowed an increase in ACTEW's forecast prudent operating costs for this reason. However, given the recent rises, the potential for further increases is probably less than it has been in the current regulatory period. The commission is also concerned that allowing pass-throughs for external insurance costs may distort ACTEW's decisions regarding whether to self-insure or seek external insurance.

The commission therefore does not support ACTEW's proposal for an insurance pass-through event.

Unforeseen external event

ACTEW has proposed a pass-through provision to apply in the event of ‘unforeseen external events’, including (but not limited to) events that threaten the security of supply by terrorism.

The commission agrees that, in the case of major unforeseen events, such as terrorist attacks, there may be a need to adjust the price path to reflect additional costs imposed on ACTEW.

However, the commission has some concerns about ACTEW’s proposal. The first is that the proposed definition of a ‘major external event’ is very broad. In the absence of a tighter definition, there may well be considerable debate and uncertainty about whether a particular occurrence fits into the category of a ‘unforeseen external event’.

Secondly, the commission believes it should be within ACTEW’s ability to manage the vast majority of supply security events. ACTEW, together with other relevant parties such as the ACT Government, has clearly been able to manage the effects of the January 2003 bushfires.

The commission’s preference, therefore, is to allow a pass-through only for terrorist attacks and major natural disasters which have a material impact on ACTEW’s costs.

In some cases the magnitude of a terrorism event or natural disaster may create implications for ACTEW that extend beyond cost and price issues. For example, ACTEW’s ability to physically provide services at the standards required in this draft price direction may be severely compromised. In such a cases, all aspects of the price determination may need to be reopened to reflect the new circumstances. This is discussed below.

WAC event

The amount of the WAC will be a pass-through for ACTEW; however, ACTEW has also proposed that the effects of the WAC on its revenue be a pass-through.

The commission notes that the WAC may have some implications for demand, although this is not its primary purpose. However, the commission believes there are a number of practical issues associated with a pass-through mechanism, including:

- accurately measuring the short- and long-term effects of the WAC on revenue, given the other factors impacting on demand, including demand management activities, demographic shifts, possible changes in tariff structures and climatic effects
- difficulties in measuring the offsetting cost reductions.

To the extent that the WAC does have a measurable and material effect on usage, so that the effect of a change in the WAC on the subsequent demand can be identified, the change can be taken into account in the forecasts of demand provided in the annual tariff review (if the second option discussed in Section 8.6 is adopted).

Other events

The ACT Government, ACTEW and other relevant parties are currently engaged in preliminary debate regarding the future of the ACT's water resources. As set out in Section 13, this debate includes discussion of potential new augmentations to the territory's water supply.

It is possible that a decision will be made regarding funding of a new supply source during the next regulatory period. To the extent that funding arrangements require ACTEW to make provision for funding some or all of the costs of this augmentation, it is important that ACTEW be able to pass these costs through to customers.

Although it was not directly sought by ACTEW, the commission has therefore included a specific pass-through event to enable ACTEW to pass through the costs associated with funding a major new augmentation to water supplies.

8.7.3 Materiality and pass-through issues

The commission therefore proposes to allow pass-throughs for the following items:

- changes in taxes
- terrorism and major natural disasters
- changes in the level of the Commonwealth subvention payment

- funding of major new augmentations.

In order to protect the integrity of incentive regulation and to ensure regulatory efficiency, it is important that the pass-through items meet a materiality test before they are brought to the commission.

The commission's draft decision provides for a total revenue requirement of between approximately \$140–\$150 million over the regulatory period for water and wastewater services. Given this, the commission believes that an amount of \$1.5 million in any one year, which is approximately 1 per cent of ACTEW's revenue, provides an appropriate materiality threshold and point at which risks can be transferred from the business to customers. This \$1.5 million threshold applies to operating costs—the equivalent capital expenditure amount is approximately \$10 million, which equates to approximately \$1.5 million in annualised terms.

8.7.4 Pass-through mechanism

The commission agrees with ACTEW that it would be efficient for cost pass-throughs to be dealt with at the same time as the annual price reviews, and that the commission should be able to initiate a pass-through event.

The commission has proposed that annual price submissions be provided by 1 March each year. The commission believes this is the latest date after which it might reasonably be expected to consider a pass-through to take effect in the next financial year; however, it would encourage ACTEW to submit relatively complex proposals before 1 March. Should the commission be unable to reach a decision on a pass-through by the end of April, any pass-through amount will need to carry over until the subsequent year.

Full details of the commission's proposed pass-through mechanism are set out in the draft price direction in Appendix 1.

8.7.5 Trigger events

Sections 20A(3)(c) and 24F of the *Independent Competition and Regulatory Commission Act 1997* make provision for events ('price variation triggers') which would initiate the making of a new price direction. These trigger events must be specified in advance by the commission when it makes a price direction.

Trigger events should be few and should be restricted to exogenous events which result in the existing price direction being completely unworkable in the short term.

In the commission's view, appropriate trigger events for ACTEW should be limited to only:

- acts of terrorism
- major natural disasters.

These would impose very significant additional costs on ACTEW and severely restrict ACTEW's ability to provide services.

The commission believes the threshold for materiality in the case of these triggers should be much greater than for a pass-through item, and proposes that price variation be triggered where such events severely restrict ACTEW's ability to provide services and impose a total annualised cost on ACTEW across the remainder of the regulatory period of more than \$10 million (in 2002–03 dollars).

9 Tariff structure and billing

The Treasurer's reference requires the commission, in arriving at its price direction, to consider consumer impacts, including the impact on disadvantaged consumers, low-income earners and large households, as well as the adequacy of concessions for disadvantaged groups. The commission is also required to address issues of ecologically sustainable development, social impacts and demand management. Finally, the commission is required to consider economic efficiency.

All the above issues 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.

9.1 ACTEW's existing tariff structure

The pricing structure for water billed to metered properties in 2003–04 involves a three-part tariff for all connected customers, as follows:

- a fixed water supply charge of \$125.00
- a \$0.43 variable component for the first 175 kilolitres consumed
- a \$1.05 variable component for consumption thereafter.³³

Unmetered properties pay a fixed fee of \$200.25 and unconnected properties pay a charge of \$125.00.

The wastewater pricing regime is different for residential and non-residential consumers. Residential consumers are charged a fixed fee of \$354.20, which

³³ In addition, consumers pay 10 cents per kilolitre Water Abstraction Charge (WAC). The WAC will rise to 20 cents per kilolitre on 1 January 2004 and to 25 cents per kilolitre on 1 July 2004. For a complete discussion see the commission's report on the WAC, issued in September 2003.

represents an access charge for the use of the sewer system and the treatment of waste. Non-residential customers are charged the fixed fee of \$354.20 plus a fee per fixture of \$183.10 for the third and each additional fixture. Unconnected properties pay \$354.20.

9.2 Key issues

The prime tariff issue is the structure of water prices and the resultant implications for customers and ACTEW in terms of:

- the incentives provided to customers to reduce water use
- the impact on the environment
- equity and fairness for customers, including low-income customers, large families and concessional customers
- the link between prices and costs and, therefore, economic efficiency
- revenue risks and volatility for ACTEW.

Particularly important in terms of their impact both on consumers and on ACTEW are:

- the level of revenue raised from fixed charges relative to volumetric charges
- the point at which the increase ‘step’ (or steps) in volumetric charges occurs
- the relative level of the different volumetric charges.

A number of other tariff structure and pricing issues were identified in the commission’s issues paper or raised in submissions (including from ACTEW) in response to the issues paper.

These included:

- *pro rata billing*. The current billing system charges prices for all water consumed since the previous meter reading at the prices in effect on the day of the reading, regardless of the period in which the water was consumed. A customer with a meter reading on 2 July will pay for all

water at the new tariff effective from 1 July. Under pro rata billing the customer would pay for most of the water at the previous rate, with only 1/91 of water being consumed over the quarter billed at the new rate.

- *quarterly pricing.* At present, the step in prices occurs after the customer has consumed 175 kilolitres in a year. Quarterly pricing would result in the customer paying the higher price in every quarter in which consumption exceeds 43.75 kilolitres (that is, one quarter of the annual first step allowance).
- *wastewater pricing methodologies.* The commission's issues paper sought comments on alternatives to the current tariff structure. One option would be to introduce a volumetric charge based on assumed discharge factors. ACTEW has also identified that the current structure means that non-residential premises are subsidising residential premises.
- *unmetered properties.* The current approach effectively assumes that unmetered properties, such as flats and units, consume 175 kilolitres per year. Unmetered customers do not face a marginal price for water, and have no incentive to reduce consumption. There is also an equity issue with respect to the pricing outcome in terms of both the assumed consumption of 175 kilolitres and the fact that a single resident of a small unit pays an identical water bill to a person in a large unit with several residents.
- *seasonal pricing.* One alternative to the current tariff structure would be to price water according to the season in which it is consumed.
- *trade waste.* At present, ACTEW does not have a formal trade waste tariff.
- *side constraints.* Side constraints are the limits, if any, which the commission might impose on changes to bills for particular customer classes.

These various options and their impacts on the key issues above are discussed in more detail below.

9.3 ACTEW's proposal

ACTEW has suggested that, within the limits imposed by the CPI minus X constraints, it should be free to determine individual tariffs for services.³⁴ ACTEW has suggested to the commission that it would set tariffs consistent with the following set of principles:

- fully recover costs of an efficiently conducted business
- provide an adequate return on investment, commensurate with business risk and competitive position
- ensure expert and proactive resource management, including the use of new technology where appropriate
- respond to social and economic impacts
- manage demand by influencing consumption behaviour, consumer investment and lifestyle decisions
- fully pass through the effects of any government taxes, contributions or external charges.

More specifically, ACTEW has proposed that, consistent with these pricing principles, a number of changes to the current pricing structure will be made over the next regulatory period.

In respect of the water tariff, ACTEW proposes to reduce the step from 175 kilolitres to around 130 kilolitres, with a phase-in of this reduction to commence in 2006–07. ACTEW has selected 130 kilolitres on the basis that a Western Australian study has identified average indoor use of 57 kilolitres per capita, which equates to around 140 kilolitres for the average Canberra household.

ACTEW also proposes to increase the price of the top step to reflect the marginal cost of supply, which ACTEW has estimated as being between \$1.07 and \$1.77 per kilolitre. ACTEW has adopted the approximate midpoint of this range (\$1.40) as a target level for the top step.

³⁴ ACTEW, August 2003, Pricing proposal, pp. 14–30.

ACTEW also wishes to manage increases to the first step in order to reduce the price differential between the steps. However, ACTEW has not proposed any significant changes to the fixed connection charge for water.

ACTEW has also proposed to implement ‘daily pricing’ from the commencement of the next regulatory period.³⁵ Under daily pricing, the consumption step will be applied on a daily pro rata basis, and the relevant steps and tariff levels will be those of the period in which the day falls, regardless of when the meter is read.

In relation to wastewater tariffs, ACTEW has drawn attention to the fact that domestic customers are currently subsidised by non-residential customers. ACTEW proposes to apply a 10 per cent increase in residential charges relative to other charges to redress this problem. ACTEW has also proposed that, following consultation and data gathering, non-residential tariffs be restructured to include either a replacement of the fixtures charge with a discharge volumetric charge, or retention of the fixtures-based approach with some form of category-based charge.

ACTEW has advised that it does not support the introduction of seasonal water pricing as any costs driven by seasonal tariffs are minor. It also believes that the current arrangement for deeming consumption for flats is the most efficient outcome, as the costs of metering would be prohibitive and the level of discretionary water use is low.

In respect of trade waste charges, ACTEW has advised that it intends to gather information on costs and customer characteristics that can be used to establish whether economic efficiency will be improved by the implementation of a trade waste charge.

To accommodate the introduction of ACTEW’s proposed tariff changes, ACTEW has proposed that there be no side constraints applicable in the first year of the regulatory period. ACTEW has proposed a side constraint of CPI plus 9 per cent in subsequent years, for standard households only, to accommodate the revised tariff structure.

³⁵ The term ‘daily pricing’ incorporates the concepts of pro rata billing and quarterly billing as described in the commission’s issues paper. The commission has adopted this term in the discussion that follows.

ACTEW has also proposed a side constraint of CPI plus 8 per cent for residential wastewater tariffs in each year.³⁶

9.4 Public comment

Tariff structure issues generated by far the greatest level of public comment in response to the 2003 issues paper.

In relation to water tariffs, the Conservation Council of the South East Region and Canberra Inc (the Conservation Council) indicated support for inclining stepped tariffs.

Mr Keith Sayers noted that the existing water tariff structure encouraged increased consumption, and recommended a gradual phase-out of the fixed charge. Mr Sayers also supported seasonal pricing, noting that large households with low incomes would be assisted by this change to the tariff structure as they consume roughly the same amount of water throughout the year. Mr Sayers also suggested, for equity reasons, linking wastewater tariffs to water tariffs, on the basis that wastewater volumes will be directly related to water volumes.

The Property Owners & Ratepayers Associations of the ACT indicated support for the separate metering of unit and townhouse developments in order to encourage better use of water.

The ACT Council of Social Service Incorporated (ACTCOSS) made a number of comments on tariff structures, including the following:

- A third and upper tier for the volumetric charge should be introduced, to apply to consumption greater than approximately 500 kilolitres per annum. This will ensure that environmental costs associated with unfettered water use can be met.
- Changes in pricing make it difficult for people on low incomes to budget. Any move to fluctuating prices, such as through seasonal tariffs,

³⁶ ACTEW's proposal is based upon its proposed price path for wastewater of CPI plus 5.3 per cent.

should be supported by an ‘easy payment scheme’ whereby usage and payments can be averaged over the year.

- ACTCOSS does not support quarterly pricing, on the basis that this could only adversely affect low-end users
- ACTCOSS does not support the current arrangements, whereby the rate charged in a customer’s bill is based on the day of issue of the bill.
- Current arrangements for unmetered properties are generally sound; however, ACTCOSS notes that if water bills are paid by a body corporate this will provide some incentive for individual users to implement water saving strategies.
- Pricing for wastewater should remain as a fixed charge.
- Costs of education, regulation and enforcement of trade waste requirements should be borne in part by the general community, for public health and environmental reasons, and partly by business as a legitimate cost of business.³⁷

9.5 The structure of water tariffs

9.5.1 Introduction and role of the commission

As noted above, the structure of water tariffs has implications in a number of areas, not least for water conservation.

The commission has been encouraged by the ACT Government to consider the role of pricing as a water use efficiency measure. In particular, the commission has noted that in its draft strategy for sustainable water resource management in the ACT, the Government has proposed a 12 per cent reduction in per capita usage of water by 2013, and a 25 per cent reduction by 2023. It is unlikely that this target will be achieved without at least some changes to the existing water tariff structure.

³⁷ ACT Council of Social Service Incorporated, August 2003, pp. 3–6.

In considering the role that prices could play in meeting the Government's targets, it is important to make a few general points regarding the effectiveness of price as a tool for influencing behaviour with respect to water. There are generally considered to be two types of demand for water. Firstly, there is the demand for water for the purposes of cooking, cleaning, drinking and general hygiene. These activities have a number of wider public benefits, including those associated with the lower health costs which arise from access to clean drinking water. The demand for this indoor-use water is generally considered to be non-discretionary, in that every person requires a certain amount of water irrespective of any external factor, including price. To the commission's knowledge there are no data available on what this amount is in the ACT, although the commission is aware of a study, by the Water Corporation of Western Australia and the Commonwealth Scientific and Industrial Research Organisation, which suggests that indoor per person usage in Western Australia is approximately 57 kilolitres per annum.

The second type of water demand is for water used for recreational and business purposes. This includes water used to cultivate gardens, wash cars, fill swimming pools, and water golf courses. The demand for this water is generally considered discretionary.

In considering the impact of any changes in tariff structure, the commission needs to consider the elasticity of demand for water. The elasticity of demand is measured as the impact of an increase (or decrease) in the price of a good (in this case, water) on the quantity demanded. Studies of the demand elasticity of water have found that it ranges between -0.1 and -0.3 . In 1997, ACTEW investigated the elasticity of water demand in the ACT and found that the average was -0.22 .³⁸ This means that an increase in the price of water of 10 per cent will result in a reduction in demand of 2.2 per cent.

However, this elasticity is an average figure. The elasticity of indoor-use water is likely to be much lower than for outdoor-use water, particularly in the short term. In the longer term, education and water-efficient appliances will increase the elasticity for indoor use, although it will remain below the elasticity of discretionary water use.

³⁸ Graham, David, and Scott, Shona, 1997, *Price Elasticity and Sustainable Water Prices: Policy Directions*, p. 11.

Thus, the impact of increasing the price of non-discretionary water is unlikely to result in significant reductions in the amount of water consumed, unless the price increase itself is very significant. Considering that the public benefits associated with non-discretionary water use are actually very high, it would not be appropriate to significantly increase the price of non-discretionary water with the aim of dramatically reducing this type of consumption on a per capita basis.

Price may be an appropriate tool to reduce consumption at the discretionary end of the market. However, reducing consumption at this end of the market requires careful consideration of the benefits associated with this water use, including the important contribution of open green spaces to:

- Canberra's reputation as a garden city
- the concept of Canberra as the 'bush capital'
- tourism attractions, including Floriade, the Australian Open Garden Scheme, and the Parliamentary Triangle.

In addition, Canberra remains an attractive destination for Australian and overseas visitors, partly because of the setting provided by the city's green spaces, parks, trees and private gardens.

If the community continues to value these benefits, a significant long-term reduction in the use of water for discretionary external purposes will result in the need to augment existing watering systems, vital for the survival of many of our parks and gardens, with more efficient watering technologies. Without this investment there may be a diminution of Canberra's popularity as a tourist destination and as a place to work and live. Therefore, the full costs and benefits of reducing this discretionary consumption need to be considered if this is to be a stated goal of tariff reform.

The market for water has evolved considerably over the past 10 years, with the introduction of volumetric charging, the recent drought, prolonged limited availability of water from the Cotter catchment, and the introduction of water restrictions all contributing to increased public awareness, and even concern about the future, of water.

The commission's role is to establish the broad CPI minus X parameters within which ACTEW must set its prices. The commission can also determine the structure of the final tariff schedule to be adopted by ACTEW.

However, the commission has taken the view that, provided tariffs are in accordance with the pricing principles set by the commission and meet the CPI minus X price path, it is the role of ACTEW to calculate the fine details of the tariff schedule. The commission will simply assess those tariffs against the pricing principles set by the commission.

While the commission does not calculate the final tariff schedule, it does determine the pricing principles and scrutinises the application of those principles. Thus, tariff structures are fundamental to the issues the commission is required to consider in making a price direction. The commission would therefore not be acting consistently with its mandate if it failed to establish a well-defined framework within which ACTEW must set tariffs and translate the CPI plus X price direction into final prices paid by consumers.

In the sections below, the commission has outlined two possible water tariff structures, with the intention of engendering community discussion. This is not to say that alternative tariffs structures do not exist—in fact, one of the difficulties associated with tariff structures is that there are usually an infinite number which would meet tariff objectives. However, the commission believes that the following two options identify a number of fundamental issues concerning pricing on which the commission would now like to receive submissions.

9.5.2 Objectives of a water tariff structure

ACTEW has proposed a number of high-level principles for determining tariffs, which are set out in Section 9.3 above. The commission has no objection to these principles. However, they are relatively high-level and do not provide a clear basis for choosing between tariff structures.

Some slightly more detailed principles in respect of the water pricing structure might include:

- tariff arrangements should fully recover costs, including an adequate return on investment
- the tariff structure should be easy for customers to understand and interpret

- the tariff structure should be consistent with meeting government objectives for the water sector, including in relation to demand management
- the tariff structure should be consistent with principles of social equity
- the tariff structure should encourage productive, allocative and dynamic efficiency.

The first condition is that prices should fully recover the costs of an efficiently conducted business. This principle is fundamental to the methodology that the commission uses to regulate a natural monopoly. The regulated business should recover its efficient costs but not over-recover costs; that is, prices should not return monopoly rents to the regulated business. The commission considers it crucial that prices for water satisfy this constraint.

For example, large increases in the price of water must not simply provide ACTEW with exorbitant profits. Within the overall revenue constraint set by the commission, it is not an option to simply increase one component of the tariff schedule for a particular service or customer group without considering whether a reduction is required elsewhere to ensure that the revenue constraint is not broken. This trade-off between different components of the tariff structure is where the remaining pricing principles, as espoused by ACTEW, come into play.

It is also important that customers are able to understand the tariff structure. Only with this understanding will they respond appropriately to the price signals given by the structure. This means that the pricing system needs to be as simple as possible and that appropriate education and awareness programs, together with relevant information on customer bills, should be provided.

The tariff structure also needs to be consistent with government policy. This includes, in the current ACT context, the ACT Government's proposed reductions in per capita usage.

The tariff structure should also be consistent with the social needs of the community. One interpretation of this is that the price of water as used in the home for non-discretionary purposes should not be excessive, and should be less than the price of water primarily used for discretionary purposes. At the

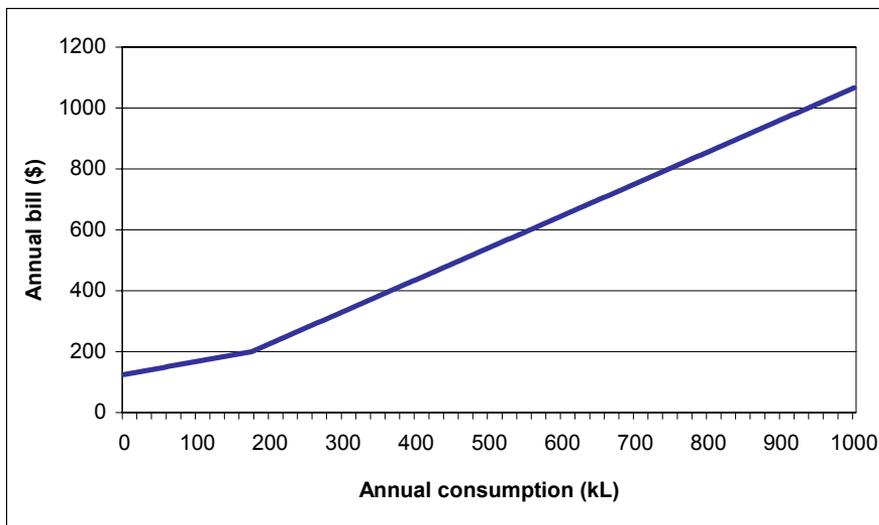
same time, the commission also notes that there are views that the tariff structure itself should not directly attempt to address equity issues, and that these are best dealt with via separate concessional arrangements, such as the current concessions that are offered to relevant families.

It is with these principles in mind that the commission has outlined below two alternative tariff structures that could be used in the future. The commission is seeking comments on these options and on the principles that the commission has enunciated.

9.5.3 Alternative tariff structures

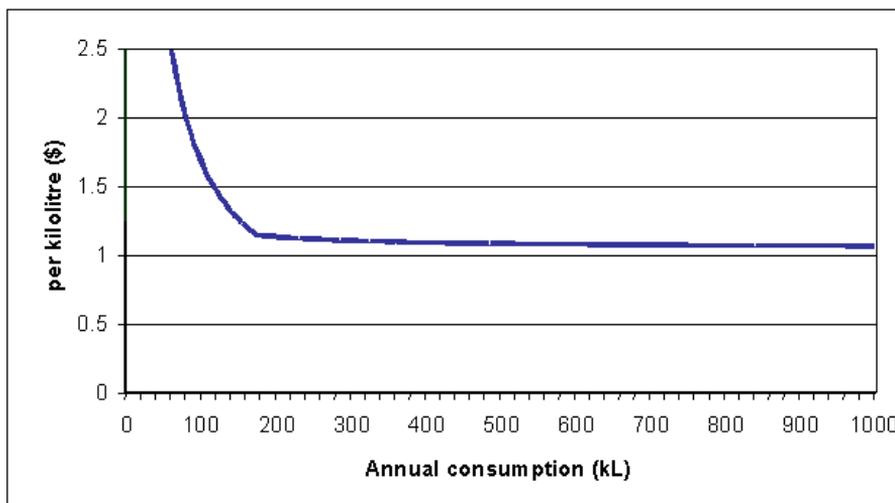
Currently, customers' bills start at the fixed cost of \$125, rise slowly for the first 175 kilolitres and then increase at a greater rate after 175 kilolitres. This tariff structure is shown graphically in Figure 9.1.

Figure 9.1 Current annual bill



While the marginal price of water under the current arrangements rises after an allowance is made for non-discretionary consumption, the average price per kilolitre actually declines over all units of consumption, as shown by Figure 9.2. Given the limitations of metering and billing arrangements, consumers face a quarterly bill which aggregates consumption over the period. This may result in perverse incentives in terms of consumption, as discussed below.

Figure 9.2 Current average price



One implication of the declining average price is that consumers of large amounts are paying less per kilolitre than consumers of smaller amounts. Another way of expressing this is: if a household doubled its consumption of water, it would not double its annual bill. Consider a household that consumes 280 kilolitres per year. Its annual bill is \$310.50. Compare this to a customer who consumes 560 kilolitres per year, with an annual bill of \$604.50. The second 280 kilolitres costs only \$294. There are other tariff structures that result in increasing marginal prices while at the same time increasing the average price over some range of prices.

It is true that, if there is a fixed fee, average price must decline over some quantity. However, average prices need not decline for all levels of output, given that there is a fixed component to the price schedule.

The commission has developed two alternative price structures and is now seeking comments from interested parties on these alternatives. Proposal A, which would require a change in the current billing arrangements, results in a U-shaped average price curve while at the same time increasing the marginal price at three consumption steps. Proposal B has the same shaped average price curve as the existing price structure. Irrespective of which of the two (or any other) proposals is adopted, there will be an additional charge applied to the variable price of water from 1 July 2004, namely the 25 cents per kilolitre WAC.

Proposal A has the following price schedule:

- a fixed water supply charge of \$70.00
- a \$0.50 variable component for the first 100 kilolitres consumed
- a \$1.00 variable component for the next 200 kilolitres (that is, to 300 kilolitres) consumed
- a \$1.50 variable component for consumption after 300 kilolitres.

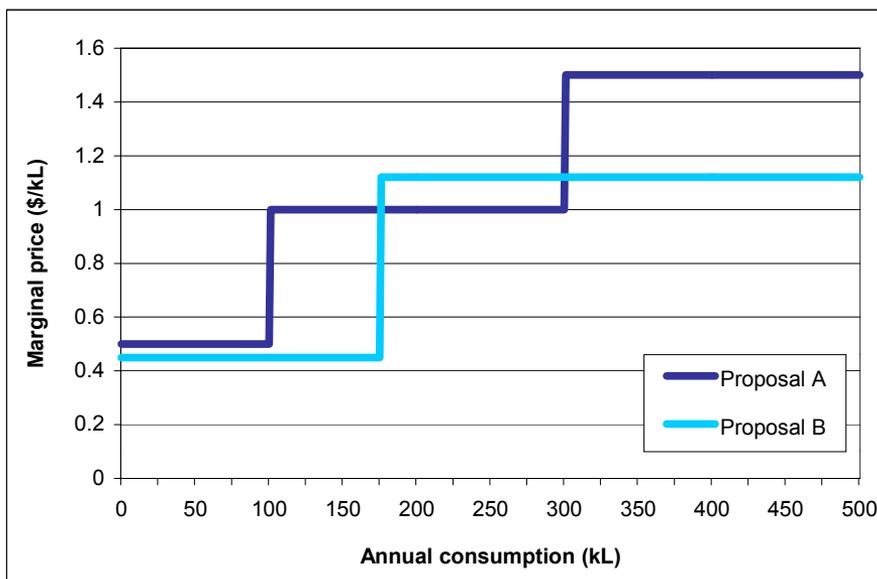
Meanwhile, proposal B has the following price schedule:

- a fixed water supply charge of \$125.00
- a \$0.45 variable component for the first 175 kilolitres consumed
- a \$1.12 variable component for consumption thereafter.

The discussion below on the two proposals focuses on their impact on residential consumers. However, the commission notes that non-residential customers account for almost half of all water used in the ACT. If a structure such as proposal A were adopted, the majority of commercial premises, which use small amounts of water (fewer than 360 kilolitres per year), would experience price falls. However, a small number of large non-residential customers would face increases in bills of more than 20 per cent. These potentially significant tariff increases, and their effect on usage, need to be considered in any discussion of tariff structures.

Figure 9.3 compares the pricing structures of proposal A and proposal B.

Figure 9.3 Comparison of marginal price schedules



Under proposal A the pricing schedule has two steps rather than one. This addresses concerns raised by ACTCOSS regarding the impact of increased prices for non-discretionary water faced by large households. Establishing the highest marginal step at 300 kilolitres means that 97 per cent of households would be able to consume water for indoor use without moving into the highest tariff band. This estimate is based on Australian Bureau of Statistics census data that showed that around 97 per cent of ACT households have five or fewer persons (see Table 9.1). At an average in-house, non-discretionary consumption of 57 kilolitres per person per annum, this means a total consumption for non-discretionary purposes of 285 kilolitres, which is below the 300 kilolitre marginal step.

Under proposal B, at a level of 175 kilolitres (or even 130 kilolitres, as proposed by ACTEW) a large proportion of customers will not be able to meet their indoor use requirements without moving to the highest marginal tariff.

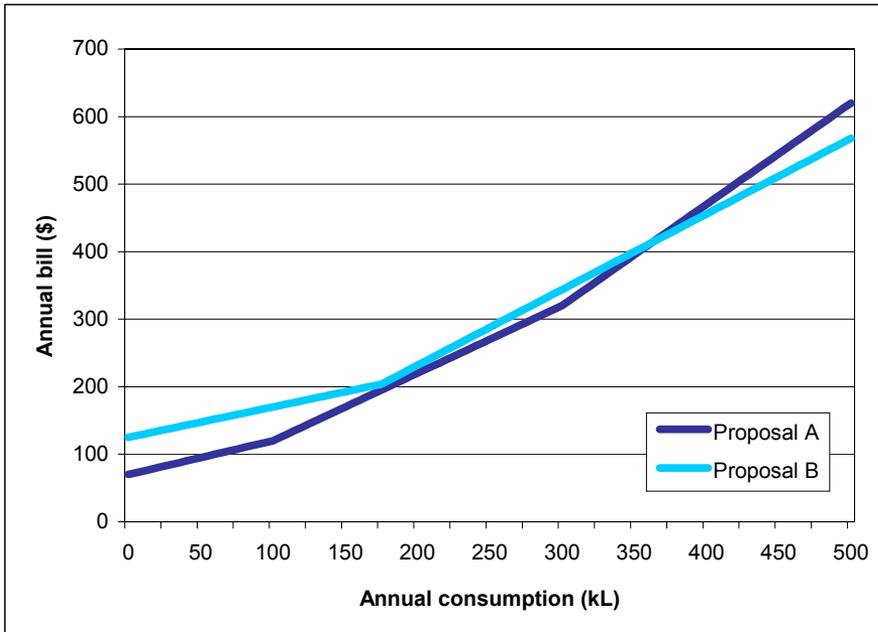
Table 9.1 Number of ACT households, by occupancy

Number of persons in household	Number of households	Percentage of households
1	25 516	23.1%
2	35 981	32.6%
3	19 176	17.4%
4	18 674	16.9%
5	8 027	7.3%
6 or more	2 977	2.7%
Total	110 351	100.0%

Source: Australian Bureau of Statistics Census 2001.

Figure 9.4 shows the relationship between the price schedules for proposals A and B.

Figure 9.4 Comparison of total bills

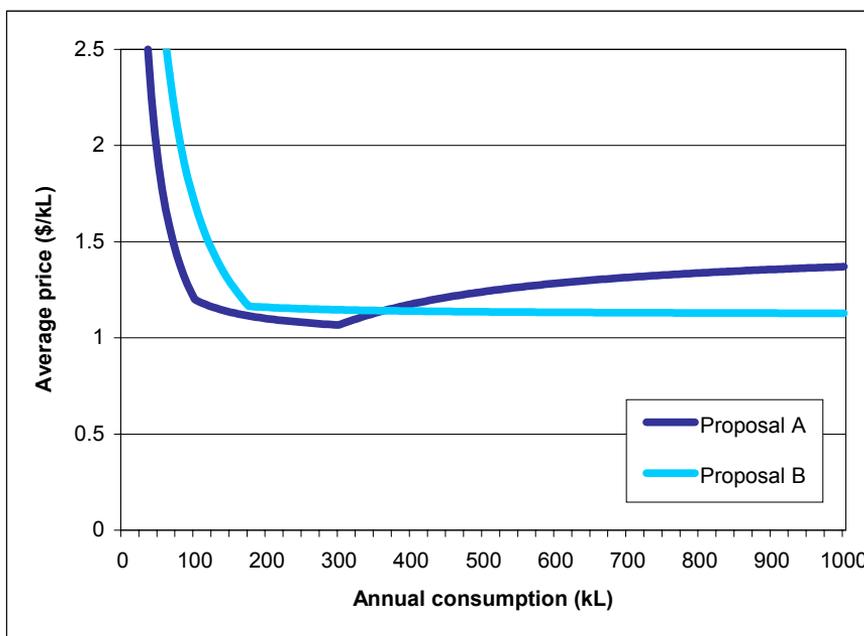


Inspection of Figure 9.4 yields some interesting insights. The two price schedules have identical bills at approximately 360 kilolitres per year. Even though the marginal prices are generally higher under proposal A, customers' bills are lower for the first 360 kilolitres than for proposal B.

Annual consumption above 360 kilolitres per year would attract higher payments under the price schedule for proposal A. These relationships are due to a reduction in the fixed component coupled with an increase in the final step of the pricing schedule for proposal A above the top marginal rate proposed under proposal B.

Examining the average price schedule for the two proposals demonstrates that the average price schedule need not be declining overall consumption levels as is seen under the present pricing arrangements used for water in the ACT, proposal B. Figure 9.5 shows the average price schedule for proposal A compared to proposal B.

Figure 9.5 Comparison of average price schedules



As can be seen in Figure 9.5, the average price schedule for proposal A falls for the first 300 kilolitres and then rises after that point. For a customer who consumes at the average consumption rate applicable to the ACT, of 280 kilolitres per year, the total bill would be \$300 under proposal A. If the customer consumed twice that amount, the bill would rise to \$710, resulting in the second 280 kilolitres costing \$410, an increase in price over that consumption range. In comparison, the average price continues to fall for proposal B across all consumption levels.

Table 9.2 compares the impact of the two alternative pricing structures on individual bills at a number of consumption levels.³⁹ For comparison purposes, the current price structure has also been included.

Table 9.2 Impact on bill of new tariff structure

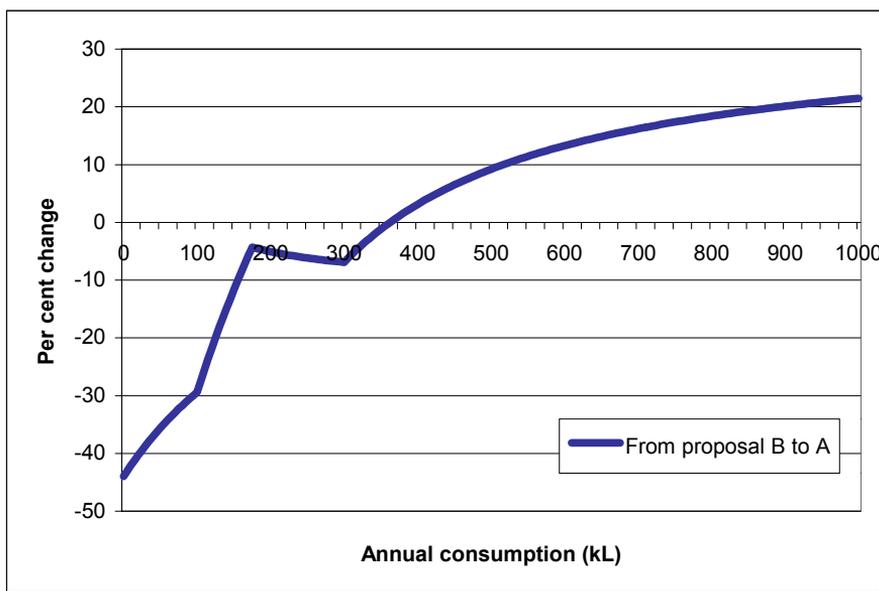
Annual consumption kL	Current bill per annum	Current average price per kL	Proposal A bill per annum	Proposal A average price per kL	Proposal B bill per annum	Proposal B average price per kL
50	\$154	\$3.08	\$108	\$2.15	\$160	\$3.20
100	\$183	\$1.83	\$145	\$1.45	\$195	\$1.95
150	\$212	\$1.41	\$208	\$1.38	\$230	\$1.53
200	\$257	\$1.28	\$270	\$1.35	\$282	\$1.41
250	\$317	\$1.27	\$333	\$1.33	\$350	\$1.40
300	\$377	\$1.26	\$395	\$1.32	\$419	\$1.40
350	\$437	\$1.25	\$483	\$1.38	\$487	\$1.39
400	\$497	\$1.24	\$570	\$1.43	\$556	\$1.39
450	\$557	\$1.24	\$658	\$1.46	\$624	\$1.39
500	\$617	\$1.23	\$745	\$1.49	\$693	\$1.39
550	\$677	\$1.23	\$833	\$1.51	\$761	\$1.38
600	\$737	\$1.23	\$920	\$1.53	\$830	\$1.38
650	\$797	\$1.23	\$1 008	\$1.55	\$898	\$1.38
700	\$857	\$1.22	\$1 095	\$1.56	\$967	\$1.38
750	\$917	\$1.22	\$1 183	\$1.58	\$1 035	\$1.38
800	\$977	\$1.22	\$1 270	\$1.59	\$1 104	\$1.38
850	\$1 037	\$1.22	\$1 358	\$1.60	\$1 172	\$1.38
900	\$1 097	\$1.22	\$1 445	\$1.61	\$1 241	\$1.38
950	\$1 157	\$1.22	\$1 533	\$1.61	\$1 309	\$1.38
1 000	\$1 217	\$1.22	\$1 620	\$1.62	\$1 378	\$1.38

Note: The current structure of bills is based on a fixed fee of \$125, 0–175 kilolitres charged at \$0.43, 176 kilolitres and above charged at \$1.05 and an average WAC of \$0.15 per kilolitre in 2003–04; proposal A assumes a fixed fee of \$70, 0–100 kilolitres charged at \$0.50, 101–300 kilolitres charged at \$1.00, 301 kilolitres and above charged at \$1.50 and a WAC of \$0.25 per kilolitre as will apply in 2004–05; proposal B is based on a fixed fee of \$130, 0–175 kilolitres charged at \$0.43, 176 kilolitres and above charged at \$1.12 and a WAC of \$0.25 per kilolitre as will apply in 2004–05.

³⁹ The average price per kilolitre declines to roughly the marginal price of water; however, it never actually equals the marginal cost.

Figure 9.6 shows the percentage increase in consumers' bills over different levels of consumption if moving from proposal B to proposal A.

Figure 9.6 Percentage difference in annual bills



As can be seen, under proposal A customers who consume relatively large quantities of water will experience significant increases in their bills. From a total revenue perspective for ACTEW, this is offset by reductions in the bills of small customers.

9.5.4 Benefits and costs of the alternative proposals

Each proposal has a number of different impacts.

Proposal A generates proportionately more revenue for ACTEW from the variable charge, thereby creating higher revenue volatility in dry and wet years compared to proposal B.

Both proposals are relatively easy for customers to understand. However, proposal B, which has a single step and is similar to the existing pricing structure, does not require customers to adapt to a new regime.

Proposal A is more likely to help achieve the reductions in per capita consumption proposed by the ACT Government in its draft water strategy.

ACTEW has advised that consumption of water above 300 kilolitres per annum by households accounts for over two-thirds of the residential water consumed in the ACT. However, the proportion of households consuming more than 300 kilolitres per year for non-discretionary use is less than 3 per cent. It is believed that there is a relatively higher elasticity of demand for water usage above 300 kilolitres. Therefore, given the volume of water involved, proposal A is more likely to achieve reductions in usage than proposal B.

The equity and economic efficiency effects are less clear cut and will depend to some extent on where the marginal cost of water lies. Proposal A provides clear benefits for users of small amounts, and allows non-discretionary usage at the low or middle step, with water bills likely to be lower than currently experienced even with the increased WAC and the implementation of the commission's price path. At the same time, proposal A can be accused of unduly penalising users of large amounts, particularly if the highest step is above the long-term marginal price of water. The highest step may result in customers reducing usage to a point where the marginal costs to society outweigh the marginal benefits of the reduction in water demand, thus resulting in a net loss to the community.

While both proposals provide low-cost water up to a certain consumption step, proposal B could be accused of penalising larger households for the consumption of non-discretionary water. However, under proposal B most consumers face the same price for marginal use and therefore have the same incentive to save or consume water. Average consumers are free to choose the amount of water they consume for discretionary purposes without facing a higher cost if they breach any artificial consumption step. This results in a maximising of consumer welfare, which is a desirable outcome.

The commission has provided these two proposals as options only, and they should not be seen as the only answers to the debate regarding the pricing of water in the ACT. There are a number of positives and negatives associated with both pricing proposals, some of which go to the very heart of the original planning concepts set out by Burley Griffin when designing Canberra as the bush capital.

The commission also accepts that there is a shortage of relevant information on which a decision can be based. For example, there is incomplete evidence on non-discretionary use of water and on use of water by low-income and disadvantaged customers, and there is limited information on elasticity of

demand at various levels of consumption and prices. The impact of water restrictions, community education programs and heightened awareness of water issues also remains unknown. One option may be to leave the existing tariff structure unchanged until more detailed data are available.

The commission welcomes submissions on these and other related pricing options.

9.6 Other tariff and billing issues

As part of its pricing proposal ACTEW has proposed a number of changes to the current tariff structures for both water and wastewater. In addition, the commission has given consideration to a number of billing and tariff issues raised as part of the 2003 issues paper or the Treasurer's reference.

These issues include:

- the introduction of daily pricing
- the introduction of a new system of charging for wastewater
- the amount of water billed, and the manner in which water is billed, to unmetered properties
- the merit of seasonal pricing
- the introduction of a specific charge for trade wastes.

Each of these tariff and billing issues is discussed below.

9.6.1 Daily pricing

At present, the billing system calculates prices for all water consumed since the previous meter reading at the prices in effect on the day of the reading. Prices for water change on the first day of a new financial year. Therefore, consumers can find themselves paying for water consumed in the previous financial year at the rates charged in the present financial year.

For example, under the existing system, a customer whose meter-reading date was 2 July 2003 would have paid for 91/91 of their usage days at 2003–04 prices even though 90/91 of those days were in the 2002–03

financial year. Under daily pricing, this customer would pay for 90/91 of their usage days at the 2002–03 prices and 1/91 of their days at 2003–04 prices. Every bill issued between 1 July and 30 September would be calculated proportionally, according to the number of days falling in each financial year. Thus no customer would be disadvantaged in terms of the per kilolitre rate that they were required to pay.

In addition, the current tariff step is calculated on a cumulative annual basis. That is, all water used is charged at the first step until the customer has used more than 175 kilolitres in the year, at which time the price for the second step applies to all subsequent water use. The first three quarterly bills for a customer who uses 50 kilolitres per quarter would be billed at the lower price, with the first 25 kilolitres in the fourth quarter bill at the lower price and the next 25 kilolitres at the higher price.

Under daily pricing, the consumption step would be levied at an effective 0.4795 kilolitres per day. Thus each customer would have the step apply at approximately 44 kilolitres per quarter (depending upon the number of days in the customer's billing cycle). In this example, where 50 kilolitres per quarter is consumed, the customer would pay for 44 kilolitres in each quarter at the lower rate, and 6 kilolitres at the higher rate.

The commission believes that daily pricing has a number of desirable characteristics:

- It provides a greater incentive to reduce water usage and, in particular, to reduce peak water usage.
- It provides customers with more immediate feedback on their water use.
- For customers with relatively stable consumption, it smooths out their bills, thereby making budgeting slightly easier.
- It addresses equity and perception problems associated with bills issued in the first quarter of the financial year being based on newer and usually higher prices despite a potentially large proportion of consumption occurring in the previous financial year. This is particularly important if the tariff structure changes on 1 July, as under the current system customers would find a new tariff system being applied retrospectively to their usage.

The commission notes that there is support from ACTEW for the adoption of daily pricing. The Essential Services Consumer Council has also expressed concerns with the current billing procedures and supports a change.

However, daily pricing is not without its drawbacks.

Firstly, daily pricing will have incidental effects for customers with peaky usage. A customer who uses 25 kilolitres in each of three quarters and 100 kilolitres in the other quarter currently pays for all water at the lower tariff. Under daily pricing, the customer would pay for approximately 56 kilolitres at the higher tariff and 119 kilolitres at the lower tariff. All other things being equal, a once-off decrease in tariffs would be required to ensure that ACTEW did not receive a windfall gain from the altered billing approach. Customers whose usage was constant over the period would be unaffected by the different application of the step.

Secondly, moving to daily pricing on 1 July 2004 would imply that the average customer would pay water bills at 2003–04 prices for the first 1.5 months of the financial year 2004–05 and at 2004–05 prices for the remaining 10.5 months. Therefore, the average customer would also pay for water at 2003–04 prices for 13.5 months. ACTEW's revenue would be slightly less than it otherwise would have been, as revenue in the first quarter of 2004–05 would be based partly on 2003–04 prices, rather than entirely on 2004–05 prices as at present. All other things being equal, a small once-off increase in tariffs would be required to compensate ACTEW for this effect and to ensure that its total revenue requirement could be met. This increase would need to be offset against the decrease identified above.

Thirdly, the movement to daily pricing would increase the complexity of ACTEW's billing systems, the commission's compliance checking processes, and the information provided on consumers' bills. The impact on ACTEW's billing systems and the increased complexity in compliance checking for the commission would not be insurmountable problems. However, the presentation of information on customers' bills would need to be carefully considered, in order that customers could understand the new billing arrangements and their own consumption levels. If customers could not understand these matters, or had more difficulty understanding the proposed arrangements than the existing ones, this might outweigh the benefits associated with daily pricing.

The commission will reserve its judgement on the introduction of daily pricing until the final decision is released in March. In the meantime the commission would welcome comments from interested parties on the issue of daily prices.

9.6.2 Wastewater tariffs

ACTEW has proposed to review wastewater tariffs, and has foreshadowed that relative increases in residential tariffs are required to address what it believes is currently a cross-subsidy problem, and that the non-residential tariff structure may be reformed from 2006–07 following customer consultation.

The commission is supportive of ACTEW's review of the fixtures-based charge for non-residential dwellings. It agrees with ACTEW that the number of fixtures is a poor indicator of the impact placed by the customer on the wastewater system. The commission notes that a fixtures-based approach is adopted by very few Australian water businesses and that most such businesses have moved away from this approach to charging for wastewater services.

The commission encourages ACTEW to consult extensively with customers regarding the changes. The commission expects to be kept informed regarding the consultation program and its outcomes. In considering tariffs submitted as part of the annual tariff approval process, ACTEW will be required to include a full justification for the changes in tariff structure together with a customer impact statement. Where these customer impacts may be substantial, the commission will require ACTEW to phase in any changes and to ensure that they are consistent with the commission's side constraint requirements, if any.

9.6.3 Unmetered properties

There are currently 4819 properties, representing around 4 per cent of customers in the ACT, that are receiving a water supply but are unmetered. Most of these properties are flats and units that were constructed before usage-based pricing for water was introduced. However, some new developments do not have individual meters—particularly multistorey developments where the cost of providing access to meters for reading purposes is significant.

A ‘deemed’ approach to pricing for these unmetered properties is currently applied. In the case of flats, each household is billed a fixed charge and a deemed usage charge of 175 kilolitres. Blocks of flats are in fact metered, but consumption recorded at the meters is used for monitoring only, not for billing.

In the case of strata title home units, each household is billed a fixed charge but consumption is metered for the units in total and billed to the body corporate. The body corporate is then responsible for dividing the usage between households according to body corporate rules. Bills are calculated on the basis that each unit and the body corporate effectively receive 175 kilolitres of water at the low step price.

ACTEW advises that the average consumption of these unmetered properties is around 184 kilolitres. Therefore, an assumption of 175 kilolitres deprives ACTEW of some revenue. However, ACTEW benefits to the extent that there are no meter provision, meter-reading or associated maintenance costs.

Key issues with unmetered properties are:

- Would the benefits of retrofitting existing properties with meters and requiring separate metering for all new properties exceed the costs?
- Is the deeming approach appropriate?

In relation to the first point, ACTEW has argued that the cost of metering existing unmetered properties on an individual basis would be prohibitive. The commission accepts that this is the case.

In respect of new multistorey units, the commission also notes that the cost of providing individual meters at points which are accessible for external reading is currently prohibitive for many developments. However, it is possible that in future remote meter-reading technology may mean that physical access to meters for routine reading is not required. The commission therefore urges ACTEW to continue to closely review developments in metering, and to consider the installation of individual meters on customers’ premises, even if the meters are located at points where they cannot currently be read by ACTEW.

In respect of new townhouse and other developments which are not multistorey units, the commission believes that the absence of individual meters should be the exception rather than the rule.

The deemed use for flats of 175 kilolitres has a number of implications. Firstly, water customers residing within a unit do not face a marginal price for water and thus have no incentive to reduce consumption. Secondly, customers in low-use blocks pay exactly the same as those in high-use blocks.

The deeming practice reflects a legal requirement under the *Water Rates Act 1959* which the commission understands is no longer relevant under the *Utilities Act 2000*. The commission believes there would be benefits in moving to a similar approach to that used for strata title home units, whereby metered consumption is used to determine bills. This will address some equity issues, to the extent that low-use blocks of units will now pay less than high-use blocks, but more importantly will encourage more efficient water use.

ACTEW has indicated that it would be supportive of such an approach, following customer consultation.

The commission seeks feedback on this proposed alteration to billing arrangements for units.

9.6.4 Seasonal tariffs

In some jurisdictions water is priced according to the season in which it is consumed. Given that summer usage drives capacity requirements, and that a substantial proportion of summer usage is discretionary rather than essential, an economically efficient pricing structure might include higher tariffs during this period, and lower tariffs for the remainder of the year.

ACTEW has opposed seasonal pricing and argued that most of the costs of the water supply system, and, particularly, the sizes of dams and storages, are driven by average daily demand rather than seasonal demand.⁴⁰

The economic argument underlying seasonal pricing is that tariff differentials will encourage slightly more consumption in off-peak periods and less consumption in peak periods. There will therefore be a 'shift' in consumption between the two periods, the magnitude of which will depend

⁴⁰ ACTEW, August 2003, Pricing proposal, p. 24.

upon the relative prices and customers' elasticity of demand. This shift in consumption will defer the need to augment existing systems, particularly transfer mains, pumping stations and treatment plants, and reduce the sizing of new systems. It is argued that this benefit will outweigh the additional costs to society of the change in consumption patterns, including higher consumption in non-peak periods.

There are a number of issues associated with the introduction of seasonal pricing. As with daily billing, where billing periods span both peak and off-peak periods, assumptions will need to be made regarding the consumption in each period. A simple pro rata approach may not reflect true usage patterns and, depending upon billing cycles, some customers may be advantaged or disadvantaged accordingly.

The commission also notes that the effect of introducing daily pricing will be to encourage customers to have less 'peaky' usage—thus achieving some of the aims of a seasonal tariff.

On balance, the commission does not believe a strong case exists to introduce seasonal tariffs.

9.6.5 Trade waste tariffs

Due to the absence of a significant industrial base in the ACT, ACTEW currently has few customers discharging waste of more than domestic strength. No formal trade waste tariff arrangements are in place, although ACTEW has recently applied a specific charge under its Trade Waste Approvals System, tied to volume and strength of discharge.

ACTEW proposes to review whether a trade waste tariff will produce improvements in economic efficiency before considering the tariff structure, if any, that needs to apply. The commission supports ACTEW's proposed review, and expects to be kept up to date with the progress and outcomes of the review.

Based on a comment in the commission's 1998 price direction, ACTEW has requested that the commission establish the contestability or otherwise of trade waste purposes. For the purposes of clarification, the commission wishes to make clear that it does not intend to formally deem trade waste services to be contestable or otherwise. The comment in the 1998 price direction was simply a reflection of the fact that pre-treatment and carting

away of trade waste are currently options for most customers discharging trade waste effluent.

ACTEW has informed the commission that trade waste charges are negotiated between the consumer and ACTEW, which the commission encourages. However, the commission notes that discussions are currently under way regarding trade waste acceptance limits. While some trade waste will be above the limits set by Environment ACT and require special discharge permits, most will simply be imposing additional costs on ACTEW, be they increased treatment costs or increased maintenance costs associated with sewer degradation. Where they are material, these higher costs should be passed through to the relevant consumers.

9.7 Side constraints

9.7.1 ACTEW proposal

To accommodate the introduction of ACTEW's proposed tariff changes, ACTEW has proposed that there be no side constraints applicable in the first year of the regulatory period. For subsequent years, ACTEW has proposed a side constraint of CPI plus 9 per cent⁴¹ for standard households only⁴², to accommodate additional tariff structure changes—including reducing the step in pricing from 175 kilolitres to 130 kilolitres, reducing the price difference between the two consumption steps, and slightly increasing the fixed fee to \$130 per customer.

As discussed above, ACTEW has proposed to engage in a process of consultation to reform the existing wastewater tariff structure for non-residential customers. It is expected that this process will be undertaken in the first years of this regulatory period. While the likely outcomes of the process are unknown, it is possible that ACTEW's wastewater tariff structure will vary across the regulatory period.

⁴¹ ACTEW Corporation, September 2003, *Supplementary submission and response to the commission's issues paper, water and wastewater services*, p. 9. ACTEW's proposed tariff structure is based on a CPI plus 6 per cent price path over the regulatory period.

⁴² ACTEW has defined 'standard households' as the 90 per cent of domestic properties consuming fewer than 550 kilolitres per annum.

In addition to the change in the non-residential tariff structure which may occur over the regulatory period, ACTEW has identified a potential cross-subsidy of at least 10 per cent in the wastewater price for residential customers.

To address this cross-subsidy, ACTEW has proposed to increase the supply charge by CPI plus 5.3 per cent, while holding the fixtures charge constant.⁴³ ACTEW has proposed a side constraint of CPI plus 8 per cent.⁴⁴

9.7.2 Submissions

ACTCOSS has indicated support for the retention of side constraints:

ACTCOSS believes the inclusion of side constraints is another tool to assist households manage their water costs. ACTCOSS would be concerned however if side constraints were leading to maximized pricing to anticipate any fluctuations in revenue.⁴⁵

9.7.3 Discussion and conclusion

There are a number of outstanding tariff structure issues that need to be resolved before the commission is able to clearly identify whether side constraints are necessary and, indeed, how they will apply given a potentially differential tariff structure. As noted previously in this report, the commission has not endorsed the CPI plus 6 per cent and CPI plus 5.3 per cent revenue increases proposed by ACTEW; therefore, the magnitude of price adjustments may not have to be as large as ACTEW proposes.

The commission will therefore give further consideration to the issue of price side constraints prior to releasing its final report in March 2004. However, the commission would like to avoid using side constraints if at all possible, as they have the potential to create anomalies in the tariff structure.

⁴³ ACTEW's proposal is based upon its proposed price path for wastewater of CPI plus 5.3 per cent.

⁴⁴ ACTEW Corporation, September 2003, Supplementary submission, p. 14.

⁴⁵ ACT Council of Social Service Incorporated, August 2003, p. 7.

To assist in making its decision on side constraints, the commission will seek additional information from ACTEW identifying the cross-subsidy between residential and non-residential consumers of wastewater services in the ACT and how ACTEW intends to address this cross-subsidy, given the revenue settings in this draft price direction.

9.8 The commission's draft conclusion on tariffs

The revenue settings established in Section 8 provide a context for average changes in water and wastewater tariffs, which the commission proposes to set at CPI plus 2 per cent for water and CPI plus 0.5 per cent for wastewater.

Equally important to, or more important than, the change in average tariffs is the matter of the tariff structure itself. The water tariff structure will have implications for customer bills, demand for water, the environment, the need for new water storage in the ACT, concession arrangements, side constraints, and the demand for substitute products such as reuse water. Under proposal A the average cost curve, while initially declining, subsequently increases, resulting in an increased average price per kilolitre of water consumed for larger water consumers. Proposal B provides a declining average cost curve, resulting in the average price paid by consumers actually falling in response to increases in consumption. Under both approaches the commission has used an inclining block tariff with an increasing marginal price for water.

The commission emphasises that these two options are for discussion only and as such should not be seen as the price for water to apply from 1 July 2004. The commission is interested in obtaining views on the relative merits of each proposal from interested parties before providing ACTEW with some final guidance on tariff structures in its final decision, to be released in March 2004.

The commission has also set out alternative billing arrangements in the form of daily pricing, and invites comment from interested parties on the merits of this approach. The commission is also seeking input on the matters of side constraints, seasonal tariffs and wastewater pricing, prior to making its final decision.

10 Other regulatory issues

It is an important objective of any regulatory model that regulated businesses are provided with a continuous incentive to both reduce costs and improve service standards. In its issues paper, the commission canvassed two potential incentive mechanisms—an efficiency carryover mechanism to ensure that gains achieved by the business can be carried across regulatory periods; and the provision of a formal ‘S factor’ mechanism directly linking prices and service standards. Each of these is discussed below.

10.1 Efficiency carryover mechanisms

In the absence of an efficiency carryover mechanism, the benefits of any cost reductions achieved by the business are kept by the business for the length of the regulatory period only. Savings in the first year of the control period are effectively retained by the business for the full five years of the period while savings made in the last year are retained for less than one year. This results in a relatively strong incentive for the business to overperform in the early years of the control period while providing little or no incentive at the conclusion of the period.

As a general rule, the length of time for which the business is able to retain the benefits (or losses) associated with cost savings (or overruns) will determine the incentive created for the business to seek future cost savings. All other things being equal, increasing the length of retention will increase the incentive power created.

The establishment of any efficiency carryover mechanism needs to address carefully the following issues.

- How is an efficiency ‘gain’ defined? Should gains apply to cost factors over which the business has no control?
- How and when should gains be shared with customers?
- What is the impact of the mechanism on the incentive for cost efficiencies faced by the business?

- What are the implications for incentives for allocative, productive and dynamic efficiency?
- What are the implications for risk allocation and who is best placed to bear the risks?
- What are the risks that the mechanism will result in the business becoming financially unsustainable and not being able to continue operating?
- How simple is the mechanism to implement?
- How can the mechanism be designed to give the business equal incentives to make both operating and capital efficiencies?
- Will the mechanism need be applied symmetrically to cost overruns and cost efficiencies?
- Does the mechanism provide incentives for regulatory ‘gaming’ by the regulated business?
- How replicable is the mechanism, given that it would need to apply both where the business has suffered cost overruns relative to forecasts and where the business has achieved substantial cost savings?
- How can the regulator be assured that cost savings are not being achieved at the expense of service standards?

Benefit-sharing mechanisms can be broadly categorised under two headings. The first is the ‘glide path’ approach, whereby gains achieved in one regulatory period are gradually phased out in the next period. The second is a form of ‘rolling’ efficiency carryover mechanism of the type adopted by the Essential Services Commission of Victoria (ESCV), whereby gains in individual years are carried forward for a defined number of years. Each of these approaches is summarised below.

10.1.1 Glide path approach

A glide path approach can be implemented in a number of forms, each with different implications for incentive- and risk-sharing between the regulated business and the customer. However, the basic premise underlying the glide path approach is that the regulator uses a combination of price adjustments at

the commencement of a new regulatory period (P_0 adjustments) and price adjustments over the regulatory period (X factors), such that the business is permitted to ‘over-recover’ costs in the early years of a regulatory period and moves to a point where cost recovery is reached in the later or last years of a regulatory period.⁴⁶

The ‘over-recovery’ thus represents the additional benefit or reward that a business is able to retain above those captured in the previous regulatory period as a result of achieving efficiency gains beyond those targeted by the regulator.

The larger the P_0 adjustment and the faster the phase-out of gains, the weaker the incentive for the business to make efficiency savings, particularly towards the end of the earlier regulatory period.

Glide paths can be positive or negative, not only providing for benefits to be retained but also allowing for penalties to be imposed.

10.1.2 Rolling efficiency carryover

A rolling efficiency carryover mechanism results in the business bearing cost overspends or benefiting from cost efficiencies for a fixed period of time, independent of when the savings or cost overspends occurred within the regulatory period. Efficiency benefits or overspends are accounted for in the building-block revenue at a regulatory review as an addition or subtraction from the total revenue requirement, resulting in the benefits being extended beyond a single regulatory period.

The main purpose of the rolling efficiency carryover is to provide businesses with the incentive to make continuous efficiency savings over the regulatory period.

Some of the key issues which need to be considered before implementing a rolling efficiency carryover mechanism include:

- the length of the retention period, as this determines the magnitude of the incentive created

⁴⁶ ‘Straight-line smoothing’, as discussed in Section 8, is an example of a glide path approach.

- the interaction of the mechanism within the overall regulatory framework
- how efficiency can be measured to make an allowance for unexpected cost changes, if considered appropriate
- how cost overruns will be treated.

Options for the length of the retention period include the length of the regulatory period, which may be five years or as long as 10 years. The ESCV provides for a five-year retention period consistent with the length of the regulatory period.

10.1.3 ACTEW's position

In its August submission, ACTEW advised that it:

... sees merit in the introduction of an incentive carryover arrangement in the ACT and would be prepared to work with the Commission to develop a mechanism that would apply to efficiency gains made in the forthcoming regulatory period.⁴⁷

ACTEW indicated that it generally favoured the rolling efficiency carryover approach adopted by the ESCV, although it did not suggest that a mechanism be applied in respect of the 1999–2000 to 2003–04 period.

10.1.4 Public comment

In submissions received by the commission, the ACT Council of Social Service Incorporated acknowledged the benefits of an incentive carryover mechanism, but emphasised that carryovers should not result simply from cancelling or deferring projects.⁴⁸ No other submissions were received on this issue.

⁴⁷ ACTEW, August 2003, Pricing proposal, p. 74.

⁴⁸ ACT Council of Social Service Incorporated, August 2003, p. 8.

10.1.5 Position adopted by other regulators

The Australian Competition and Consumer Commission has adopted a rolling efficiency carryover mechanism in respect of operating costs (but not capital costs) in some of its more recent decisions.⁴⁹ The Essential Services Commission of South Australia has also articulated its intention to adopt a formal carryover mechanism in the electricity industry.⁵⁰

In its November 2002 issues paper on its electricity network price review in New South Wales, the Independent Pricing and Regulatory Tribunal (IPART) indicated that it was:

... not inclined to implement a forward looking efficiency carryover mechanism during the 2004 regulatory period. It is not clear to the Tribunal that the benefits to be gained from such a measure outweigh the practical difficulties associated with their implementation to justify their inclusion in the 2004 price control.⁵¹

However, in its May 2003 price determination for Sydney Water, IPART advised that it would consider the use of a four-year rolling efficiency mechanism for capital expenditure to apply to the 2005 price review period.

The Queensland Competition Authority has not taken a position on this matter.

10.1.6 Discussion and conclusion

The decision the commission needs to make is whether an efficiency carryover mechanism should apply in respect of the existing regulatory period and, if so, what form the mechanism should take.

Having carefully considered this issue, the commission has elected not to apply an efficiency carryover mechanism in respect of the 1999–2000 to 2003–04 regulatory period.

⁴⁹ For example, see the Australian Competition and Consumer Commission's *Final Decision GasNet Australia Access Arrangement Revisions*, November 2002.

⁵⁰ Essential Services Commission of South Australia, April 2003, *Electricity Distribution Price Review: Efficiency Carryover Mechanism Working Conclusions*.

⁵¹ Independent Pricing and Regulatory Tribunal, *Regulatory arrangements for the NSW Distribution Network Service Providers from 1 July 2004*, Issues paper, p. 39.

The prime reason for this decision is that the commission believes it is essential that arrangements for efficiency sharing be established before, or as early as possible within, the regulatory period in question. Both the regulated business and the regulator need to know the rules that will apply before operational and regulatory decisions that may affect the carryover mechanism are made. To apply a mechanism retrospectively is not consistent with the principles of minimising regulatory risk and uncertainty.

Furthermore, the objective of an efficiency carryover mechanism is to provide businesses with a continuous incentive to make efficiency savings during the regulatory period and to influence management decision-making accordingly. The retrospective application of an efficiency carryover mechanism is unable to influence such management behaviour because the relevant decisions have already been made.

As outlined in its 2003 issues paper, the commission supports in principle the application of an efficiency carryover mechanism and believes that such mechanisms may produce benefits both for customers and for regulated businesses. The commission, in consultation with ACTEW, therefore intends to develop a mechanism that would apply to efficiency gains made in the next regulatory period.

The commission notes ACTEW's support for a rolling efficiency carryover mechanism of the type adopted by the ESCV. The commission will consider the application of this approach in the ACT but notes that the ESCV's mechanism relies on a number of other regulatory assumptions and decisions being taken—including the assumption that operating expenditure in the second-last year of a regulatory period is efficient and can be used as a base for determining expenditure in the next regulatory period.

These and other relevant issues will be discussed further with ACTEW.

10.2 The service quality factor

The commission must decide whether to include a service quality factor, or 'S factor', in the adjustment mechanism of ACTEW's maximum allowable revenues for the coming regulatory period.

The 2003 issues paper sought:

- comments on the ways in which customer preferences and priorities can best be reflected in a service quality incentive mechanism
- views about appropriate measures of customer service performance
- views on the introduction of a service quality factor which would allow ACTEW to collect additional revenue where it exceeds predetermined service quality targets at the request of consumers.

ACTEW has supported in principle the idea of the introduction of a service quality factor as part of the regulatory arrangements. This support is qualified by its citing of the commission's comments in the issues papers that the development of such a service incentive scheme would require the resolution of several issues, including:

- the appropriate measures of service performance to use
- the practicalities of obtaining data on these measures
- the levels at which the incentive rates should be set
- how the impact of external events (such as bushfires) on service should be treated.

ACTEW considers that such issues are best resolved over the next regulatory period and is prepared to work closely with the commission in the development of an appropriate S factor regime or some other mechanism. ACTEW believes that the results from its 'willingness to pay' study will provide useful input into the development of a service incentive scheme via a service quality index.

10.2.1 The commission's decision

The commission currently has very little information regarding which service indicators would be appropriate to include in an S factor. The commission will therefore work with ACTEW and the community to develop the reporting information required for an S factor during the first year of the next regulatory period.

Furthermore, after the information requirements are finalised, the commission will embark on a paper trial monitoring the S factor over the remaining years of the regulatory period. The costs and benefits of an S factor will be reviewed before confirming its introduction as part of the adjustment mechanism for the regulatory period commencing in 2008.

11 Impact on customers

The Treasurer's reference requires the commission to consider the impact of its decision on disadvantaged consumers, low-income earners and large households, and the adequacy of concessions for services intended to address any perceived disadvantages suffered by these groups. The commission is also required to consider the impact of the pricing decision on ACTEW's community service obligations (CSOs) and, specifically, the funding required to meet these objectives.

11.1 Financial impact on customers

The financial impact on individual customers will depend on a number of factors, of which the proposed water price path adjustment foreshadowed by the commission is just one. As noted in Section 9, there are a number of possible tariff models that can be adopted. Even if the existing model is retained, with a gradually declining average cost of water, decisions will need to be taken as to whether the fixed connection charge changes in the same proportion as the volumetric charge.

In examining the broad impact of the commission's decision it has been necessary to make some simplifying assumptions regarding the way ACTEW will structure its water and wastewater charges.

Table 11.1 provides a summary of the effect of the commission's decision on individual customer bills. It is based on the following assumptions:

- the CPI is 2.5 per cent
- no changes are made to the tariff structure and all tariffs change by the X factor
- there is no impact on tariffs from the move to daily pricing
- consumption patterns remain the same
- the Water Abstraction Charge (WAC) is excluded from calculations.

Table 11.1 Changes in water and wastewater bills, excluding WAC

Current consumption kL	2003–04 water bill	2004–05 water bill (4.9% increase)	2003–04 wastewater bill	2004–05 wastewater bill (3% increase)	2004–05 total bill	Percentage increase in total bill
0	\$125.00	\$131.13	\$354.20	364.83	495.95	3.50%
50	\$146.50	\$153.68	\$354.20	364.83	518.50	3.56%
100	\$168.00	\$176.23	\$354.20	364.83	541.06	3.61%
150	\$189.50	\$198.79	\$354.20	364.83	563.61	3.66%
200	\$226.50	\$237.60	\$354.20	364.83	602.42	3.74%
250	\$279.00	\$292.67	\$354.20	364.83	657.50	3.84%
300	\$331.50	\$347.74	\$354.20	364.83	712.57	3.92%
350	\$384.00	\$402.82	\$354.20	364.83	767.64	3.99%
400	\$436.50	\$457.89	\$354.20	364.83	822.71	4.05%
500	\$541.50	\$568.03	\$354.20	364.83	932.86	4.15%
750	\$804.00	\$843.40	\$354.20	364.83	1 208.22	4.32%
1 000	\$1 066.50	\$1 118.76	\$354.20	364.83	1 483.58	4.43%

Given the assumptions above, all customers (including large and small households and all businesses) will face a 4.9 per cent nominal increase in their water bills and increases of between 3.50 per cent and 4.43 per cent in their total bills, depending upon the relative size of their water bills compared to wastewater bills. Actual outcomes will be different from the assumptions made above and, in particular, changes to tariff structures have the potential to shift individual bills significantly.

In general, relative increases in the fixed charge will create a greater percentage change in bills for small water users, compared to relative increases in the volumetric charge. A similar outcome can be expected under the current tariff model, should the level of consumption at which the higher marginal rate applies be reduced, thereby causing percentage increases in prices for small users at a rate higher than for larger users.

Section 9 discusses the impact of possible changes in tariff structure on individual customers and seeks submissions from all interested parties on this issue.

The ACT Government has indicated that the WAC will increase from 10 cents per kilolitre to 20 cents per kilolitre on 1 January 2004 and then to 25 cents per kilolitre on 1 July 2004. The effect of including the WAC in the

bill calculation, assuming that half of the 2003–04 consumption occurs prior to 31 December 2003 and half occurs after the change in the WAC and the price adjustments allowed by this draft decision, is set out in Table 11.2.

Table 11.2 Changes in water and wastewater bills, including WAC

Current consumption kL	2003–04 water bill (including WAC)	2004–05 bill (including WAC)	Increase in water bill	Percentage increase in water bill	Total bill 2004-05 (including WAC)	Percentage increase in water and wastewater bill
0	\$125.00	\$131.13	\$6.13	4.90%	\$495.96	3.50%
50	\$154.00	\$166.18	\$12.18	7.91%	\$531.01	4.49%
100	\$183.00	\$201.23	\$18.23	9.96%	\$566.06	5.37%
150	\$212.00	\$236.29	\$24.29	11.46%	\$601.12	6.17%
200	\$256.50	\$287.60	\$31.10	12.12%	\$652.43	6.83%
250	\$316.50	\$355.17	\$38.67	12.22%	\$720.00	7.35%
300	\$376.50	\$422.74	\$46.24	12.28%	\$787.57	7.78%
350	\$436.50	\$490.32	\$53.82	12.33%	\$855.15	8.15%
400	\$496.50	\$557.89	\$61.39	12.36%	\$922.72	8.47%
500	\$616.50	\$693.03	\$76.53	12.41%	\$1 057.86	8.98%
750	\$916.50	\$1 030.90	\$114.40	12.48%	\$1 395.73	9.84%
1 000	\$1 216.50	\$1 368.76	\$152.26	12.52%	\$1 733.59	10.37%

As can be seen above, the increase in the WAC combined with the forecast effects of the CPI and the 2 per cent real increase in bills allowed by this draft price direction will result in most customers' water bills increasing by over 10 per cent in 2004–05 compared to 2003–04 (assuming no other changes).

Including both water and wastewater changes, a customer consuming 250 kilolitres of water will incur a price increase of 7.4 per cent and a customer consuming 300 kilolitres of water will incur a 7.8 per cent increase. The median level of water consumption in the ACT is 280 kilolitres per annum. In effect, the overall increases proposed will cost the median household approximately an extra \$1.00 in water and wastewater charges per week.

For households in the ACT reliant on government pensions or falling into similar low-income groups, whose weekly income is in the range of \$300 to \$350, an additional \$1.00 per week in water and wastewater cost would represent 0.3 per cent of weekly income. However, with the average number

of persons in the home around two⁵², and assuming per capita consumption of 85 kilolitres per year (50 per cent higher than the estimated consumption to meet non-discretionary needs), the overall increase in costs is more likely to be in the range of an extra \$0.75 per week. These are not insignificant amounts for some households and the commission as part of its final report will examine in more detail aspects of the impact of price changes on individual household types. It is important to note, however, that there will be real increases in the prices for water and wastewater services under a tariff option that adopts a pricing structure similar to that currently used by ACTEW.

The impact on lower-income households who consume less than 360 kilolitres of water per annum will not be as adverse under the alternative pricing proposal A outlined in section 9. However, there will be a much greater impact on families with large non-discretionary consumption requirements (that is, above 360 kilolitres). Thus, depending on the tariff structure adopted, the concessions offered by the ACT Government may need to be adapted to meet a different tariff regime if this is the preferred option for the future.

11.2 Concessions

11.2.1 Current arrangements

Responsibility for determining concession arrangements lies with the ACT Government concessions scheme administered through the Department of Disability Housing and Community Services. Three types of concessional arrangements are offered in respect of water and wastewater charges.

Firstly, certain concession cardholders are eligible for a rebate on the fixed component of water and wastewater bills where the cardholder is an owner or part-owner of the property in question.⁵³ The maximum rebate is

⁵² ABS HES Survey, catalogue number 6535.0, 1998-99

⁵³ The ACT Council of Social Service Incorporated has expressed concern to the commission that details of the concession arrangements are not well publicised by ACTEW, and that potential applicants must contact ACTEW directly to seek information on concessions rather than being able to access information from the website. The commission agrees with this

65 per cent of the fixed water and wastewater charges, which provides for a total rebate of \$311.48 out of a total bill of \$479.20.

Secondly, property owners using life-support equipment which depends upon a fresh supply of water are also eligible for a reduction in water usage charges.

Finally, schools and ecclesiastical properties receive a discount on their water usage charges. Rather than the volumetric charge increasing from 43 cents per kilolitre to \$1.05 per kilolitre at 175 kilolitres consumption, for these properties the charge increases only to 52.5 cents per kilolitre, a 50 per cent discount.

At present, ACTEW grants approximately \$6 million in rebates in each financial year. The full cost of these rebates is reimbursed to ACTEW by the Government so that the net cost to ACTEW is zero.

The rebates apply to ACTEW's water and wastewater charges and do not apply to the WAC. However, the commission has recommended that the Government give consideration to allowing the Essential Services Consumer Council to provide access to some extra concession payments in exceptional cases, where warranted. This would be allowed on a case-by-case basis only, rather than through a blanket concession as is currently applied to all concession card holders.

11.2.2 Submissions on current arrangements

ACTEW's submission did not address the issues of concessions or CSOs. However, ACTCOSS has expressed a number of views, including the following.

- ACTEW should increase its assistance for households living with disadvantages, by providing adequate concessions and rebates that recognise hardship.

view, and will be discussing with ACTEW the practicality of ACTEW providing this information on its website.

- Funds raised by an additional third step for water could be used to support water conservation measures targeting people on low incomes and people living with disadvantage.
- The commission should recommend to the Government that the current levels of concessions are inadequate and should be increased.
- Research needs to be undertaken into usage patterns in order that information on the amount of water required to sustain various customer classes is available.

11.2.3 Discussion

Most water authorities offer concession arrangements. Table 11.3 compares the key concession arrangements across a sample of water authorities.

The table shows that concessions in the ACT, while below those offered by Sydney Water, are substantially higher than those offered in Melbourne and in South Australia. However, the eligibility criteria in the ACT are relatively tight, and the commission notes that the requirement for home ownership in order to receive a concession is different from that in Victoria (although consistent with Sydney Water's and SA Water's arrangements).

The commission notes ACTCOSS's view that current levels of concessions are inadequate and should be increased. The commission also notes that the Government, as part of its water strategy, has foreshadowed additional concessions for water-saving devices.

The difficulty faced by the commission (and ultimately by the Government) is the need to substantiate arguments for additional concessions. To this end, the commission will work with ACTCOSS prior to its final decision in order to consider the merits of ACTCOSS's arguments and how these arguments might now be applied in the context of the Government's announced water strategy.

Table 11.3 Concessions across Australian jurisdictions

Authority	Concession available to	Calculation of concession	Maximum amount of concession
ACTEW	Pensioner Concession DVA Gold Card Holders Must own and occupy property	65 per cent of fixed charge for water and wastewater	\$311.48
Sydney Water	Pensioner Concession DVA Gold Card Holders Must own and occupy property	100 per cent of quarterly water service charge 74 per cent of quarterly wastewater charge	\$349.08
City West Water (western Melbourne)	Health Care and DVA Gold Card holders Pensioner Concession No ownership requirements	Health Care and DVA Gold: 50 per cent off water usage charge up to \$16.88 per quarter and 50 per cent of sewerage disposal charge (up to \$16.88 per quarter) Pensioner: \$10.55 off water fixed charge and 50 per cent of water usage charge up to a combined total of \$16.88 per quarter \$11.47 off wastewater fixed charge and 50 per cent off wastewater disposal charge up to a combined total of \$16.88 per quarter	\$135.00
SA Water	Pensioners State Concessions TPI Pensioner EDA Pensioner War Widow Confirmation of concession card entitlement Must own property	Up to 60 per cent of water fixed and usage charges to a combined maximum of \$90 per year plus up to 60 per cent of wastewater charges to \$95 per year	\$185

DVA = Department of Veterans' Affairs; EDA = extreme disablement adjustment; TPI = totally permanently disabled

In relation to the structure of the concession arrangements the commission notes that, because the rebates are applied on a percentage basis, as charges increase with inflation the rebate amounts will increase commensurately. The commission believes that this is a desirable feature of the concession arrangements. The commission also believes that an emphasis on applying the concessions to the fixed charge rather than the volumetric charge is appropriate, as consumers will still face appropriate price signals in relation to their water use.

However, any major change to tariff structures, such as the option outlined by the commission in Section 9, will mean that concession arrangements will need to be reviewed. For example, if the water fixed charge falls,

concessions will need to be applied to the usage charge in order that customers are not disadvantaged relative to their current position.

In relation to the requirement for home ownership before concessions are applied, the commission has been advised that this requirement stems from provisions imposed in the former *Water Rates Act 1959* when water charges were levied on the basis of property values. These provisions are not reflected in the *Utilities Act 2000* (Utilities Act), which now applies. Given that it is likely that a large proportion of disadvantaged and needy customers will not be home owners, the commission believes that strong consideration should be given to extending concessions to persons who are not home owners.

Finally, the commission understands that the usage rebate for schools and ecclesiastical establishments also harks back to the *Water Rates Act 1959*. The commission is concerned that the relatively large usage discount applying to these properties may not send appropriate signals regarding water use. Further, it is not clear that these properties are more ‘deserving’, from an equity viewpoint, to receive rebates than are other community institutions, such as hospitals, government buildings or charities. The commission would welcome comment on this matter.

11.2.4 Conclusions

The commission believes that:

- concession arrangements should be reviewed concurrently with considerations of changes to ACTEW’s tariff structure
- the Government should give consideration to changing the eligibility requirements so that home ownership is not a prerequisite to receiving a concession rebate
- the Government should review concession arrangements for schools and ecclesiastical properties.

11.3 Community service obligations

Although reimbursed for the cost of offering discounted charges to the groups identified above, ACTEW is not reimbursed by the ACT Government for undertaking any formal CSOs.

ACTEW does undertake a number of activities which have broader community benefit or are conducted consistent with ACT Government 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 believes that 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.

ACTEW undertakes activities, including water reuse and electricity generation from mini-hydro schemes, which it has interpreted as being required under its environmental obligations in the Utilities Act and government policy statements. The treatment of these activities is discussed in Sections 6 and 8.

Essentially, the approach adopted by the commission is to identify the costs (and revenue) associated with these activities, so that the community may be informed of what costs are being directly paid by water and wastewater revenue users as a consequence of these government initiatives.

The commission notes that the ACT Government has announced its draft water strategy, and that as part of this strategy it will require ACTEW to undertake certain actions and meet certain targets, including for the reuse of water in the ACT. The commission's approach will be to allow the costs of these social benefits to be formally identified so as to allow informed decision making on the relative merits of individual projects.

12 Impact on the environment and environmentally sustainable development

12.1 Introduction

Section 20 of the *Independent Competition and Regulatory Commission Act 1997* (ICRC Act) requires the commission to have regard to ecologically sustainable development in making a price direction. Under section 20(4) of the ICRC Act, this includes consideration 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 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.

12.2 Demand management

The recent drought and bushfires have focused attention in the ACT on the need to explore means to constrain the demand for water, both for reasons of economic efficiency and to protect environmental values. The damming and diversion of natural watercourses to secure a supply of water for urban areas has significant environmental impacts. There is an increasing level of community and government concern about such impacts.

This focusing of attention has been highlighted by the recent release of the ACT Government's draft water strategy. In this public policy statement, the Government has set out a number of targets, including the reduction of per

capita consumption by 25 per cent by 2023, with the objective of increasing the efficiency of water use in the ACT.

Demand for water is the outcome of a number of different factors, including:

- annual rainfall trends and other climatic conditions
- the nature and number of new dwellings constructed and the water use requirement within the dwelling and externally
- the establishment of new business activities requiring access to water
- population growth and changes in household size
- long-term trends in appliance purchase and design
- long-term trends in industrial and agricultural uses of water
- public attitudes towards water conservation
- the use of quantitative restrictions on water use
- the relative price of water and the magnitude of change in that price.

The major implication of this draft decision for the demand for water is in relation to pricing. The revenue outcomes proposed in this draft decision and draft price determination allow for a small real increase in water bills on average. This increase reflects the revenue requirements of ACTEW to meet its water reticulation and treatment obligations. Of itself, this increase is unlikely to materially affect demand.

However, as discussed in Section 9, the commission has put forward for consideration two alternative pricing structures which would have somewhat different impacts on demand for water. These pricing structures, combined with the increase in the Water Abstraction Charge (WAC) to take effect from 1 July 2004, could have a significant impact upon demand, particularly at the higher levels of consumption.

These changes in tariff structure could provide a greater incentive to reduce demand, although the exact effect is difficult to estimate. This difficulty is created by the limited availability of information on the elasticity of demand at individual levels of consumption.

Studies on the elasticity of demand for water have indicated an inelastic demand profile. A 1997 study undertaken by ACTEW indicates that in the ACT the short-term average demand elasticity of water is -0.22 .⁵⁴ The implication of this is that a 10 per cent increase in price would result in only a 2 per cent decrease in consumption. To achieve a 20 per cent reduction in consumption would require a doubling of the price.

This elasticity figure is generally consistent with water elasticity studies undertaken for other locations. However, the commission notes that the current increased public awareness of environmental issues and focus on water conservation may have caused a shift in elasticity in more recent times. ACTEW has suggested that it is also likely that the longer-term elasticity effects will be greater as, over time, customers make changes to the types of gardens they establish and maintain and switch to appliances that use less water.

In the ACT context, an additional incentive to reduce demand is created by the WAC. Although demand management is not a key objective of the WAC, the Government's plan to increase the WAC to 20 cents per kilolitre from 1 January 2004 and 25 cents per kilolitre from 1 July 2004 will assist in reducing water usage.

It is generally accepted that tariff structure changes are far more likely to achieve water savings when accompanied by other measures. The range of demand management tools can include:

- voluntary and mandatory restrictions
- public awareness and community education
- schemes to provide assistance to purchase and install water-efficient appliances
- the promotion of alternative sources of supply, including stormwater, rainwater tanks and reuse water, where possible.

At present, some of these demand management tools are in place in the ACT. Stage 3 water restrictions were introduced in the ACT on

⁵⁴ Graham and Scott, 1997.

1 October 2003. ACTEW has put in place a public awareness campaign to complement the restrictions. Public awareness of water issues is already high as a result of the bushfires and low rainfall in 2002–03. The implementation and proposed increase in the WAC is likely to have some impact on demand, although, as the commission has commented elsewhere, this will not be substantial. The release of the ACT Government's draft water resources policy (discussed below) has also given water issues a higher priority.

A rebate on the installation of rainwater tanks has been available in the ACT since 1997. The ACT Government also offered an 'AAA' showerhead rebate under a program that ran for two months in late 2002 and early 2003. More recently, the Government has announced that from 2004 it will offer a number of incentives to households to reduce consumption, including:

- a rebate for AAA showerheads
- a subsidy in support of a household domestic water audit or tune-up (householders will be given written advice on water efficiency, the fitting of an AAA showerhead, up to two tap valves or flow regulators and up to two tap washers)
- a subsidy for the costs of fitting an AAA-rated 6/3-litre dual-flush toilet in place of a single-flush toilet
- a subsidy in support of a garden audit or tune-up, providing written advice on garden water efficiency and provision of products to save water
- a (revised) rainwater tank rebate program, which will include the waiving of development and plumbing approval fees; a scaled subsidy program for a greater range of tank sizes; and an additional subsidy for connecting a tank to a toilet or washing machine cold water inlet.

The Government will also investigate bulk buying arrangements to ensure that Canberrans can purchase rainwater tanks at the lowest price possible.

In a submission to the commission from the Conservation Council of the South East Region and Canberra Incorporated, it has been suggested that consideration be given to bringing together a range of demand management programs for all utilities, to promote efficiency and take advantage of any potential synergies between these programs.

The commission has supported the general objective of this proposal in its recent draft decision on distribution electricity services in the ACT, released in November 2003, and considers that one of the potential community benefits of the ACTEW and AGL joint venture could be unlocked by such joint programs. The commission reaffirms this support and will give further consideration to this proposal, in consultation with relevant interest groups, before the final decision on water and wastewater is released.

12.3 Think water, Act water

Over recent months the ACT Government has released a draft water policy and, more recently, its draft strategy for sustainable water resource management. The strategy, *Think water, Act water*, outlines the broad direction, targets and objectives for the management of the territory's water resources.⁵⁵ A number of proposals are relevant to this draft decision and draft price direction, including statements that the ACT Government will:

- investigate alternative supply options other than a new dam, to ensure that infrastructure is in place to secure water supply to the ACT and region in the longer term (50 years)
- develop a plan to increase the use of treated effluent from the current 5 per cent to 20 per cent by 2013
- investigate the adequacy of water treatment facilities for present and future needs
- challenge the community to decrease per capita potable water use by 12 per cent by 2013 and 25 per cent by 2023
- value water as a limited resource by adjusting the WAC
- incorporate measures to improve water run-off quality and reduce consumption of potable mains water in all new developments and significant redevelopments

⁵⁵ Water Resource Taskforce, Environment ACT, July 2003, *Water Strategy*.
Water Resource Taskforce, Environment ACT, November 2003, *Think water, Act water: a draft strategy for sustainable water resource management in the ACT*.

- develop strategies to encourage the retrofitting of existing dwellings, commercial spaces and landscapes for more effective water utilisation.

In 2004, the ACT Government intends to formalise the water resources policy as the Water Resources Management Plan under the *Water Resources Act 1998*. The commission will monitor and take into account in its final decision and price direction the development of the policy. To the extent that these initiatives will require action by ACTEW, the commission will have regard to the ACT Government's policy direction and the efficient costs that may have to be incurred by ACTEW to meet these objectives.

12.4 Environmental standards

Key environmental standards are established for ACTEW's operations by Environment ACT in accordance with the *ACT Environmental Protection Act 1997* and the Environmental Protection Regulations 1997. These legislative requirements impact on ACTEW in a number of ways, the most important being through the licence conditions applying to ACTEW's wastewater treatment plants, including the Lower Molonglo Water Quality Control Centre (LMWQCC).

The LMWQCC is a relatively advanced and sophisticated treatment plant. Discharges from the treatment plant (which represent around 55 per cent of potable water consumed) form part of the flow of the Murrumbidgee River. Compliance with licence conditions is generally high. ACTEW makes data on this performance available on its website on a monthly basis.

Other environmental requirements are imposed on ACTEW by the Consumer Protection Code, which requires sewage spillages into dwellings to be contained within one hour. Further, the *Territory Owned Corporations Act 1997* (TOC Act) requires ACTEW to conduct its operations consistent with the principle of ecologically sustainable development.

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.

Other than in its proposals to increase water recycling, ACTEW has not identified any specific areas where it intends to achieve environmental

standards significantly above those set by Environment ACT.⁵⁶ However, ACTEW has reported to the commission that it does expect to install a number of mini-hydroelectric (mini-hydro) schemes throughout its water network. The installation of these mini-hydro schemes has been driven by ACTEW's obligations under the TOC Act, but there are secondary benefits, including their ability to be used as flow control valves.

The draft decision allows ACTEW to recover its costs to meet existing levels of environmental compliance. In addition, the commission has allowed ACTEW the recovery of the costs of operating mini-hydro schemes on the main supply pipelines. The costs of these activities will in part be recovered from the sale of electricity, and in part from water prices through a recovery of costs linked to the control of water flows.

12.5 Reuse water

ACTEW has developed a number of reuse water programs, including the Fyshwick effluent reuse system and the Southwell Park effluent reuse plant. ACTEW also proposes additional operating and capital expenditure over the next regulatory period on these existing reuse water projects and an additional reuse facility in Belconnen.

The commission notes that the draft water resources policy targets an increase in effluent reuse from 5 per cent to 20 per cent and that the TOC Act gives ACTEW an environmental objective. However, the projects proposed by ACTEW will not achieve the reuse target. Further, the TOC Act provides no specific guidance on individual projects that need to be undertaken.

The achievement of the reuse targets will therefore need to be the subject of more detailed discussion and debate between the ACT Government, ACTEW and the community. As the draft water resources policy notes, a plan to increase the use of treated effluent needs to be developed.

⁵⁶ ACTEW has indicated that it will inform the commission of customer willingness to pay for environmental standards following further analysis of the results of its 'willingness to pay' study.

The commission has outlined in Section 5 a process that it proposes to use to assess the cost-effectiveness of individual reuse projects. The ACT Government's policy objective identifies the desirability of increasing such activities. However, individual projects need to be considered carefully, as not all possible options available to ACTEW represent the best value for money. Consumers need to be aware of the relative cost of various reuse alternatives, especially when the community already fully funds best-practice reuse technology in the LMWQCC.

Currently, the commission has not set the price for water taken from the bottom of the LMWQCC (after treatment) and used for irrigation purposes, other than to note that it should at least meet the incremental cost of supplying the water from the treatment works. However, should there be further implementation of water reuse projects, the commission will need to consider the need to set a price for reuse water, and to assess the cost efficiency of alternative reuse projects designed to meet the ACT Government's objectives.

12.6 Conclusion

The commission believes that this draft decision will provide positive outcomes for the environment.

Firstly, the tariff arrangements provide for a real increase in average water tariffs which, combined with the increase in the WAC, will provide incentives to conserve water. The commission has also identified an alternative pricing structure which, if adopted, would provide even stronger price incentives likely to impact on demand for water and thus defer the need to extract additional water for consumptive purposes.

The draft decision provides sufficient revenue for ACTEW to continue to comply with existing environmental standards and to meet its requirements under the TOC Act.

Finally, the form of average price control applied by the commission ensures that, if the volume of water sold by ACTEW declines as a result of demand management activities, ACTEW is still able to recover its costs, the major part of which is fixed. Thus, ACTEW will not be financially disadvantaged by implementing demand management measures.

13 Major infrastructure investment

The commission's review of ACTEW's water and wastewater networks is part of the broader debate on the future of the ACT's water resources. The current drought conditions, the fires in the Cotter catchment and the water strategy statement released by the ACT Government have all highlighted the importance and precarious nature of the territory's water resources. This debate has also focused on the importance of ensuring that the territory continues to have access to enough water to support its population over the next 50 years.

The commission's terms of reference require it to consider the future capacity requirements for water, sewerage and trade waste. The commission's allowances for ACTEW's capital expenditure program, as outlined in Section 5, provide for what the commission considers to be an efficient level of investment over the regulatory period, consistent with ACTEW's projections. However, this investment is focused solely on maintaining the water and wastewater network at its current standard over the regulatory period, based on the growth assumptions outlined in Section 4. It does not give consideration to the drivers of major infrastructure investment—including, for example, the need for and funding of new dams.

As part of its review of ACTEW's capital expenditure program, Halcrow Pacific Limited provided the commission with advice that, given ACTEW's demand forecasts and the demand management processes in place, it did not consider that there was a need for significant expenditure on major infrastructure projects in the period 2004–05 to 2008–09.

Typically, the planning horizon for major infrastructure investment is longer than the price path regulatory periods used by the commission. For example, if a decision were to be taken to build a new dam or major pipeline, apart from delays resulting from legitimate environmental concerns, the completion of design and construction might take a number of years. In the case of a new dam, it might take several years to fill the dam if, at the same time, acceptable environmental flows were to be maintained. This delay could be further exacerbated by low rainfall in the period during which the dam was being filled.

It is therefore important to consider early the various options for ensuring supply, to ensure that all obstacles, including environmental, planning, construction and political matters, are appropriately addressed and water is available at the required time. This involves considerable judgement from decision makers in anticipating future growth parameters and the ability of the existing infrastructure to cope with expected demand.

13.1 Demand

The ACT Government's recently released draft spatial plan and the draft policy for sustainable water resource management note that, under current projections for population increase and the resultant demand for new dwellings as well as projected per capita water consumption trends, the existing water supply infrastructure will continue to meet demand until 2017. This figure is based on a number of assumptions about the ability of current infrastructure to meet demand under various climatic and social constraints.

13.1.1 Future demand for water

Factors affecting the short-term demand for water are reviewed in Section 4.2 of this draft report. However, in considering the factors affecting the long-term demand for water there are a number of issues which need to be taken into account. These were identified in Section 12.2.

A major component of the ACT Government's water strategy is the deferral of the building of major infrastructure through demand-side programs and the reuse of sewerage water to water playing fields and for other non-human consumption. These projects may have the effect of delaying the ACT's need for additional infrastructure and thereby result in securing the territory's water supply. The impacts of these options need to be considered not only in terms of the absolute level of demand for water in the territory but also in terms of the security of supply that the present catchments offer. This should also form part of the wider policy debate.

Assuming the ACT Government's water strategy is successful in deferring the need for the building of a major infrastructure project, it may be possible to adopt a 'do nothing' approach. This would avoid the environmental, political, engineering and funding issues that are raised by the possibility of undertaking a major infrastructure project.

13.1.2 Potential major infrastructure projects

Notwithstanding the possibility of successfully deferring a new infrastructure program through the measures set out in the ACT Government's water strategy, the commission is aware of other projects which have been proposed to ensure the security of water for the ACT, including:

- *increased use of the existing Cotter Dam.* The option of using the existing Cotter Dam is viable now that a water treatment plant is to be installed at Mount Stromlo as a result of the recent bushfires.
- *enlarging the existing Cotter Dam.* This option involves raising the existing Cotter Dam by means of an earth-fill embankment. Storage in the dam would rise from 4.7 gigalitres to 75 gigalitres.
- *Tennent Dam.* This option involves building a new dam on the Naas River downstream of its junction with the Gudgenby River. Tennent Dam would have a capacity of 150 gigalitres and would become our largest dam (Googong Dam has a capacity of 125 gigalitres).
- *Coree Dam.* This option involves building a new dam on the Cotter River upstream of the existing Cotter Dam, close to Vanity's Crossing. This dam would have a 70-gigalitre storage capacity, around the same as Corin Dam's.
- *Run of River—Naas weir.* This option involves building a weir and pump station on the Naas River at the site of the proposed Tennent Dam. Water would be pumped from the weir into Googong Dam at times of high flow in the Naas River, supplementing the Googong storage.
- *cross-border supplies.* There have been preliminary investigations of many cross-border options, such as transferring water from the Snowy Mountains' Burrinjuck and Blowering dams. The most promising option is to transfer water from Tantangara Dam to the Cotter system (by pipeline or tunnel to the Cotter catchment, or down the Cotter catchment via pipeline to the Mount Stromlo water treatment plant).⁵⁷

⁵⁷ This list is taken from the ACT Government's *Think water, Act water* paper.

Ultimately, a decision may need to be made by the ACT Government as to which of these or other options should be adopted to ensure the security of the ACT's water supply. Each of these options has a cost in terms of both direct financing and the wider environmental and social costs associated with a decision to adopt one option over another.

In the context of the present public debate on a future source of water for the ACT, it is appropriate for the commission to offer some comments on how the 'costs' might appropriately be recovered.

13.2 Costing environmental and social effects

Before discussing the more obvious construction costs of a major infrastructure project, it is appropriate to consider the wider social and environmental costs associated with such a project.

A major infrastructure project is likely to have long-term effects, not only on water supply but also in terms of impacts on the environment and in terms of social implications. The commission considers that it is imperative that in canvassing the various options for ensuring water supply to the territory appropriate analysis is undertaken to reflect not only the full financial cost of major infrastructure but also the associated social and environmental costs.

The environmental costs associated with a major infrastructure program could be considerable. The environmental costs of diverting and damming a watercourse relate not only to the area that will be flooded but also to the impacts of reduced water flow throughout the catchment system.

There are also a number of benefits from improving the security of supply to the territory which should not be overlooked in assessing the relative merits of a major infrastructure project of this type. Canberra's reputation as a 'garden city', the visual amenity associated with open green spaces, and tourism attractions including Floriade and the Australian Open Garden Scheme all have positive economic benefits which need to be considered when examining the net costs of new water supply options.

The environmental, social and economic costing of individual water supply projects should endeavour to provide a full exploration of all costs and benefits, be they positive or negative.

While the commission accepts that it is sometimes problematic to assess the full environmental and social impacts of a project, which are by their nature difficult to quantify, it believes that it is important to consider all the potential environmental and social costs and benefits in assessing the viability of individual projects.

13.3 Funding

In addressing the question of who will fund any major new infrastructure project in the ACT, there are three primary options (although there may also be variations within these options). The options are:

- Commonwealth Government funding
- ACT Government funding
- ACTEW funding

Some form of joint funding involving any two or more of these should not be dismissed as a possible funding arrangement.

13.3.1 Commonwealth Government funding

Should the Commonwealth Government decide to fully fund a new major infrastructure project, as it has in the past, the funding would in all probability be in the form of a direct payment to the ACT. The infrastructure would be fully funded and consumers in the ACT would simply be required to meet the costs of whole-of-life maintenance and operation of the facility. Effectively, the facility would be treated as a gift and there would be no need to repay the Commonwealth Government. This is a significant advantage in cost terms to ACT citizens of a decision by the Commonwealth Government to fund a major new investment.

From an operating cost perspective, ACT water consumers would be required to meet all the costs, as currently applies. However, to remove any requirement to meet at least the funding cost of the infrastructure would (as is shown below) have a major impact in terms of keeping prices for water down in the ACT.

13.3.2 ACT Government funding

If the infrastructure project were funded by the ACT Government, the Government has available to it the Water Abstraction Charge (WAC), through which it could fund the project. The WAC allows the Government to recover costs associated with the provision of water services which are not recovered through ACTEW. The formula recommended by the commission for determining the level of the WAC would allow for the inclusion of the cost of funding a major infrastructure project.⁵⁸

It would not be necessary for the ACT Government to recover the actual construction costs of the new infrastructure. Rather, recognising the infinite life of any of the new infrastructure projects proposed and the need to address intergenerational issues, the Government could treat the capital costs as a long-term bond on which it would need to recover an annual interest charge. It is this charge that would be recovered through the WAC, together with any other costs (not already recovered by ACTEW) that were needed to ensure that the asset is retained in ‘as-new’ condition in perpetuity.

As an example of the likely cost effect, assume that the risk-free rate of 5.82 per cent, as used in the calculation of the WACC for ACTEW, is the bond rate required to be recovered by the ACT Government. The cost of interest on a \$200 million project would be in the order of \$11.64 million per annum. This cost would be apportioned over the volume of the water consumed in the ACT. Assuming that the amount of water sold in a given year equalled 75 gigalitres⁵⁹, the increase in the WAC would be approximately \$0.155 per kilolitre over the level currently applied in the ACT.

Table 13.1 provides a summary of the potential impact of the increased WAC on individual bills at two consumption levels: 175 kilolitres and 300 kilolitres per annum.

⁵⁸ Independent Competition and Regulatory Commission, October 2003, *Final Report—Water Abstraction Charge*.

⁵⁹ This assumption is based on continued growth in consumption resulting in increased need for a major augmentation or supply project.

Table 13.1 Customer impacts using the WAC to fund a major infrastructure project

	Bill for the year ending 30 June 2003–04	Increase in total bill (\$0.355 WAC)	Percentage increase in total bill
Impact on current bill 175kL	226.5	253.66	11.99%
Impact on current bill 300kL	376.5	423.06	12.37%

Note: Bill for year ending 30 June assumes that the WAC is charged at \$0.10 for the first six months of the year and charged at \$0.20 for the last six months of the year.

Thus, to meet the ‘interest’ cost on a \$200 million project ACT consumers would be required to pay increased water charges which included the WAC of around 12 per cent to 12.4 per cent per annum.

If the ACT Government were required to purchase permanent water rights for a certain quantity of water as part of a project involving the transfer of water from elsewhere in the catchment, the costs of this purchase would also be included in the calculation of the WAC. However, as the water rights would be tradable on the temporary water market any profits from trading the water in the years when it was not required in the ACT would be deducted from the costs associated with the WAC. Also, as the permanent purchase of water would have an infinite life, a ‘rate of return’, not the full value of the water purchased, would be recovered on an annual basis through the WAC.

13.3.3 ACTEW funding

If the infrastructure project were fully funded by ACTEW, the same principles would apply as for the ACT Government. The only difference is that ACTEW would fund the project and retain the revenue. The rate of return that would be used would be at the regulatory weighted average cost of capital level, which is higher than the risk-free rate. Therefore, there would be some slight increase in the net cost per kilolitre of water consumed above the level that would apply should the ACT Government fully fund the project.

As the asset is assumed to have an infinite life and whole-of-life maintenance is provided and recovered through the price charged, there is no depreciation provision, the economic value of the asset being retained in as-new condition by way of the maintenance charges.

The likely impact of a \$200 million project on ACTEW’s charges is as set out below in Table 13.2. This table assumes that there are no major changes to the tariff structure.

Table 13.2 Customer impacts using ACTEW to fund a major infrastructure project

	Bill for the year ending 30 June 2003–04	Increase in total bill	Percentage increase in total bill
Impact on current bill 175kL	226.5	259.63	14.63%
Impact on current bill 300kL	376.5	433.30	15.09%

Note: Bill for year ending 30 June assumes that the WAC is charged at \$0.10 for the first six months of the year and charged at \$0.20 for the last six months of the year.

This funding model and that shown in Table 13.1 have not made an allowance for the ongoing whole-of-life maintenance costs. These are likely to be the same under both funding options. The overall impact of the funding of the project on water prices is between 14 per cent and 15 per cent under the ACTEW funding option.

There are other possible funding models involving the use of some form of private–public partnership model. Under this type of model, the parties may wish to recover the actual cost of the asset over time rather than treat the funding of the asset as a long-life bond. This will have the effect of increasing the costs borne by consumers in the period during which the value of the asset is recovered. Once this cost is recovered, on the basis that this type of asset has an infinite life and assuming appropriate whole-of-life maintenance funding, future users will not be required to pay for the asset (although they will enjoy a benefit).

This creates intergenerational inequalities but may be an appropriate option should the ACT Government or ACTEW be unable to raise the funds necessary to undertake the project themselves. As ACTEW is currently debt-free, raising debt to fund a major infrastructure project does not appear to present a problem.

13.4 Concluding comments

It is not the responsibility of the commission to make a decision as to what option should be adopted to provide the appropriate security for the ACT’s long-term water requirements, or when that decision should be taken.

However, at a time when there is considerable public debate about the need for some form of additional infrastructure and the likely impact of such an investment on prices for water, it is appropriate that the commission gives some broad guidance on this matter.

As can be seen from the simple examples outlined above, the funding of a new major infrastructure project is possible without causing an undue financial burden to current and future consumers, although possible price increases of 11 per cent to 15 per cent for a \$200 million project are not insignificant. The ACT Government, through the WAC, has a mechanism in place whereby it could fund and undertake the infrastructure project. Alternatively, ACTEW could fund and undertake the project at a slightly higher annual cost to consumers.

If rights to access water had to be purchased (for example, if the Tantangara option were used) there would be an offsetting benefit from the temporary sale of the water under those rights in the years in which it was not needed for the ACT.

Wider environmental and social costs and benefits will need to be considered, and where possible costed, as part of any evaluation of the options available. To the extent that these can be costed and require direct funding, they can be included in a pass-through of costs to consumers under the pricing models outlined above.

14 Financial impact on ACTEW

14.1 Ratio analysis

The commission considers that the financial settings used in the draft decision allow ACTEW to maintain a strong financial position over the course of the price direction. Table 14.1 presents ACTEW's financial ratios and corresponding rating for a series of areas.

Table 14.1 Financial viability and credit ratings

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Ability to service debt											
1. EBITDA interest cover	11.12	6.43	2.72	3.96	3.79	(36.31)	3.97	3.66	3.74	3.95	4.14
NSW Treasury ratings (2002)	AAA	AAA	BBB+	AA+	AA	AAA	AA+	AA	AA	AA+	AA+
2. Funds from operations interest coverage		9.09	1.77	3.76	4.22	(39.09)	3.72	3.48	3.69	3.94	4.10
Standard and Poors US ratings (1995)		AA	BBB	AA	AA	AA	AA	AA	AA	AA	AA
3. Pre-tax interest coverage	7.70	4.79	2.03	3.04	2.71	(26.13)	3.00	2.76	2.80	2.94	3.07
Standard and Poors US ratings (19%)	AA	AA	BBB	AA	A	<BB	AA	AA	AA	AA	AA
Ability to repay debt											
4. Funds flow net debt payback		4.83	5.26	3.65	4.00	4.04	4.26	4.26	3.99	3.71	3.40
NSW Treasury ratings (2002)		BBB+	BBB+	A+	A	A	A	A	A+	A+	AA
5. Funds from operations/total debt (%)		20%	5%	16%	18%	19%	14%	14%	16%	16%	17%
Standard and Poors US ratings (1995)		AA	<BB	A	A	AA	BBB	BBB	A	A	A
6. Debt gearing (regulatory value)	0%	41%	32%	31%	27%	33%	35%	35%	33%	31%	29%
NSW Treasury ratings (2002)	AAA	AA	AA+	AA+	AA+	AA+	AA+	AA+	AA+	AA+	AA+
Standard and Poors US ratings (19%)	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA
Ability to finance investment from internal sources											
7. Internal financing ratio	163%	85%	160%	111%	100%	18%	45%	143%	327%	225%	349%
NSW Treasury ratings (2002)	AAA	AA	AAA	AAA	AAA	B	B+	AAA	AAA	AAA	AAA
8. Net cash flow/capital expenditure	0.0%	232%	-34%	86%	146%	13%	35%	113%	309%	223%	335%
Standard and Poors US ratings (19%)	0%	AA	<BB	AA	AA	<BB	BB	AA	AA	AA	AA
NSW Treasury overall score and rating											
NSW Treasury total score (0-10)		7.75	7.25	8.75	8.25	6.25	6.25	8.25	8.50	8.75	9.00
Overall rating	0%	A+	A+	AA	AA	A	A	AA	AA	AA	AA+
9. Net debt (nominal \$'000)	-	140,170	115,653	112,452	103,723	142,097	159,255	158,312	151,334	145,108	137,269

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 (e.g. asset value and depreciation).
 - (ii) The information in this table should be read and understood only after reviewing Appendix 4 and the explanations and qualifications mentioned there.
1. EBITDA interest cover (EBITDA excl capital contributions) / net interest
 2. Funds from operations interest coverage (pre-tax funds flow + net interest) / (net interest)
 3. Pre-tax interest coverage (EBIT – capital contributions) / net interest
 4. Funds flow net debt payback (debt – cash assets) / (NPAT + depreciation + tax expense – tax paid)
 5. Funds from operations/total debt (%) see note below for definition of funds from operations
 6. Debt gearing (regulatory value) (debt – cash assets) / (regulatory value of fixed assets + working capital)
 7. Internal financing ratio (NPAT – cap cons + depreciation – dividends payable) / net capex
 8. Net cash flow/capital expenditure (%) (funds from operations – dividends) / (capex net of capital contributions)
 9. Net debt: total debt less cash short-term and long-term investments

The results of the commission's ratio analyses indicate that ACTEW's overall financial position and viability is strong, as reflected by its standing

relative to the indicative benchmark ratings supplied by Standard and Poor's and the New South Wales Treasury.

Appendix 1 Draft price direction

This appendix contains the commission's draft price direction in respect of water sewerage and trade waste services for the five-year period 1 July 2004 to 30 June 2009.

1. Period of direction

The provisions below will apply to the four-year period 1 July 2004 to 30 June 2008. The commission proposes that a new price direction be made to apply from 1 July 2008.

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 8 below:

- the provision of water services by ACTEW (including the availability of supply) to domestic commercial and industrial premises
- the provision of wastewater services by ACTEW (including the availability of supply) to domestic, commercial and industrial premises
- miscellaneous monopoly services provided by ACTEW, including
 - special meter readings
 - testing of water meters
 - the provision of rate certificates
 - tapping into water mains
 - installation of fire hydrants
 - disconnection
 - installation and removal of stop valve locking cover

- meter relocation.
- the provision of bulk water by ACTEW, including to Queanbeyan
- the provision of trade waste services and reuse water by ACTEW.

3. Average revenue control for water services and wastewater services

3.1 Water services

ACTEW must set prices for year t such that the reasonably forecast maximum average revenue per property received from the provision of water services (MAR Water_t) complies with the following formula:

$$\text{MAR Water}_t \leq (1 + (\text{CPI} + X_t)) \times \text{MAR Water}_{t-1}$$

where X_t is as follows:

Year t	X_t
2004–05	2.4 per cent
2005–06	2.4 per cent
2006–07	2.4 per cent
2007–08	2.4 per cent

$$\text{MAR Water}_{2003-04} = \$449.48$$

For each other year t

$$\text{MAR Water}_t = \frac{\sum^n (\text{Forecast sales volumes}_{t-1}^n \times \text{proposed tariffs}_{t-1}^n)}{\text{Forecast number of properties}}$$

where:

- there are n customer classes and revenue from the following sources is included in the calculation of MAR Water_t
 - general fixed and volumetric charges
 - miscellaneous services

- $MAR\ Water_{t-1}$ is the allowed (not actual) MAR Water calculated for year $t-1$
- 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.

The CPI figure will be determined using the following formula:

$$CPI_t = \frac{CPI\ March_{t-1} + CPI\ June_{t-1} + CPI\ Sept_{t-1} + CPI\ Dec_{t-1}}{CPI\ March_{t-2} + CPI\ June_{t-2} + CPI\ Sept_{t-2} + CPI\ Dec_{t-2}}$$

where:

- year t is the year for which tariffs are being set
- year $t-1$ is the previous year
- year $t-2$ is two years previous
- Dec is December and Sept is September.

For the purposes of this clause 3.1, ‘water services’ includes the provision of water services by ACTEW (including the availability of supply) to domestic, commercial and industrial premises but excludes reuse, trade waste services and miscellaneous services.

3.2 Wastewater services

ACTEW must set prices for year t such that the reasonably forecast maximum average revenue per property received from the provision of wastewater services ($MAR\ Wastewater_t$) complies with the following formula:

$$MAR\ Wastewater_t \leq (1 + (CPI + X_t)) \times MAR\ Wastewater_{t-1}$$

Where X_t is as follows:

Year t	X_t
2004–05	0.5 per cent
2005–06	0.5 per cent
2006–07	0.5 per cent
2007–08	0.5 per cent

MAR Wastewater_{2003–04} = \$497.84

For each other year t

$$\text{MAR Wastewater}_t = \frac{\sum^n (\text{Forecast sales volumes}_t^n \times \text{proposed tariffs}_t^n)}{\text{Forecast number of properties}}$$

where:

- there are n customer classes and revenue from the following sources is included in the calculation of MAR Water _{t} :
 - general fixed and fixture-based charges
- MAR Wastewater _{$t-1$} is the allowed (not actual) MAR Wastewater calculated for year $t-1$
- CPI is as defined in clause 3.1.

4. Side constraints

The commission is considering its position in relation to side constraints.

5. Trade waste services and reuse water

ACTEW must provide bulk water trade waste services and reuse water on the basis that customers pay at least the avoidable cost of supply.

6. Price approval process

This section is in draft form pending the commission's decision in respect of the compliance arrangements for the demand forecast as set out in Section 8 of this report.

6.1 ACTEW submission

On or before 1 March each year (or in the case of 2004 on or before 1 May) ACTEW must provide the following to the commission:

- proposed tariffs for the services which are subject to the MAR price controls in clause 3 of this price direction
- information to demonstrate to the commission that the proposed tariffs comply with the requirements of clauses 3 and 4 of this price direction, including:
 - ACTEW's calculation of CPI_t
 - ACTEW's forecast of the number of water and wastewater properties in year t
 - ACTEW's forecast of the volume of water to be sold in year t , by tariff band
 - ACTEW's forecast of the number of wastewater fixtures against which a charge will be levied
 - ACTEW's forecast of the number of miscellaneous services to be provided
 - a description of the assumptions underlying the forecasts, including justification for the relevant assumptions adopted
 - the total revenue that ACTEW anticipates to collect in year t from water services and wastewater services
 - the calculation of MAR_t for water services and wastewater services

- a customer impact statement, to be prepared in a format to be determined by the commission
- any other information specified by the commission that the commission reasonably requires to assess whether the proposed tariffs comply with this price direction. This may include an independent assessment of whether the forecasts of property numbers, the volume of water to be sold and the number of wastewater fixtures for year t are reasonable. In such a case the terms of reference for the independent assessment will be specified by the commission while the costs of the assessment will be borne by ACTEW.
- proposed tariffs and revenue in respect of water reuse, bulk water services, trade waste services, the Commonwealth subvention payment, and revenue from mini-hydroelectric activities.

6.2 Commission consideration

The commission will advise ACTEW prior to 1 April (or in the case of 2004 by 1 June):

- whether the tariffs proposed under clause 6.1 comply with this price direction and, if they do not comply, the reason that they do not comply. This reason may include that the commission does not believe the forecasts provided are reasonable.

or

- that the commission has been unable to determine whether the proposed tariffs comply with this price direction and, if so, what information the commission requires from ACTEW in order to form an opinion regarding whether they comply.

If the commission does not provide advice to ACTEW by 1 April (or in the case of 2004 by 1 June) in accordance with this clause 6.2, the proposed tariffs will be deemed to comply with this price direction.

6.3 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 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 what additional information the commission requires from ACTEW in order to form an opinion as to whether they comply.

If the commission has advised ACTEW that the tariffs do not comply or requires further additional information, the provisions of this clause 6.3 will continue to apply until the commission approves the tariffs as complying with this price direction.

6.4 Non-compliance

If by 1 June ACTEW has not proposed tariffs to the commission or the commission has not approved the proposed tariffs, then:

- if $(CPI_t + X_t) > 0$ prices for the relevant water or wastewater services will not change on 1 July
- if $(CPI_t + X_t) < 0$ the commission may change the tariffs for the relevant water or wastewater services on 1 July by $(CPI_t + X_t)$.

These tariffs will remain in place until the commission approves tariffs proposed by ACTEW consistent with the provisions of this price direction.

7. Pass-throughs

7.1 Pass-through events

ACTEW may, when submitting proposed tariffs to the commission in accordance with clause 6.1, seek to incorporate in proposed tariffs the effects of pass-through events.

A pass-through event is an event that has occurred or is reasonably expected by ACTEW to occur, that satisfies the materiality test in clause 7.6 and that is either:

- a change in taxes event
- an act of terrorism
- a major natural disaster
- a subvention payment event

or

- an augmentation event

7.2 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 1 April 2004 and satisfies the materiality test in clause 7.6.

Relevant taxes are any tax, rate, duty, charge or levy or other like or analogous impost that is imposed by or payable directly or indirectly by ACTEW to any authority of the Commonwealth of Australia, including goods and services 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 tax or duty
- 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.

7.3 Acts of terrorism or a major natural disaster

A terrorism or major natural disaster event is an act of terrorism or a major natural disaster (including but not limited to fire, flood or earthquake) which results in costs which are substantially different from those reasonably foreseen by the commission and ACTEW and incorporated in this price direction.

7.4 Subvention payment event

A subvention payment event occurs where for a particular year the subvention payment from the Commonwealth Government to ACTEW differs by more than \$1.5 million (in 2002–03 dollar terms) from the amount incorporated in this price direction.

The amounts incorporated in this price direction are:

Year t	Subvention payment (2002–03 dollars real)
2004–05	\$8.649 million
2005–06	\$8.649 million
2006–07	\$8.649 million
2007–08	\$8.649 million

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 \$1.5 million (in 2002–03 dollar terms) from the amount incorporated in this price direction.

7.5 Augmentation event

An augmentation event occurs where ACTEW is required to fund or contribute to the funding of a major augmentation to ACTEW’s water supply that was not included in the costs reasonably foreseen by the commission and ACTEW and incorporated in this price direction.

that was not included in the costs reasonably foreseen by the commission and ACTEW and incorporated in this price direction.

7.6 Materiality test

The effect of the change in taxes event, terrorism or major natural disaster event and augmentation event must be such that the annualised cost incurred by ACTEW or forecast to be incurred as a result of the event occurring is at least \$1.5 million (in 2002–03 dollar terms) in any one year above the costs reasonably foreseen by the commission and ACTEW and incorporated in this price direction.

The annualised cost in any one year is equal to the amount of additional operating expenditure incurred in that year plus 15 per cent of the additional capital expenditure incurred in that year.

7.7 Submission by ACTEW

Any submission made by ACTEW in relation to clause 7.1 must include the following information:

- details of the pass-through event concerned
- 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 (including supporting documentation where relevant)
- the pass-through amount proposed by ACTEW in relation to the pass-through event
- the basis on which the pass-through event is to apply.

7.8 Assessment by the commission

If the commission receives a submission under clause 7.1, the commission must decide whether the pass-through event specified in the statement will occur, occurred or is continuing. If the commission decides that the pass-through event will occur, occurred or is continuing the commission must decide the pass-through amount and the basis on which the

pass-through amount is to apply. Prior to making these decisions the commission may seek additional information from ACTEW.

The commission must notify ACTEW in writing of its decision under this clause by 1 April or within 20 business days of receiving additional information from ACTEW, whichever is later. If the commission does not notify ACTEW of its decision by this date, the commission is deemed to have approved ACTEW's proposed pass-through amount and the basis on which ACTEW proposes it will apply.

7.9 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 7.8, the commission must ensure that 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*.

7.10 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 under clause 7.1, 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.

7.11 No effect on compliance

A pass-through amount applied by ACTEW is not taken into account in deciding whether proposed tariffs comply with clauses 3 and 4 of this price direction.

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 2002–03 dollar terms).

Appendix 2 Reference issued by the ACT Treasurer

Australian Capital Territory

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

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

Reference for investigation under section 15

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

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

Specified requirements in relation to investigation under section 16

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

Stage I

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

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

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

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

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

Stage II

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

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

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

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

**Specified requirements in relation to investigation under section 20B
reset principles**

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

Specified requirements in relation to investigation under section 20C

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

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

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

Ted Quinlan
Treasurer
14 May 2003

Appendix 3 List of submissions

- First submission from ActewAGL, received in May (before the release of the commission's issue paper)
- Second submission from ActewAGL, received in August
- Submission from the Conservation Council of the South East Region and Canberra, received in August (this submission also addressed the commission's draft report on the Water Abstraction Charge)
- Submission from Mr Keith Sayers, received in August
- Submission from ACT Council of Social Service Incorporated, received in August
- Submission from Property Owners & Ratepayers Associations of the ACT Incorporated, received in August

Appendix 4 Financial indicators

The indicators of financial performance include notional credit ratings of regulated businesses. Indicative benchmarks supplied by Standard and Poor's (S&P) ratings group are used to estimate these ratings. The indicative ratios are used by S&P as one of its analytical tools in setting overall ratings and the commission uses the indicators in a similar manner: that is, as part of the overall financial analysis of the regulated business.

In Table 14.1 the commission has:

- provided financial ratios applicable to ACTEW in accordance with the methodologies used by S&P
- indicated the rating applicable for each ratio based on the bands published by S&P.

The calculation and assessments are those of the commission and not S&P. The actual rating process used by S&P is very broad, involving subjective judgements of industry risk and cost structures, not just financial ratios. S&P uses 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 be used as a guide rather than as blanket reasons for giving a certain rating. The overall ratings that have been or may be derived by S&P for a business cannot be derived from simple inspection of these ratios.

S&P divides its analysis into:

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

S&P's analysis incorporates an evaluation of a company's business and financial risks. In its guideline ratios, S&P provides financial indicator ranges for the 'above average' business position, the 'average' business

position and the ‘below average’ business position. The criteria are from S&P’s Corporate Finance Criteria for 1995.

The New South Wales Treasury rating indicators are from the report *The Capital Structure for NSW Government Trading Enterprises* produced in August 1994 by New South Wales Treasury as part of its financial policy framework for government trading enterprises, and are based on ratios provided to the New South Wales Treasury by S&P.

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

Glossary and abbreviations

ACCC	Australian Competition and Consumer Commission
ACTCOSS	ACT Council of Social Service Incorporated
ACTEW	ACTEW Corporation
ActewAGL	the joint venture between ACTEW and AGL (the Australian Gas Light Company)
AGL	Australian Gas Light Company
AMP	ACTEW's Asset Management Plan
BRW	Burns and Roe Worley
CAPM	capital asset pricing model
commission, the	Independent Competition and Regulatory Commission
CPI	the consumer price index, as published by the Australian Bureau of Statistics
CSO	community service obligation
DORC	depreciated optimised replacement cost
ESCC	Essential Services Consumer Council
ESCV	Essential Services Commission of Victoria
Halcrow	Halcrow Pacific Limited
ICRC Act	<i>Independent Competition and Regulatory Commission Act 1997</i>
IPARC Act	<i>Independent Pricing and Regulatory Commission Act 1997</i>
IPART	Independent Pricing and Regulatory Tribunal (New South Wales)
IT	information technology
LMWQCC	Lower Molonglo Water Quality Control Centre
MAR	Maximum average revenue
MMA	McLennan Magasanik Associates
Meritec	Meritec Proprietary Limited
mini-hydro	mini-hydroelectric
MMA	McLennan Magasanik Associates
NCC	National Competition Council
NCP	National Competition Policy
NECG	Network Economics Consulting Group
NPV	net present value
ODV	optimised deprival value
OTTER	Office of the Tasmanian Electricity Regulator
QCA	Queensland Competition Authority
RAB	regulatory asset base
RAT	return on assets test
S&P	Standard and Poor's

TOC Act	<i>Territory Owned Corporations Act 1997</i>
UMA	utility management agreement
Utilities Act	<i>Utilities Act 2000</i>
WAC	Water Abstraction Charge
WACC	weighted average cost of capital
WSMCAA	Water and Sewerage Managing Contractor Alliance Agreement

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