

**TRANSPARENCY STATEMENT
WATER AND WASTEWATER PRICES IN
METROPOLITAN AND REGIONAL
SOUTH AUSTRALIA
2007-08**



**Government
of South Australia**

South Australian Government
January 2007

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**TRANSPARENCY STATEMENT – PART A
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OVERVIEW OF THE TRANSPARENCY STATEMENT

This *Transparency Statement on Water and Wastewater Pricing in Metropolitan and Regional South Australia 2007-08* continues to:

- provide transparency in the setting of potable water and wastewater prices
- document and report on the matters considered in the Government's water and wastewater pricing decisions
- document the extent to which the Government's water and wastewater pricing processes have complied with the Council of Australian Governments' (CoAG) 1994 agreements and pricing principles

Additionally, this Transparency Statement documents the Government's progress in meeting its urban pricing obligations under the National Water Initiative (NWI).

The Government previously published Transparency Statements on urban water and wastewater prices for its 2004-05, 2005-06 and 2006-07 pricing decisions. Those Transparency Statements were referred to the Essential Services Commission of South Australia (ESCOSA) for its independent review of pricing processes. The Government has sought to address, to the extent possible, the findings of ESCOSA's *Inquiry into the 2006-07 metropolitan and regional water and wastewater pricing process* (November 2005), the National Water Commission's *2005 National Competition Policy Assessment of Water Reform Progress* (April 2006) and relevant NWI obligations.

In December 2006, the Government approved the following charges for 2007-08:

- 6.4% average increase in water charges
- 2.7% average increase in metropolitan wastewater charges
- 3.2% average increase in regional wastewater charges.

The Government also approved an in principle water and wastewater revenue direction to 2011-12, subject to annual review, that aims to:

- recover inflationary impacts
- ensure gradual adjustment in real water and wastewater charges towards 'upper revenue bounds', as defined in the CoAG agreements, through a 0.5% pa real increase in water charges and 0.5% pa real decrease in metropolitan wastewater charges
- recover impacts of Waterproofing Adelaide projects and programs through increased real water charges of 2.5% pa
- very gradually move regional wastewater charges towards charges applicable in the metropolitan area through ongoing adoption of CPI price increases.

In reaching these decisions, the Government took into consideration economic efficiency, equity, social justice and regional policies, customer impacts, sustainable water management initiatives and CoAG and NWI obligations.

The Government will refer this 2007-08 Transparency Statement to ESCOSA to assist it in undertaking an independent inquiry into the Government's pricing processes.

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ABBREVIATIONS

CoAG	Council of Australian Governments
CPI	consumer price index
CSO	community service obligation
DWLBC	Department of Water, Land and Biodiversity Conservation
EBITDA	earnings before interest, taxes, depreciation and amortisation
EEL	Environmental Enhancement Levy
EIP	environmental improvement program
EPA	Environment Protection Authority
ESC	Essential Services Commission (of Victoria)
ESCOSA	Essential Services Commission of South Australia
FTR	forecast target revenue
IPART	Independent Pricing and Regulatory Tribunal of New South Wales
KL	kilolitre (1000 litres)
LRMC	long run marginal cost
MYBR	mid year budget review
n.a.	not available
NRM	Natural Resources Management Board (previously Catchment Water Management Board)
NCC	National Competition Council
NCP	National Competition Policy
NWC	National Water Commission
NWI	National Water Initiative
OMA	operating, maintenance and administrative
Pa	per annum
RMIP	River Murray Improvement Program
ROA	return on assets
TBA	to be determined
TER	tax equivalent regime
SA Water	South Australian Water Corporation
URB	upper revenue bound
WELS	Water Efficiency Labelling Scheme
WACC	weighted average cost of capital
WPA	Waterproofing Adelaide
WWTP	wastewater treatment plant

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1 Introduction

1.1 Purpose

The main purpose of this 2007-08 Transparency Statement is to document, for public scrutiny, the Government's water and wastewater pricing decisions for 2007-08 and in principle revenue direction to 2011-12.

The Government will refer this 2007-08 Transparency Statement to the Essential Services Commission of South Australia (ESCOSA) to assist it in undertaking an independent inquiry into the Government's price setting processes.

This Transparency Statement will be published on the Government website www.treasury.sa.gov.au.

1.2 Description of SA Water

The South Australian Water Corporation (SA Water) is established under the *South Australian Water Corporation Act 1994* and is subject to the provisions of the *Public Corporations Act 1993*.

SA Water provides water and wastewater services to residential, commercial and industrial customers throughout metropolitan and regional South Australia. Most of its wastewater services are in the Adelaide metropolitan area, but they are also provided to: Stirling–Aldgate–Bridgewater–Heathfield, Gumeracha, the Iron Triangle cities, Murray Bridge, Mannum, Mount Gambier, Naracoorte, Millicent, Port Lincoln, Victor Harbour, Angaston, Mount Burr and Nangwarry.

SA Water manages three public–private service and maintenance contracts. The largest is a 15-year contract with United Water to manage, operate and maintain the metropolitan water and wastewater systems. Riverland Water also operates 10 water filtration plants for SA Water in regional South Australia. The final contract is for the operation of the Aldinga Wastewater Treatment Plant (WWTP).

SA Water operates in accordance with its Charter (SA Water, 2006, p 133) prepared by the Treasurer and the Minister for Government Enterprises following consultation with SA Water as required by the *Public Corporations Act 1993*.

SA Water also has a Customer Service Charter (available at www.sawater.com.au), which outlines the standards of service that customers might expect from SA Water. SA Water is currently in the process of preparing an updated version of its Customer Charter including expanded provisions relating to its commitment to its customers and their responsibilities to SA Water.

2 Processes

2.1 Introduction

This chapter outlines the processes undertaken and the matters considered by the Government in reaching its urban (metropolitan and regional) potable water and wastewater pricing decisions for 2007-08 and in principle revenue direction to 2011-12.

2.2 Institutional framework

The 1994 Council of Australian Governments' (CoAG) Strategic Framework requires separation of the roles of water resource management, standard setting and regulatory enforcement, and service provision (NCC, 1998, p 106). This separation principle is met through the following institutional arrangements.

The Minister for Government Enterprises, who is responsible for SA Water providing water and wastewater services, brings to Cabinet matters relating to water and wastewater price setting.

The Minister for Environment and Conservation is responsible for statewide water resource management policy and the Minister for the River Murray is responsible for matters relating specifically to the River Murray.

The Treasurer is responsible for budget deliberations and financial performance monitoring related to SA Water's functions. As part of the price setting processes, the Treasurer brings to Cabinet matters in relation to the 1994 CoAG Strategic Framework and the relevant National Water Initiative (NWI) clauses. The Treasurer, as the Minister responsible for ESCOSA, also refers water and wastewater pricing decisions to ESCOSA. ESCOSA is an independent statutory authority.

2.3 Price setting processes

In December 2006, the Government, through Cabinet, approved 2007-08 metropolitan and regional water and wastewater prices and an in principle revenue direction to 2011-12.

The Minister for Government Enterprises' Cabinet Submission outlined the methodology for setting 2007-08 water and wastewater prices. The methodology was consistent with previous Cabinet approvals, updated for relevant NWI obligations.

In accordance with the *Waterworks Act 1932*, water charges to apply to most SA Water customers in 2007-08 were gazetted in the South Australian Government Gazette on 7 December 2006. The commercial water property rate will be gazetted in June 2007.

Wastewater rates to apply to SA Water's wastewater customers in 2007-08 will be gazetted by June 2007, in accordance with the *Sewerage Act 1929*.

2.4 Matters considered by Cabinet

The following matters were considered by the Government when reaching its pricing decisions:

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- the 1994 CoAG Strategic Framework for water reform including the 1994 CoAG pricing principles
- the matters raised by ESCOSA in its independent *Inquiry into the 2006-07 metropolitan and regional water and wastewater pricing process – Final Report* (2006-07 Final Report), completed in November 2005
- the National Water Commission's (NWC) *2005 National Competition Policy Assessment of Water Reform Progress* (2005 NCP Assessment) completed in April 2006
- discussions between officers of the South Australian Government and the NWC in September 2006
- relevant clauses of the NWI concerning urban potable water and wastewater pricing.

In addition, the Government considered other matters that contribute to the public benefit, such as equity, social justice and regional policies and customer impacts.

Further, the Government considered a substantial new matter, viz, the Water Proofing Adelaide (WPA) strategy. WPA addresses the management, conservation and development of Adelaide's water resources to 2025. WPA will have significant positive environmental impacts. It encompasses a diverse range of demand management initiatives and new capital expenditure projects including recycling of wastewater and increasing use of treated stormwater.

Best estimates currently available of WPA's operating expenses, capital expenditure and revenue impacts have been included in the regulatory model. These impacts will become clearer over time as individual projects are submitted to Cabinet.

2.5 Transparency Statement

2.5.1 Part A

The Department of Treasury and Finance prepared this 2007-08 Transparency Statement (Part A) on behalf of the Treasurer. The Department of Water, Land and Biodiversity Conservation (DWLBC) was consulted during the preparation of this Transparency Statement. SA Water was consulted on the factual accuracy and completeness of information contained within this Transparency Statement.

2.5.2 Referral to ESCOSA

In accordance with Section 35 of the *Essential Services Commission Act 2002*, the Treasurer will refer an inquiry to ESCOSA on the 2007-08 metropolitan and regional water and wastewater price setting processes. This 2007-08 Transparency Statement (Part A) will be provided to ESCOSA for its inquiry, as occurred with previous Transparency Statements.

For the first time, ESCOSA will also be required to consider NWI obligations with regard to urban potable water and wastewater pricing, specifically with regard to clauses 65, 66(i) and (v). The terms of reference to ESCOSA are provided in Appendix 1.

ESCOSA's 2007-08 Final Report will form Part B of this Transparency Statement.

Statement of Compliance 1

The Government's institutional arrangements, price setting and independent review of price setting processes are compliant with the 1994 CoAG Strategic Framework and NWI obligations.

3 The CoAG Water Reform Agenda and the National Water Initiative

3.1 Introduction

This chapter outlines the 1994 CoAG Strategic Framework, relevant NWI obligations and independent assessments of urban water reforms in South Australia.

3.2 The 1994 CoAG Strategic Framework and Guidelines

In February 1994, CoAG endorsed the CoAG Strategic Framework for the efficient and sustainable reform of the Australian water and wastewater industry. The relevant clauses of the CoAG Strategic Framework are at Appendix 2.

The CoAG Strategic Framework emphasises the pricing principles of:

- consumption-based pricing
- full cost recovery
- the removal or transparent reporting of cross-subsidies
- the full disclosure of community service obligations (CSOs), where services are provided to customers at less than full cost.

CoAG agreed that water businesses should earn a real rate of return on the written down replacement cost of assets. (NCC, 1998, p 104)

The CoAG guidelines contain two core pricing principles of:

- avoiding monopoly rents, i.e. pricing not to exceed the upper revenue bound
- maintaining the ongoing commercial viability of the business, i.e. pricing to exceed the lower revenue bound.

The upper revenue bound is defined as the sum of:

- operating, maintenance and administrative (OMA) expenses
- return on assets — a real risk-adjusted return on assets
- depreciation — provision for asset consumption
- externalities¹
- taxes or tax equivalent regime (TERs).

The lower revenue bound is defined as the sum of:

- OMA expenses
- provision for future asset refurbishment/replacement
- dividends
- interest costs on debt
- externalities

¹ The guidelines specify that only the “environmental and natural resource management costs attributable to and incurred by the water business” should be reflected in the lower revenue bound. No requirement is specified for the upper revenue bound.

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- taxes or TERs.

The CoAG guidelines also require transparency in determining prices, particularly for CSOs, contributed assets, opening value of assets, externalities (including resource management costs) and TERs.

3.3 National Water Initiative

In June 2004, the Government signed the NWI, a 10-year reform agenda to improve the management of Australia's water resources.

The NWI aims to expand permanent trade in water, increase investor confidence by securing water access entitlements, improve water planning processes including the provision of water to meet environmental requirements, and to better manage water in urban environments.

The NWI builds on and expands the 1994 CoAG Strategic Framework and pricing principles. The NWI clauses relevant to urban potable water and wastewater pricing are summarised below. Refer to Appendix 3 for the full text.

- Clause 65: in accordance with National Competition Policy (NCP) commitments, the States and Territories agree to bring into effect pricing policies for water storage and delivery in rural and urban systems that facilitate efficient water use and trade in water entitlements, including through the use of:
- i) consumption based pricing
 - ii) full cost recovery for water services to ensure business viability and avoid monopoly rents, including recovery of environmental externalities, where feasible and practical
 - iii) consistency in pricing policies across sectors and jurisdictions where entitlements are able to be traded.

Metropolitan

- Clause 66(i): continued movement towards *upper bound pricing* by 2008.

Rural and Regional

- Clause 66(v): full cost recovery for all rural surface and groundwater based systems, recognising that there will be some small community services that will never be economically viable but will need to be maintained to meet social and public health obligations:
- a) achievement of *lower bound pricing* for all rural systems in line with existing NCP commitments
 - b) continued movement towards *upper bound pricing* for all rural systems, where practical
 - c) where full cost recovery is unlikely to be achieved in the long term and a CSO is deemed necessary, the size of the subsidy is to be reported publicly and, where practicable, jurisdictions to consider alternative management arrangements aimed at removing the need for an ongoing CSO.

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General

- Clause 67 & 68 the States and Territories agree to bring into effect consistent approaches to pricing and attributing costs of water planning and management by 2006 and to publicly report on cost recovery.
- Clause 73(iii) the States and Territories agree to implement pricing that includes externalities where found to be feasible.
- Clause 75 the States and Territories will be required to report independently, publicly and on an annual basis, benchmarking of pricing and service quality for metropolitan and non-metropolitan delivery agencies.
- Clause 77(i) the Parties agree to use independent bodies to set or review prices or price setting processes, for water storage and delivery by government water service providers, on a case-by-case basis, consistent with the principles in paragraphs 65 to 68.
- Clause 77(ii) the Parties agree to use independent bodies to publicly review and report on pricing in government and private water service providers to ensure that the principles in paragraphs 65 to 68 are met.

Details of the implementation of these NWI obligations, and associated milestones, are contained in the *NWI South Australian Implementation Plan 2005* which has been accredited by the NWC. (South Australia's accredited Implementation Plan can be found at http://www.nwc.gov.au/nwi/nwi_implementation.cfm)

In the meantime, the inter-jurisdictional Steering Group on Water Charging, chaired by the NWC, is undertaking a stocktake of approaches to charging for the costs of urban water storage and delivery to assist in developing principles to achieve consistency in water charging policies across jurisdictions. This stocktake is due for completion by early 2007. Arising from the stocktake will be a number of areas of material difference in charging approaches across jurisdictions. Position papers will be developed by the Steering Group in each of these areas to assist in developing principles for consistency.

A further stocktake is being undertaken, by the Steering Group, on the treatment of water planning and management costs across jurisdictions. This stocktake is expected to be completed in the first half of 2007. The Steering Group also plans to prepare a position paper on water planning and management costs.

The Steering Group has commenced planning for a national stocktake of the treatment of externalities across jurisdictions.

South Australia is planning to draw on the outcomes of these stocktakes and position papers in identifying future requirements in respect of urban potable water and wastewater pricing, water planning and management costs and externalities. However, given the complex nature of the issues, there have been some unforeseen delays, including in the NWC's work program, that will result in delayed or staged consideration of these outcomes.

3.4 Independent assessments

3.4.1 ESCOSA

ESCOSA in its 2006-07 Final Report, concluded South Australia's water pricing decisions were compliant in the following areas:

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- efficient business costs
- asset valuation
- contributed assets
- depreciation
- annuity
- externalities
- return on assets
- dividends
- tax equivalent regime
- efficient resource pricing
- cross-subsidies.

3.4.2 NWC: Assessment of CoAG compliance

The NWC's 2005 NCP Assessment of jurisdictions' progress towards implementation of 1994 CoAG pricing principles was completed in April 2006. The NWC's specific findings were largely based on the findings of ESCOSA's 2006-07 Final Report. The NWC did not impose competition payment penalties on South Australia arising from urban water pricing².

Each of the recommendations in the NWC's 2005 NCP Assessment is discussed in the relevant sections of this Transparency Statement, together with the matters raised by ESCOSA.

3.4.3 Progress in implementing the NWI

ESCOSA will be requested to publicly review and report on 2007-08 price setting processes having regard to relevant NWI clauses.

In 2006-07 the NWC will undertake its first of three biennial assessments of progress against jurisdictions' implementation plans.

3.5 Conclusion

The Government remains committed to CoAG pricing principles and the NWI with respect to urban potable water and wastewater pricing.

² The NWC recommended suspension of 5% of 2005-06 competition payments for each of South Australia, New South Wales and Victoria due to "collective responsibility" for delays in expanding water trade.

4 Upper revenue bound — avoiding monopoly rents

4.1 Introduction

Each component of the upper revenue bound is discussed below. The pricing principles and guidelines are applied to SA Water's water and wastewater segments and to the metropolitan and regional areas. Estimates of the upper revenue bound for 2006-07 to 2009-10 are reported in Chapter 9.

Since the 2006-07 pricing decisions and Transparency Statement, expenditures and asset values have been updated and are now based on 2005-06 actuals and 2006-07 Budget estimates, updated for best estimates currently available of WPA initiatives.

4.2 Operating, maintenance and administrative expenses

OMA expenses are required by the CoAG guidelines to be based on efficient business costs, which are defined as:

the minimum costs that would be incurred by an organisation in providing a specific service to a specific customer or group of customers (NCC, 1998, p 113).

4.2.1 Competitive tendering

The 1994 CoAG pricing principles state that metropolitan water service providers should have a commercial focus, which jurisdictions might choose to achieve through contracting out, corporatisation or privatisation (NCC, 1998, p 107).

SA Water's most significant contract is the United Water International contract to manage Adelaide's water and wastewater systems. This 15-year contract, which commenced on 1 January 1996, following a competitive tender process, has provision for pricing reviews to reset the fixed-price component every five years.

This outsourcing contract has been identified by the Commonwealth Government as a case study to illustrate the potential for private sector participation in an urban water supply context. The Report identifies that:

To meet its contractual responsibilities United Water is tasked with meeting 180 performance standards. These standards relate to water quality, quality of wastewater discharged, response times to network events, restoration of interrupted service and new connections. United Water has achieved a 99 per cent compliance with these standards although they are at a higher level than previously set for SA Water prior to the commencement of the contract... Compliance with these standards has resulted in a consistently high level of customer service. (Department of the Prime Minister and Cabinet, 2006, p 12)

SA Water has contracted, by competitive tender, for services (e.g. electricity) or supplies (e.g. chemicals) in order to promote efficient business costs, where possible. Approximately 75% of all SA Water's water and wastewater OMA expenditures (excluding labour costs) are subject to competitive tendering arrangements.

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4.2.2 Performance benchmarking: trend analysis of key cost drivers

The NWI requires jurisdictions to report independently, publicly and on an annual basis, benchmarking of pricing and service quality for urban water and wastewater service providers (clause 75).

In its 2006-07 Final Report, ESCOSA's *Statement of Compliance* confirmed the Government's compliance with the 1994 CoAG pricing principles with regard to efficient business costs (ESCOSA, 2005, p 49). However, ESCOSA also suggested further work should be undertaken with respect to trend analysis of key cost drivers and more transparency on 'value-for-money'. (ESCOSA, 2005, p 23).

The Government indicated its intention to address 'value-for-money' issues, to the extent possible.

Subsequently, the NWC examined this matter and found that the efficient business cost requirement had been implemented for the metropolitan area, viz:

South Australia has demonstrated that it has implemented the recommendations of the Essential Services Commission in the area of efficient business costs. South Australia has demonstrated that it has estimated efficient business costs; and, has explored the link between efficient business costs and the SA Water performance statement and customer charter, thereby providing greater transparency on the 'value-for-money' issue. (NWC, 2006, p 6.29)

The NWC also recommended that South Australia continue to seek improvement in the reporting and analysis of data at a regional level (NWC, 2006, p 6.33).

More recently, there has been a significant new national development in identifying efficient business costs and comparative trends in key cost drivers, with the development of national performance benchmarks.

The South Australian Government has been working collaboratively with the Commonwealth Government (with NWC officers as Chair), other State Governments, Territories and interstate regulators (Roundtable Group) over 2006, to develop a national framework for benchmarking of pricing and service quality for urban water and wastewater delivery agencies. Nationally consistent performance indicators, which include key cost drivers and definitions, have been finalised.

The Roundtable Group has agreed to report the performance of urban water utilities with more than 10,000 connections against these indicators. National performance data for 2005-06 is currently being collected and collated. The first national performance benchmarking report is expected to be publicly available in April 2007. The Roundtable Group has agreed, that for this first report, some gaps may be unavoidable, e.g. where systems to collect new indicators are not yet available.

The Roundtable Group has agreed that full performance reporting of 2006-07 data, including auditing of benchmarks, will be undertaken in 2007-08.

South Australian reporting will be at the metropolitan and regional levels, as follows:

- Adelaide Metropolitan (financial and service performance indicators)
- Non-Metropolitan (financial indicators)
- Pt Pirie (service performance indicators)
- Pt Lincoln (service performance indicators)

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- Pt Augusta (service performance indicators)
- Murray Bridge (service performance indicators)
- Mt Gambier (service performance indicators)
- Whyalla (service performance indicators).

From these reports, trend analysis of the performance across Australia of metropolitan and regional service providers, including key cost drivers, will evolve over time. Analysis of these trends will be a more robust indicator of comparative performance and efficient service delivery than interstate comparisons at a point in time.

4.2.3 WPA initiatives

Best estimates currently available of WPA operating costs have been included in the regulatory model. The impacts of WPA initiatives have, so far, been allocated to SA Water's water segment.

4.2.4 Value for money

Pending the first national performance benchmarking report, based on 2005-06 data, SA Water has produced its 2004-05 Annual Efficiency Report (Appendix 4). In terms of 'value-for-money', this report indicates that SA Water's customers are generally satisfied with the range and quality of services provided by SA Water.

Statement of Compliance 2

The Government's 2007-08 pricing decisions are compliant with 1994 CoAG pricing principles that OMA expenses should be based on efficient business costs.

Significant progress has been achieved in meeting the NWI obligation to report independently, publicly and annually, benchmarking of pricing and service quality for metropolitan and non-metropolitan delivery agencies in a new national report.

4.3 Return on assets

The return on assets is calculated by applying a weighted average cost of capital (WACC) to the estimated asset base, as rolled forward, after the removal of estimated contributed assets.

4.3.1 WACC

The CoAG guidelines require that the upper revenue bound includes the opportunity cost of capital based on a WACC. The WACC is the average cost of debt and equity, weighted according to the relevant proportion of the company's capital structure, and incorporates an allowance for market risk.

In previous water and wastewater pricing decisions, the Government adopted a range of pre-tax real WACC of 6% to 7%. This was based on a number of assumptions about the values of the WACC input parameters.

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In its 2006-07 Final Report, ESCOSA observed that:

...it would be preferable to determine an appropriate WACC, rather than a range. (ESCOSA, 2005, p 35)

The NWC, in its 2005 NCP Assessment, agreed with ESCOSA. (NWC, 2006, p 6.30)

The Government adopted a pre-tax real WACC of 6% for its 2007-08 pricing decisions. This value reflects the risk free rate of interest, which is based on the 20-day average of the yield on 10-year Government Bonds as at 30 June 2006, and the market risk premium, which is based on the evidence and precedents of jurisdictional regulators and recent market data. Details of the values of the WACC input parameters are included in Table 1.

Table 1: Values of WACC input parameters

Assumptions	Low	High	Average
Market risk Premium	6%	6%	6%
Risk free rate of interest (real)	2.5%	2.5%	2.5%
Risk free rate of interest (nominal)	5.7%	5.7%	5.7%
Corporate tax rate	30%	30%	30%
Gamma	0.5	0.5	0.5
Inflation Forecast	3.1%	3.1%	3.1%
Debt Margin	1.00%	1.2%	1.1%
Cost of Debt (pre tax nominal)	6.7%	6.9%	6.8%
Debt to Entity Value	50%	60%	55%
Equity beta	0.6	1.0	0.8
Cost of Equity (post-tax nominal)	9.3%	11.7%	10.50%
WACC Results			
Nominal post tax WACC	6.17%	6.75%	6.51%
Real pre tax WACC	5.55%	6.35%	6.01%

The Government continues to consider that it is appropriate to adopt a pre-tax rather than a post-tax WACC, in the calculation of return on assets for the upper revenue bound – this is the standard practice of most Australian water regulators.

4.3.2 Valuation of assets

The CoAG guidelines state:

The deprival value methodology should be used for asset valuation, unless a specific circumstance justifies another method. (NCC, 1998, p 112)

In its 2006-07 Final Report, ESCOSA confirmed that the adoption of the fair value method of asset valuation is consistent with deprival value and hence complies with 1994 CoAG pricing principles. (ESCOSA, 2005, p 24)

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The fair value method is also generally consistent with the depreciated replacement cost valuation. It represents the efficient replacement cost of infrastructure and the service potential of SA Water's assets. The national performance benchmark report adopts written down replacement cost for comparisons of financial performance.

4.3.3 Rolling forward of the asset base

The CoAG guidelines do not include detailed specifications on the rolling forward of the asset base, relating to SA Water's infrastructure assets, plant and equipment.

To roll forward the asset base from 2005-06 the Government has included estimated capital expenditure items, excluded estimated contributed assets and taken account of an appropriate inflation index in the asset base roll forward.

Using best estimates currently available, WPA initiatives are expected to result in significant capital expenditures up to a total of \$245 million over the next 20 years with a significant proportion expended over the next 5 years. However, some WPA projects may not proceed without Commonwealth funding support, which is currently estimated at \$46.4 million over the next 5 years.

4.3.4 Contributed assets

The CoAG guidelines require the treatment of contributed assets to be transparent when determining prices.

In its 2006-07 Final Report, ESCOSA stated:

Given that the Transparency Statement is explicit about the treatment and removal of contributed assets from the asset values used for setting prices, it is in compliance with the CoAG principles. (ESCOSA, 2005, p 27)

ESCOSA further stated that 'fuller compliance' would be achieved if pre-1995 contributed assets were also removed from the asset base. (ESCOSA, 2005, p 27)

The NWC, in its 2005 NCP Assessment, drew on the ESCOSA comments. (NWC 2006, p 6.29)

It has become apparent that interstate regulatory practices have implicitly adopted a substantially different treatment of contributed assets. This is apparent from the 'line in the sand' method of estimating the regulatory asset base.

The 'line in the sand' method applied by most interstate regulators starts with a desired outcome for a utility's future revenue (and charges) and then 'reverse engineers' the utility's asset values to be consistent with that desired revenue outcome.

The future revenue estimates do not distinguish revenues earned from a utility's existing assets i.e. regardless of whether those assets were originally funded by utility charges or borrowings or arise from customer and developer contributions. Earnings on existing assets are effectively 'locked in' as a legacy issue. The estimation and deduction of the value of past contributed assets from the regulatory asset base is overtaken by this approach.

In common with other jurisdictions, the South Australian Government regards earnings on existing assets (whether contributed assets or otherwise) as a legacy issue.

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On the other hand, it is considered preferable for SA Water's regulatory asset base to be valued at the depreciated replacement cost as this reflects the service potential of SA Water's assets and the need for eventual replacement of legacy assets.

Further, there are major data deficiencies in estimating pre-corporatisation contributed assets.

After carefully considering these matters, the previous approach to contributed assets has continued to be adopted in the 2007-08 pricing decisions i.e. post corporatisation and new contributed assets are deducted from the regulatory asset base. For example, Commonwealth funding in relation to WPA projects will be treated as contributed assets.

Further guidance may be available when the NWC's national stocktake of urban water storage and delivery pricing is completed by early 2007 and an associated position paper is available. The outcomes will be reviewed to assess whether South Australia is able to adopt any effective and practical solutions that will help achieve national consistency.

Statement of Compliance 3

The Government's 2007-08 pricing decisions are compliant with the 1994 CoAG pricing principles in its estimate of the WACC, the valuation of assets and transparent treatment of contributed assets (which is also consistent with interstate regulatory practice).

4.4 Depreciation — provision for asset consumption

The CoAG guidelines require that the upper revenue bound includes provision for asset consumption (or depreciation).

In its 2006-07 Final Report, ESCOSA found that:

The Transparency Statement is consistent with the CoAG principles in its treatment of depreciation. (ESCOSA, 2005, p 29)

In its 2007-08 pricing decisions the Government has continued to estimate depreciation in the upper revenue bound using the straight-line method, based on the estimated useful lives of the assets.

Statement of Compliance 4

The Government's 2007-08 pricing decisions are compliant with the 1994 CoAG pricing principles by including estimated straight-line depreciation in the upper revenue bound.

4.5 Externalities

The CoAG guidelines require that the upper revenue bound includes provision for externalities.

In its 2006-07 Final Report, ESCOSA stated:

The inclusion of externalities that are “both attributable to and incurred by” SA Water in the Transparency Statement is compliant with the 1994 CoAG pricing principles. (ESCOSA, 2005, p 33)

The NWI requires states and territories to implement pricing that includes externalities where found to be feasible (clause 73(iii)). Environmental externalities should be included in full cost recovery where feasible and practical on a nationally consistent basis (clause 65(ii) and (iii)).

The NWC, in its 2005 NCP Assessment, concluded:

The Commission considers that South Australia has not undertaken systematic examination of externalities and pricing to meet this commitment. (NWC, 2006, p 6.43)

The Steering Group on Water Charging, chaired by the NWC, has commenced planning for a national stocktake of the treatment across jurisdictions of externalities. It is considered more appropriate to await the outcomes of this stocktake and guidance is available on nationally consistent principles. These outcomes will be reviewed to assess whether South Australia is able to adopt any effective and practical solutions that will help achieve national consistency.

There are also significant inter-connections and overlap between externalities and water planning and management costs (section 4.6).

One possible future approach may be to examine the impact of environmental externalities on an incremental basis as specific environmental studies become available, e.g. the impact of wastewater outfalls in St Vincent's Gulf is the subject of a current study that is expected to be available shortly.

In the meantime, externality costs that are ‘both attributable to and incurred by’ SA Water continue to be included in the upper and lower revenue bounds in compliance with CoAG guidelines and previous practice. Using this definition, externality costs incurred by SA Water include licence fees, levies paid to Natural Resources Management (NRM) Boards and costs associated with Mt Lofty prescription (noting that these costs are included in OMA expenses in the regulatory model).

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SA Water applies revenue received from the environmental enhancement levy (EEL) towards a range of environmental improvement programs (EIPs). Accordingly, details of EEL revenue and EIP capital and operating expenditures are reported in this section on externalities (noting that EEL revenue is included in forecast target revenue and EIP costs are included in OMA expenses and in the asset base in the regulatory model).

Additional information on licence fees, levies to NRM Boards, Mt Lofty prescription, the EEL, EIPs and the Save the River Murray Levy is provided below, as requested by the NWC. (NWC, 2006, p 6.42).

4.5.1 Environment Protection Agency licence fee

The Environment Protection Authority (EPA) is responsible for setting environmental standards applicable to SA Water's activities.

SA Water paid a licence fee of \$1.44 million to the EPA in 2005-06. The licence fee is applied as fixed charges but a move to load based fees is expected in the short to medium term.

4.5.2 Natural Resources Management Board levies

NRM Boards manage South Australia's water resources and catchment areas, to ensure they are used sustainably, and to balance environmental, social and economic demands for water. There are eight NRM Boards in South Australia, operating under the *Natural Resource Management Act 2004* (NRM Act). Functions of the NRM Boards under the NRM Act include:

- undertake an active role with respect to management of natural resources within its region
- prepare, implement and review a regional NRM Plan in accordance with the NRM Act
- promote public awareness and understanding of the importance of integrated and sustainable management and to provide mechanisms to increase the capacity of people to implement programs to improve the management of natural resources
- provide advice with respect to the assessment of various activities or proposals referred to the NRM Board
- resolve any issues that may arise between NRM groups within its region
- provide advice on any matter relevant to the condition of natural resources within its region, the management of those resources or conduct any inquiry or audit
- other functions that may be assigned to the NRM Board by the Minister for Environment and Conservation.

NRM Boards operate in collaboration with other agencies, councils and the community.

SA Water's payments to NRM Boards in 2005-06 are outlined in Table 2. SA Water contributes to six of the eight NRM Boards.

Table 2: SA Water’s contributions to NRM Boards in 2005-06

NRM Boards	Payment \$M
River Murray	\$1.91
Onkaparinga	\$0.34
Eyre Peninsula	\$0.23
Torrens	\$0.18
Northern Adelaide	\$0.14
South East	\$0.09
TOTAL:	\$2.88

4.5.3 Prescription of the Mount Lofty Catchment

The South Australian Government is in the process of prescribing the Mount Lofty Catchment.

The Mount Lofty Catchment provides on average around 60% of Adelaide's mains water while demand for water in the Catchment for other purposes has been increasing. Prescription will result in all users, including SA Water, requiring licences to extract water. Future demand pressures on the Catchment should be eased and the current level of water intakes from the Catchment into SA Water's reservoirs should be maintained.

SA Water will contribute \$4.5 million to DWLBC for the prescription of the Mount Lofty Catchment over a three year period to 2006-07. Once prescribed, SA Water will make additional levy payments associated with water allocation to DWBLC of around \$0.7 million per annum.

4.5.4 Environment Enhancement Levy and Environmental Improvement Programs

The EEL on wastewater rates was introduced in 1990 to accelerate the implementation of EIPs and to minimise environmental impacts. The EEL, which is effectively 8.6% of total wastewater rate revenue, will raise \$23.3 million in 2007-08, which is included in forecast target revenue.

Table 3 reveals that, since the introduction of the EEL, SA Water’s total expenditures on EIPs have exceeded its EEL revenues. It is anticipated that the breakeven point for projects funded by the EEL will be in 2013.

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Table 3: Environmental works: revenue and expenditure (June 2006 dollars)

	July 1990– June 2006	July 2006– June 2011	Total
	(\$M)	(\$M)	(\$M)
EEL revenue	313	128	441
Cost of EIP works capital and operating	406	66	472
Shortfall	(92)	62	(31)

EIPs funded to June 2006 by the EEL are listed in Table 4.

Table 4: Environmental Improvement Programs funded by the Environmental Enhancement Levy

Glenelg WWTP EIP	MFP Waste Management Study Metro Adelaide
Bolivar WWTP DAFF*	Sludge management plan
Bolivar WWTP odour/nutrient reduction	Patawalonga gross pollution trap screen
Queensbury diversion EIP	Coastal reclaimed wastewater plan
Port Adelaide WWTP EIP	Aldinga sewerage scheme
Christies Beach WWTP EIP	Inland reclaimed wastewater plan
Glenelg/Port Adelaide WWTP land disposal sludge main	Country WWTP upgrade marine environment
Gumeracha WWTP nutrient reduction	Port Lincoln WWTP
Aldinga WWTP	Barossa Valley winery waste
Myponga WWTP nutrient reduction	Bolivar sludge transfer system
HIAT woodlot	Bolivar WWTP stabilisation lagoons
Mannum effluent disposal	Rustlers Gully sewer
Murray Bridge effluent disposal	Noarlunga township sewers
Hahndorf WWTP upgrade & nutrient removal	Whyalla WWTP land based disposal & infiltration study
Glenelg WWTP effluent treatment	

* DAFF - dissolved air floatation and flocculation

4.5.5 Save the River Murray Levy

The Save the River Murray Levy (the Levy) is not included in the regulatory pricing model, nor in SA Water's financial accounts. Although SA Water collects the Levy through a charge on its customers' bills, SA Water does not retain these funds.

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Information on the Levy is provided herein in response to a request by the NWC (NWC, 2006, p 6.42) and to demonstrate the range of environmental / water planning and resource management costs already applicable in South Australia.

In 2005-06 \$22 million was transferred to the Save the River Murray Fund (the Fund) of which \$20.1 million was raised in 2005-06 from SA Water customers. The Fund was established under the *Waterworks Act 1932* on 24 July 2003. The Fund is held by the Minister for the River Murray and administered by DWLBC on behalf of the Minister.

The Fund contributed to the River Murray Improvement Program (RMIP), which is integrated within a larger Murray Darling Basin Initiative program of works and measures and the South Australian Murray Salinity Strategy. The RMIP contributes to the achievement of:

- improved environmental health of the River Murray system in South Australia
- high security of water of acceptable quality for irrigation in South Australia at an appropriate price
- high security of water quality for urban water supplies.

Table 5 provides information on the receipts and payments from the Fund.

Table 5: Save the River Murray Fund - receipts and payments

	2003-04 (\$M)	2004-05 (\$M)	2005-06 (\$M)	Total (\$M)
Receipts	12.8	17.6**	21.8**	52.3
Payments	8.1	10.7	26.2*	45.0
Balance	4.7	6.9	(4.4)	7.2

Source: House of Assembly, Thursday, 16 November 2006, The Hon. K.A. Maywald.

* Revised value, as per *Save the River Murray Annual Report 2005-06*, as tabled in both Houses of Parliament on 7 December 2006.

** Difference between 2004-05 and 2005-06 is due largely to timing impacts of transfers to the Fund.

In 2005-06, payments were made to a number of projects and activities from the Fund, including:

- Implementation of Water Allocation Plan
- Investment in Salinity Accountability
- River Murray Act
- Murray Darling Basin Commission State Contribution
- Environmental Flows and Wetland Management
- Modelling assessment
- Prescription of Eastern Mount Lofty Ranges
- Investing in River Murray Ecology
- Upgrade of Riverland Drainage Disposal System
- Upgrade of River Murray Waste Disposal Stations

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- River Murray Select Committee – Drought Management and other recommendations
- Improved Information Management
- Water Acquisition for Environmental Flows
- Irrigation Research, Technology Diffusion and Education
- Water Quality Improvement. (Minister for the River Murray, 2006, p 13)

Statement of Compliance 5

The Government's 2007-08 water and wastewater pricing decisions are compliant with 1994 CoAG pricing principles by including in the upper revenue bound externalities that are both attributable to and incurred by SA Water.

It is not feasible or practical to include in the upper revenue bound the financial implications of externalities until guidance is available on nationally consistent principles.

It is noted that externalities may be relevant to the calculation of long run marginal cost with implications for the water usage charge.

4.6 Water planning and management costs

The NWI requires states and territories to bring into effect consistent approaches to pricing and attributing costs of water planning and management. (clause 67)

The NWC noted, in its 2005 NCP Assessment, that South Australia has not met its commitment to demonstrate the extent to which MDBC costs are recovered and that water planning and management costs are independently set or reviewed. (NWC, 2006, p 6.36)

In accordance with the accredited South Australian NWI Implementation Plan, DWLBC has commenced an examination of costs and options for attributing appropriate water planning and management costs, and the potential attribution of those costs to residential, industrial and irrigation water users, on the basis of benefit received or impact on the resource.

This work will also consider whether inclusion of any externality related charges in urban potable water pricing is warranted, taking into account the existing contributions to water planning and management costs already met by SA Water customers through the Save the River Murray Levy. This work will recognise the significant interconnections and overlap between externalities and water planning and management costs.

Further guidance may be available from the stocktake being undertaken by the Steering Group on Water Charging (chaired by the NWC) on the treatment across jurisdictions of water planning and management costs. This stocktake is expected to be completed in the first half of 2007. The Steering Group also plans to prepare a

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position paper on water planning and management costs. The outcomes will be reviewed to assess whether South Australia is able to adopt any effective and practical solutions that will help achieve national consistency.

In the meantime, no new water planning and management charges have been applied to SA Water for the 2007-08 pricing decisions.

Statement of Compliance 6

The Government is progressing its NWI obligation with respect to water planning and resource management costs in accordance with the accredited South Australian NWI Implementation Plan, and will take into account guidance on nationally consistent principles, once available.

4.7 Tax equivalent regime

The CoAG guidelines state:

To avoid monopoly rents, a water business should not recover more than the operational, maintenance and administrative costs, externalities, taxes or TERS [tax equivalent regime], provision for the cost of asset consumption and cost of capital, the latter being calculated using a WACC. (NCC, 1998, p 112)

In its 2006-07 Final Report, ESCOSA stated:

In the Commission's view, the Transparency Statement includes TER and is compliant with the CoAG Principles. (ESCOSA, 2005, p 40)

ESCOSA also expressed the view that:

the TER information would be presented more transparently if a post-tax WACC were used and the taxation amount included in the cash flows. (ESCOSA, 2005, p 40)

In the 2006-07 water and wastewater Transparency Statement the Government noted that the use of a pre-tax real rate of return on assets, using a WACC, is consistent with the CoAG guidelines and removes the need to include a separate allowance for income taxes, or TER payments, in the maximum revenue outcome.

Statement of Compliance 7

The Government's 2007-08 pricing decisions are compliant with the 1994 CoAG pricing principles by using a pre-tax real rate of return on assets.

5 Lower revenue bound — maintaining commercial viability

5.1 Introduction

Each component of the lower revenue bound is discussed below. Estimates of the lower revenue bound for 2006-07 to 2009-10 are reported in Chapter 9.

5.2 Operating, maintenance and administrative expenses

OMA expenses are discussed in Section 4.2.

5.3 Provision for future asset refurbishment/replacement

The CoAG guidelines state:

An annuity approach should be used to determine the medium to long term cash requirements for asset replacement/refurbishment where it is desired that the service delivery capacity be maintained. (NCC, 1998, p 112)

In its 2006-07 Final Report, ESCOSA found that the Government complied with the 1994 CoAG pricing principles by including an annuity estimate in the lower revenue bound. (ESCOSA, 2005, p 30)

In its 2007-08 pricing decisions, the Government continued to include an annuity estimate of the cost of future asset refurbishment and replacement, to SA Water, in the lower revenue bound.

5.4 Dividends

The CoAG guidelines suggest that dividends, if any, should be included in the lower revenue bound and that:

dividends should be set at a level that reflects commercial realities and stimulates a competitive market outcome. (NCC, 1998, p 112)

In its 2006-07 Final Report, ESCOSA concluded that:

The new dividend policy is stated in the Transparency Statement and a best estimate of its impact included in the minimum revenue case. This complies with the CoAG principles. (ESCOSA, 2005, p 38)

In its 2005 NCP Assessment, the NWC concluded that South Australia had met its CoAG commitments with regard to dividend policy. (NWC, 2006, p 6.30)

SA Water's expected dividend payment is included in the 2007-08 estimated lower revenue bound.

5.5 Interest cost on debt

SA Water's interest expense is included in the lower revenue bound.

5.6 Externalities

Externalities costs attributable to and incurred by SA Water are included in the lower revenue bound. These externality costs are discussed in Section 4.5.

5.7 Tax equivalent regime

SA Water's Tax Equivalent Regime payment is included in the lower revenue bound. ESCOSA's 2006-07 Final Report considered that this was appropriate.

Statement of Compliance 8

The Government's 2007-08 pricing decisions are compliant with the 1994 CoAG pricing principles by including in the lower revenue bound OMA costs, provision for future asset refurbishment / replacement, dividends, interest cost on debt, externalities and TERs.

6 Forecast Target Revenue

6.1 Introduction

This section discusses the main influences on SA Water's estimated revenues to June 2012, viz, sustainable water management initiatives and in principle revenue direction.

6.2 Sustainable water management initiatives

Policy development of demand management and water supply planning matters is undertaken independently by the Minister for Environment and Heritage and the Minister for the River Murray, supported by DWLBC.

South Australia has been active in addressing the long term sustainable and productive management of its water resources. In 2005 the Government released *Water Proofing Adelaide A thirst for change 2005-2025* detailing a blueprint for the management, conservation and development of Adelaide's water resources to 2025.

SA Water is responsible for the implementation of most of the WPA demand management and supply initiatives.

The expected increase in the upper revenue bound over time is due largely to increased capital and operating expenditures arising from implementing WPA.

6.2.1 Water Supply Planning

It is generally considered that Adelaide has substantial supply security through its ability to draw on the River Murray. Typically, water demand increases in drought years. With the current low holdings in Adelaide reservoirs and an increase in demand, SA Water has increased pumping from the River Murray over 2006-07.

However, if the drought continues into 2007-08, the annual flows down the River Murray into South Australia will be further reduced, and further increasing pumping may not be a viable solution. There would need to be a substantial reduction in water demand by urban users.

The potential for climate change is a further risk to urban potable water supply over the long term.

6.2.2 Water Demand Management

SA Water's revenue is influenced by changes in water demand caused by factors such as the weather, economic activity, and population growth. Revenue will also be influenced by the price elasticity of demand.

Demand management initiatives aim to constrain increases in water demand, which also affects SA Water revenue. Recent initiatives are summarised below.

Physical water restrictions

Permanent water conservation measures have been in place since 1 October 2003 and continue to apply in areas (primarily in the South East of South Australia) not impacted by more stringent short-term restrictions.

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More stringent water restrictions have applied on the Eyre Peninsula since December 2002 and have remained unchanged, other than minor modifications in April 2003.

Level 2 water restrictions were introduced on 23 October 2006 for SA Water customers in Adelaide and other River Murray users. On 1 January 2007, water restrictions were raised to Level 3.

It is expected that there will be revenue impacts from level 2 and 3 restrictions in 2006-07 and 2007-08. However, these short term revenue impacts and other potential drought response measures were not taken into account in the Government's 2007-08 water charges.

WPA demand management initiatives

A diverse range of WPA demand management initiatives, listed below, will result in a substantial reduction in water demand, resulting in revenue losses to SA Water.

- a program of rebates for water efficient shower heads, tap timers and flow restrictors
- rebate for plumbing rainwater tanks into existing homes
- fact sheets and promotional material available on the SA Water website
- working in conjunction with the Nursery and Garden Industry Association to promote water efficient plants and product
- numerous community education campaigns, including the "beautiful Waterwise Gardens" campaign
- implementation of the mandatory Water Efficiency Labelling Scheme (WELS)
- the Eco-smart plumber initiative to train plumbers in water efficiency techniques
- the Botanic Gardens sustainable landscapes partnership and sponsorship of the Waterwise South Australian Water Mediterranean Garden
- the water efficiency audit program focused on SA Water's wider training programs for industry
- a best practice irrigation manual developed with the Turf Industry Group.

WPA also proposes a range of projects involving recycling of wastewater and increasing use of treated stormwater.

Using best estimates currently available, WPA demand management initiatives, (including permanent water conservation measures introduced in October 2003) are expected to result in estimated revenue losses in the order of \$15m in 2007-08, increasing to \$22m in 2010-11.

Expected impacts of permanent WPA demand management measures are included in the regulatory model. Impacts of short term water restrictions, in respect of the drought, are not.

6.2.3 Conclusion

It is difficult to estimate future revenues with accuracy. Since the 2006-07 pricing decisions and Transparency Statement, revenues have been updated and are now based on 2006-07 Budget estimates, updated for best estimates currently available

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of WPA initiatives. The potential revenue reductions from WPA initiatives will become clearer over time.

6.3 In principle revenue direction: metropolitan area

The NWI requires that metropolitan water and wastewater businesses should move towards upper revenue bound pricing (clause 66(i)).

In the accredited South Australian NWI Implementation Plan, the Government indicated that it:

intends to examine its current metropolitan water and wastewater pricing policies taking into account these clauses and recent regulatory approaches. This work will preserve the outcomes from meeting the 1994 CoAG pricing principles. (South Australian Government, 2006, p 39)

Other jurisdictions have notionally achieved upper revenue bound pricing because regulators have adopted the 'line in the sand' approach to determining the regulatory asset value. Under the 'line in the sand' approach, regulatory asset values are determined so as to achieve a predetermined revenue target.

As a result of the 'line in the sand' approach, interstate utility asset values have generally been revised downwards, regardless of the depreciated replacement cost of those assets. As noted in *Securing Australia's Urban Water Supplies: Opportunities and Impediments*, prepared for the Department of Prime Minister and Cabinet:

To avoid sharp rises in water prices when pricing reforms were introduced, regulators have drawn a "line in the sand" and required past investments to be written down substantially for regulatory purposes.... The regulatory asset value of water businesses is typically below the efficient replacement cost of the infrastructure. (Marsden Jacob Associates, 2006, p 46)

Nevertheless, all new capital investments would be required to achieve the required rate of return on the replacement (acquisition) value of those investments. Charges and earnings would gradually adjust over a very long transition period until all assets are valued at their depreciated replacement cost and earn the required rate of return.

As discussed in Chapter 4, SA Water's regulatory asset base is based on the fair value method which is generally consistent with depreciated replacement cost. South Australia, in common with other jurisdictions, accepts the necessity for a similar long term transition of charges and earnings such that there is movement towards the required rate of return embodied in the upper revenue bound.

The NWC has noted that regulatory periods in the water industry are generally 3 years, although the National Electricity Rules define a regulatory period as not less than five years.

6.3.1 Water

As discussed in Chapter 4, the upper revenue bound is based on achieving a 6% pre-tax real rate of return on regulated assets.

A significant real increase in revenue will be required in order to eventually achieve the upper revenue bound based on depreciated replacement cost. Interstate practice suggests there should be a very long transition period towards the upper revenue

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bound. Further, a specific revenue direction / price path tends to be specified over a 3 to 5 year time period.

6.3.2 Wastewater

With the adoption of a 6% pre-tax real WACC on regulatory assets, a real decrease in revenue will be required in order to eventually achieve upper revenue bound based on depreciated replacement cost. Interstate practice suggests there should be a very long transition period towards the upper revenue bound. Further, a specific revenue direction / price path tends to be specified over a 3 to 5 year time period.

6.4 In principle revenue direction: regional areas

The NWI requires that regional water businesses should continue to achieve lower revenue bound pricing, as required by the 1994 CoAG pricing principles, and should move towards the upper revenue bound, where practicable. (clause 66(v))

The NWI recognises that the provision of water services to some small communities will never be economically viable but needs to be maintained to meet social and public health obligations. The NWI requires that:

Where full cost recovery is unlikely to be achieved in the long term and a Community Service Obligation (CSO) is deemed necessary, the size of the subsidy is to be reported publicly and, where practicable, jurisdictions consider alternative management arrangements aimed at removing the need for an ongoing CSO. (clause 66(v)(c))

Statewide uniform pricing for wastewater and reticulated water is an important element of the Government's equity, social justice and regional policies. The Government provides SA Water with a CSO in regional areas. Full cost recovery (lower and upper bound pricing) for water and wastewater services in regional areas, and therefore compliance with the NWI, has been achieved via a transparently reported CSO. Full details of CSOs are reported in Chapter 7.

7 Efficient resource pricing

7.1 Introduction

This chapter outlines the Government's consideration of efficient resource pricing principles, cross subsidies and the Government's CSO policy.

7.2 CoAG pricing principles and efficient resource pricing

The CoAG Strategic Framework requires:

the adoption of pricing regimes based on the principles of consumption-based pricing, full cost recovery and desirably the removal of cross-subsidies which are not consistent with efficient and effective service, use and provision. Where cross-subsidies continue to exist, they be made transparent. (NCC, 1998, p 103)

Specifically, urban water service providers are required to adopt charging arrangements for water services:

comprising an access or connection component together with an additional component or components to reflect usage where this is cost-effective. (NCC, 1998, p 104)

The usage charge should send an efficient resource pricing signal to consumers, while the access charge should recover remaining costs and ensure the ongoing viability of the business. (Expert Group, 1995, p 45)

Further, the CoAG guidelines state:

As an augmentation approaches, the usage component will ideally be based on the long-run marginal costs so that the correct pricing signals are sent. (NCC, 1998, p 113)

NWI obligations are consistent with CoAG pricing principles. (clause 65)

7.3 Current pricing structures

7.3.1 Water

SA Water has two types of water customers:

- non-commercial customers, including residential, industrial and some other non-residential customers
- commercial customers, including retail, wholesale, finance, real estate, professional, construction and recreational services.

For both types of customers, SA Water's water pricing structure is based on a two part tariff:

- an access (supply) charge
- a two-tier water usage charge, with the first tier up to 125 kL.

The same usage-based charges apply to all customers.

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For non-commercial customers the access (supply) charge is a flat fee, while for commercial customers this charge is based on property value, subject to a minimum charge.

7.3.2 Wastewater

For other than large trade waste discharger customers, wastewater charging is based on property value, subject to a minimum charge.

The rating scales used to calculate wastewater charges are updated every June (on the basis of the latest Valuer-General property values) to ensure that the increase in total revenue from wastewater charges does not exceed the Government's pricing decision (i.e. no windfall gain passes to SA Water as a result of significant property value increases).

Higher rating scales are applied to regional customers than Adelaide metropolitan customers reflecting generally lower property values in regional areas. Regional customers still pay lower average charges than metropolitan customers.

7.4 Usage (consumption) based pricing

7.4.1 Water

Consistent with efficient resource pricing, the water usage charge should be based on long run marginal cost (LRMC).

LRMC is the cost of providing an extra unit of service when all production costs (including capital) are allowed to vary. It is equivalent to the cost that would be saved in the long term from additional water not being consumed.

LRMC is forward looking and incorporates:

- short term variable costs
- future infrastructure costs arising from the level of predicted total water use
- environmental impacts / allowance for future water resource scarcity.

LRMC is difficult to quantify and is contingent on assumptions about sourcing of future supplies, and in particular whether these will be from the River Murray, less traditional potential potable water substitutes such as stormwater reuse and effluent recycling or alternatively desalination. The latter of these might imply LRMC higher than the current second water usage tier. However, on the basis that desalination is not required to meet future Adelaide water requirements in the near term, the current second tier water usage price is reasonably consistent with the upper end of the range of indicative estimates for LRMC, including water resource costs, for South Australia's primary urban water demands.

The first water usage tier applies to the first 125 kilolitres of water consumed. This component is intended to facilitate affordability of an essential service.

In its 2006-07 Final Report, ESCOSA found:

SA Water uses consumption based pricing for all customers. The two-part tariffs being charged for non-commercial customers are consistent with CoAG principles. (ESCOSA, 2005, p 42)

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7.4.2 Trade waste

The largest 45 trade waste dischargers face volumetric trade waste charges, reflecting the significant avoidable costs they impose on the wastewater system.

In November 2004, the Government set trade waste charges for three years, commencing July 2005. Accordingly, the Government did not re-consider trade waste charges in its 2007-08 pricing decisions.

7.4.3 Wastewater services (other than trade waste)

Although CoAG pricing principles indicate a preference for usage charges to be based on consumption, the National Competition Council (NCC) has noted that:

Charging on a consumption basis for wastewater services provided to households and small commercial consumers is generally not efficient. (NCC, 2003, p 14)

Most of the costs of providing and operating a sewerage system relate to fixed costs incurred when the system is established, irrespective of the quantity of wastewater subsequently discharged. SA Water estimates that a typical household contributes approximately \$25 in avoidable costs (i.e. less than 10% of the minimum household charge of \$284 in 2007-08). Accordingly, consumption based charging for wastewater services, other than trade waste, is not efficient or practical.

Where usage charges are not practical, the CoAG pricing principles do not stipulate how fixed wastewater charges should be apportioned. This was confirmed by ESCOSA in its 2006-07 Final Report, where it stated:

The CoAG principles do not specify the approach to be used where direct consumption charges are not cost effective; hence the tariff structure adopted is not inconsistent with the CoAG principles. (ESCOSA, 2005, p 42)

SA Water does not apply consumption based pricing, other than to the largest dischargers. The Commission acknowledges that this recognises the impracticality of metering direct usage for small customers and the minor benefit that price signals of this type would generate. (ESCOSA, 2005, p 42)

ESCOSA concluded:

The Transparency Statement outlines the water and wastewater pricing structures and the reasons for the pricing structures. The Commission considers both the structure and the reasons to be compliant with the 1994 CoAG pricing principles. (ESCOSA, 2005, p 42)

7.5 Cross-subsidies

The CoAG pricing principles require that cross-subsidies ideally be removed in order to promote efficient pricing. However, where cross-subsidies are retained they should be made transparent. (NCC, 1998, p 103)

The 2005-06 Transparency Statement discussed the Baumol Band, identified by the NCC as the accepted definition of cross-subsidies. (NCC, 2001, p 127) In summary, to avoid cross subsidies based on the Baumol Band definition, pricing of the relevant service is required to ensure that all customers at least meet their marginal or avoidable costs, while the joint fixed costs are spread among the pool of customers by mechanisms (e.g. access charges) that take account of the value of benefits

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received i.e. willingness to pay or the ability to pay. Further, total charges to each customer should not exceed the stand-alone cost.

Based on the Baumol Band, there are unlikely to be any significant cross subsidies. Nevertheless, to address any perceptions of cross subsidies, the following discusses:

- State-wide pricing
- property value based access (supply) charges to commercial water customers
- wastewater charges.

7.5.1 Statewide uniform pricing

SA Water provides water and wastewater services to its customers in regional areas of South Australia at prices similar to the metropolitan area, consistent with the South Australian Government's Statewide uniform pricing policy.

Statewide uniform pricing is an important element of the Government's equity, social justice and regional policies and has been discussed extensively in the Government's previous water and wastewater Transparency Statements.

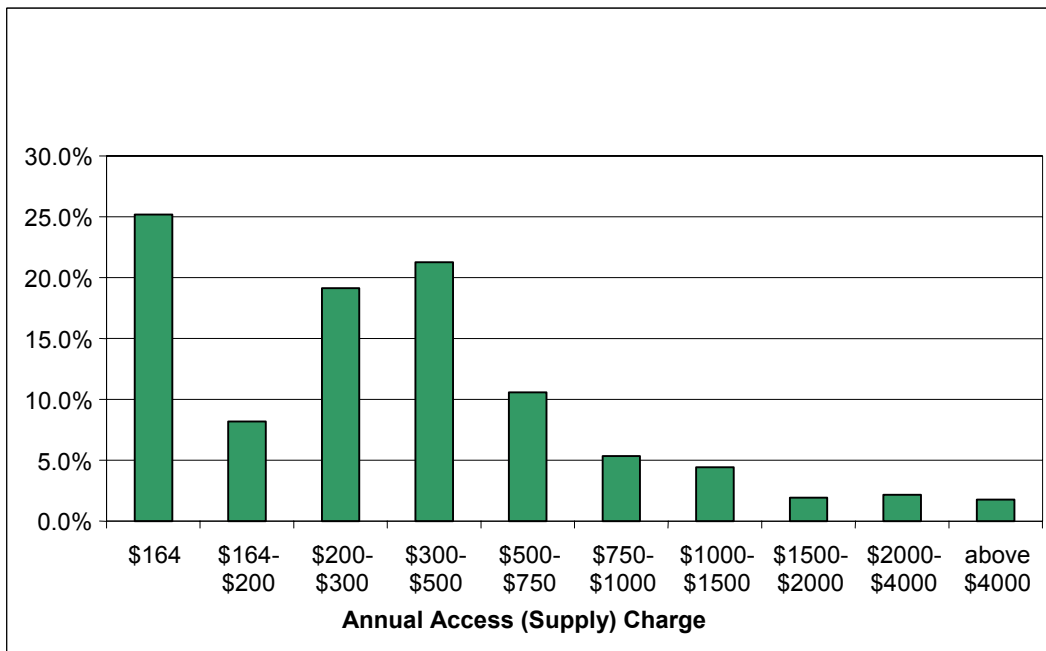
The Government provides SA Water with a CSO, funded from general revenue, to ensure SA Water earns the upper revenue bound with regard to its regional businesses i.e. the CSO ensures SA Water earns a 6% rate of return on its regulated assets.

The CSO recognises the extra costs of providing water and wastewater services in regional areas. Because the Government makes CSO payments direct to SA Water, there are no cross subsidies between customers. The value of CSO payments associated with the Government's Statewide uniform pricing policy is reported in Table 6.

7.5.2 Water access (supply) charge: commercial customers

Figure 1 illustrates the distribution of 2006-07 commercial access (supply) water charges, which are based on property values. (An update for 2007-08 would become available after property rates are set in June 2007.) The minimum payment by commercial customers is \$164 in 2006-07, compared with \$174.60 in 2007-08.

Figure 1: 2006-07 commercial customers access (supply) charges distribution

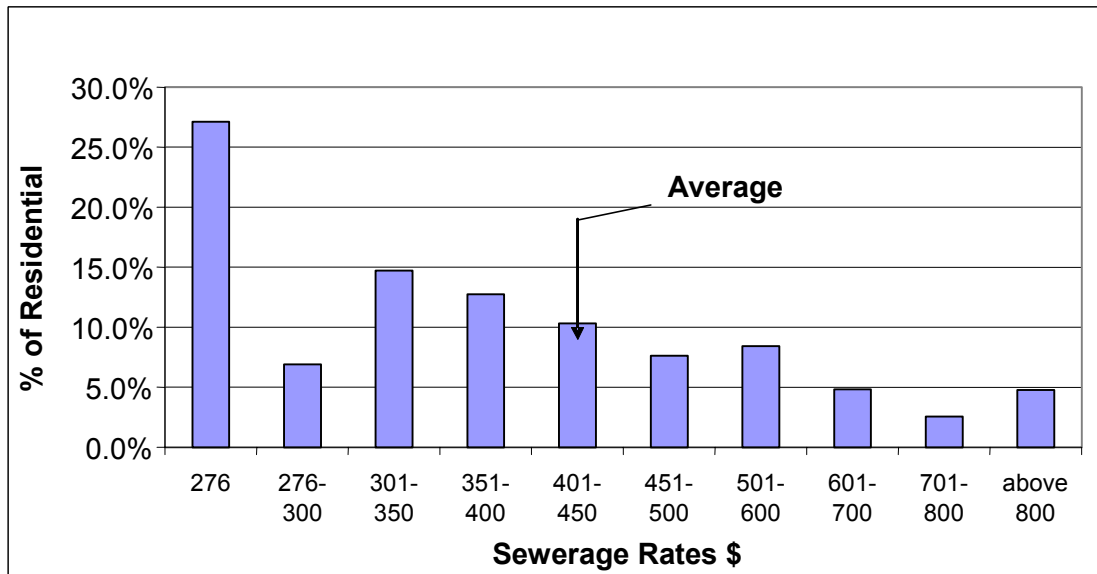


There would be some extreme examples of customers paying up to \$0.60 million pa for relatively low total water demands (e.g. major shopping centres). Notwithstanding the significant access charge faced by a small number of commercial customers, it is unlikely that these customers would be able to secure the same quality of water and services at a lower cost. It is likely those customers are still paying less than their standalone costs.

7.5.3 Wastewater charges

Figure 2 illustrates the distribution of 2006-07 residential wastewater charges, which are based on property values according to the willingness / ability to pay principle. (An update for 2007-08 would become available after property rates are set in June 2007.) The minimum payment by commercial customers is \$276 in 2006-07, compared with \$284 in 2007-08.

Figure 2: 2006-07 residential wastewater charges distribution



Similar to commercial water customers, there would be some examples of wastewater residential customers paying significant amounts for sewerage services. Notwithstanding the significant property based charge faced by a small number of customers, it is unlikely that these customers would be able to secure the same quality of services at a lower cost. It is likely those customers are still paying less than their standalone costs.

7.5.4 Conclusions on cross subsidies

ESCOSA’s 2006-07 Final Report concluded with respect to water pricing structures that:

On the assumption that the variable charge for the second block is the true cost reflective charge, the first block may constitute a cross subsidy, which is transparent. (ESCOSA, 2005, p 42)

The NWC in its 2005 NCP Assessment stated:

With regard to cross-subsidies, the Commission considers that South Australia has met its COAG commitments. South Australia has identified areas where cross-subsidies are likely to exist, and has reported that there are unlikely to be significant cross-subsidies in water and wastewater pricing. (NWC, 2006, p 6.30)

7.6 Community service obligations

CoAG pricing principles require that where services are provided to customers at less than full cost, CSOs should be paid to the service provider and reported transparently.

NWI requires, with regard to rural and regional charging, that:

where full cost recovery is unlikely to be achieved in the long term and a Community Service Obligation (CSO) is deemed necessary, the size of the subsidy is to be reported publicly and, where practicable, jurisdictions to

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consider alternative management arrangements aimed at removing the need for an ongoing CSO. (clause 66(v))

ESCOSA's 2006-07 Final Report stated:

The Commission believes that although compliant with the 1994 CoAG pricing principles, the Transparency Statement should provide detailed analysis of cost differences between customer categories, the calculation of CSOs and assessment of CSO alternatives. (ESCOSA, 2005, p 47)

The NWC in its 2005 NCP Assessment stated:

The Essential Services Commission of South Australia has noted that, although the community service obligation policy is compliant with CoAG principles, in order to improve transparency, the South Australian Government should provide further details on cost differences between customer categories and the calculation of community service obligations. The Commission supports this recommendation. (NWC, 2006, p 6.30)

Details of customers and the calculation of each CSO is provided, to the extent possible in section 7.7. CSO payments are funded directly from the South Australian Government Budget. They are reported transparently in SA Water's Charter and disclosed in SA Water's Annual Report, which is tabled in Parliament.

CSO payments are included in forecast target revenue for the 2007-08 water and wastewater pricing decisions.

7.7 Current CSOs

In 2006-07 SA Water will receive the following CSOs, which will continue in 2007-08.

7.7.1 Administration of the Save the River Murray Levy

SA Water will continue to administer the Save the River Murray Levy in 2007-08. The estimated cost is based on actual administration costs incurred by SA Water.

7.7.2 Service charge exemptions/concessions

SA Water receives a CSO payment, calculated as an estimate of payments forgone, for providing service charge exemptions to certain customers, such as places of worship, charitable organisations and sporting clubs.

7.7.3 Administration of the pensioner concession scheme

SA Water administers pensioner entitlement applications and the distribution of concessions to local government for pensioners who are customers of SA Water. The actual pensioner concession payments are funded through a subsidy from the Department for Families and Communities calculated as the amount of the concessions paid.

7.7.4 Statewide uniform pricing

As a result of the Government's statewide uniform pricing policy, water and wastewater services are provided to regional customers at less than total economic cost. The resulting CSO payment contributes over 90% to the total CSO payment to SA Water.

The CSO is calculated as the shortfall between the revenue able to be charged from regional customers under the statewide uniform pricing policy and the avoidable cost

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of providing services to those customers. The avoidable cost consists of operating costs, depreciation and return on assets (ROA). The ROA is calculated using a pre-tax real WACC of 6%.

For significant new regional investments (i.e. investments requiring approval by Cabinet under the relevant Treasurer's Instructions), the CSO and associated value is identified for each asset.

7.7.5 Trade waste

The CSO paid to SA Water under the *Waterworks Act 1932* to ensure that transitional discounts provided to trade waste dischargers are transparent, will be fully phased out by end 2007-08. A separate CSO arises from a pre-existing agreement and only applies to one SA Water trade waste customer that is exempt from full trade waste charges until 2007.

7.7.6 Government Radio Network

SA Water receives a CSO for the Government Radio Network. SA Water was required to enter into a non-commercial agreement for use of the Government Radio Network for both operational and emergency communications within SA Water, as well as for use of Radio Government Network pagers.

7.8 New CSOs

The Government is introducing two new CSOs in 2007-08, as discussed below.

7.8.1 Water Proofing Adelaide

While the Government is still working through the impacts and capital expenditure requirements arising from WPA, the Government has decided to allocate a small CSO to SA Water to compensate for the non-commercial activities that SA Water is likely to be required to undertake. Further details on the CSO will be developed as the planning process is progressed.

7.8.2 Rain Water Tank Rebate

As part of the WPA strategy, the South Australian Government introduced, from July 2006, a rainwater tank plumbing rebate scheme. The CSO payment would be \$500,000 a year for four years. Rebates of up to \$400 will be offered to plumb new or existing rainwater tanks into existing homes. It is expected that plumbed rainwater tanks will save 4 GL a year by 2025.

SA Water costs incurred to administer the scheme (approximately \$40,000-\$50,000 per year) are also to be funded from the CSO amount.

7.9 CSO Estimates

Table 6 provides estimates of CSO payments to SA Water, as at the 2006-07 Mid Year Budget Review (MYBR), which takes into account the 2007-08 pricing decision.

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Table 6: Estimated CSO payments to SA Water (nominal)

CSO payments (in nominal terms)	2006-07 (as per 2006-07 MYBR) (\$M)	2007-08 (\$M)
Statewide Uniform Pricing		
- Water Business*	123.52	118.87
- Wastewater Business	20.05	20.38
Exemptions and Concessions		
- Commonwealth Government	0.53	0.55
- State Government	0.76	0.79
- Local Government	5.35	5.57
- Swimming Pools	0.13	0.15
- Place of Worship/Charitable	2.43	2.52
- Sporting Clubs	0.48	0.50
WPA (new)	-	0.94
Trade Waste	1.84	-
Rain Water Tank Rebate (new) **	0.06	0.04
River Murray Levy Administration	0.06	0.06
Government Radio Network	0.40	0.41
Administration of Pensioner Concessions	0.52	0.52
Total CSO payments	156.13	151.30

Where MYBR is Mid Year Budget Review, released on 19 December 2006.

* Includes the effects of 2006-07 water restrictions.

** Not included in 2006-07 Budget.

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The Government's 2007-08 water and wastewater pricing decisions are compliant with CoAG guidelines on efficient resource pricing, including CSOs which are transparently reported and funded from consolidated revenue.

8 Water and wastewater pricing decisions 2007-08

8.1 Introduction

The Government's pricing decisions for 2007-08 involved consideration of CoAG pricing principles and NWI obligations, as outlined in preceding chapters, and broader policy considerations, viz, equity, social justice and regional policies, customer impacts and sustainable water management initiatives. Details of the Government's decisions and the broader policy matters are discussed below.

8.2 The Government's water and wastewater pricing decisions 2007-08

8.2.1 *Water and wastewater charges 2007-08*

In December 2006, the Government approved the following water and wastewater charges to apply in 2007-08:

- Water charges
6.4% average increase made up of the following components
 - 3.2% increase for inflation
 - 0.5% increase for movement towards upper revenue bound
 - 2.5% increase to fund WPA impacts
 - 0.2% increase to fund enhanced hardship support program.
- Metropolitan wastewater charges
2.7% average increase made up of the following components
 - 3.2% increase for inflation
 - 0.5% decrease for movement towards upper revenue bound.
- Regional wastewater charges
3.2% average increase for inflation.

8.2.2 *In principle revenue direction to 2011-12*

In December 2006, the Government also set an in principle revenue direction, subject to annual review.

It is intended that water charges in each of the subsequent four years 2008-09 to 2011-12 inclusive, would continue to be adjusted for inflation, plus a 0.5% pa increase so as to move towards the upper revenue bound and a 2.5% pa increase to fund WPA impacts. Metropolitan wastewater charges would continue to be adjusted annually for inflation less 0.5% pa so as to move towards the upper revenue bound. Regional wastewater charges would continue to be adjusted for inflation.

In other words, the Government has set an in principle revenue direction over five years, 2007-08 to 2011-12 inclusive, that aims to:

- recover inflationary impacts

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- ensure gradual adjustment in real water and wastewater charges towards the upper revenue bounds, through a 0.5% pa real increase in water charges and 0.5% pa real decrease in wastewater charges
- recover impacts of WPA initiatives (other than permanent water conservation measures which have been absorbed in previous pricing decisions) through increased real water charges at 2.5% pa
- very gradually move regional wastewater charges towards charges applicable in the metropolitan area through ongoing adoption of CPI price increases - there is, at present, a significant disparity between average wastewater revenue per customer in the metropolitan and regional areas of around 12% (\$426 compared to \$373 in 2006-07) despite higher costs per customer in regional areas. Nevertheless, over the 5 year in principle revenue direction period, wastewater rates will remain lower, on average, in regional areas.

As part of the adjustment towards the upper revenue bounds, forecast target revenues are estimated to be consistent with all new and replacement assets, including WPA and other projects, earning a 6% pre tax real rate of return.

Cabinet will continue to formally set water and wastewater prices on an annual basis. Legislation requires annual gazettal of water and wastewater charges and rates. Future annual price setting processes would take into account the in principle revenue direction set by Cabinet in this decision as well as any new developments.

8.3 Impact on customers

8.3.1 Water charges

Table 7 compares water charges applicable in 2006-07 with the Government's 2007-08 decision. (An update for the 2007-08 property rate would become available after those rates are set in June 2007).

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Table 7: Comparison of water charges

Description	2006-07	2007-08
Non-commercial		
Access (supply) charge		
Residential	\$148.00	\$157.40
Other non-residential (industry)	\$164.00	\$174.60
Water usage charge		
First 125 kL	\$0.47/kL	\$0.50/kL
Above 125 kL	\$1.09/kL	\$1.16/kL
Commercial		
Access (supply) charge		
Property rating scale	0.094%	TBD*
Commercial Minimum	\$164	\$174.60
Water usage charge		
First 125 kL	\$0.47/kL	\$0.50/kL
Above 125 kL	\$1.09/kL	\$1.16/kL

* 2007-08 property rates will be determined and gazetted in June 2007, when the latest information on property values is available from the Valuer General

The increase for the average residential customer consuming 250 kL pa will be approximately \$21.90 in 2007-08.

8.3.2 Wastewater charges

Table 8 compares wastewater charges applicable in 2006-07 with the Government's 2007-08 decision. (An update for the 2007-08 property rate would become available after those rates are set in June 2007).

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Table 8: Comparison of wastewater charges

Description	2006-07		2007-08	
	Property rating scale (%)	Min (\$)	Property rating scale (%)	Min (\$)
Metropolitan				
Residential	0.1473%	\$276	TBD*	\$284
Non-residential	0.1685%	\$276	TBD*	\$284
Regional				
Residential	0.1772%	\$276	TBD*	\$284
Non-residential	0.2201%	\$276	TBD*	\$284

* Rating scales for 2007-08 are to be determined and will be gazetted in June 2007, when information on property values is available from the Valuer General.

The increase in the minimum wastewater charge from \$276 to \$284 in 2007-08 (2.7% increase) will affect approximately 25% of metropolitan residential customers and 50% of regional residential customers.

Table 9 illustrates the indicative wastewater charges for the average residential property in the metropolitan and regional areas.

Table 9: Indicative residential wastewater charges for the average residential property

	Average property value (June 2006)	Indicative Charge (2006-07)	Indicative Charge (2007-08)	Change	Change
	\$	\$	\$	\$	%
Metropolitan	\$280,600	\$413	\$424	\$11.00	2.7%
Regional	\$185,600	\$329	\$340	\$11.00	3.3%

Source: SA Water.

Based on June 2006 average property values, the wastewater charge will increase by approximately \$11 in 2007-08 for both metropolitan and regional households.

8.4 Equity, social justice and regional policies

Statewide uniform pricing remains a key element of the Government's social policies. This aims to ensure that non-metropolitan customers do not face unreasonable charges by virtue of their location within the State. The NWI (clause 66(v)) acknowledges that some small community services will never be 'economically viable' but need to be maintained to meet social and public health obligations.

The Government also considered the extent to which different customer groups face increased charges, as well as their ability to pay increased prices for essential services.

8.4.1 *Enhanced hardship support program*

In recognition of the increases in water charges, SA Water's existing Hardship Support Program is to be enhanced. The enhanced program will be funded by a 0.2% charge on all water consumers in 2007-08. The enhanced program costs and revenue estimates are incorporated into the water segment. The enhanced program would include a range of initiatives such as debt deferral and financial counselling.

8.5 Sustainable water management initiatives

The Government's pricing decisions took into account proposed WPA initiatives that directly impact on SA Water's capital and operating expenditures and revenues. WPA initiatives are discussed in chapters 2, 4 and 6.

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The Government's 2007-08 pricing decisions involved consideration of, and a balance between, CoAG pricing principles, NWI obligations (clauses 65, 66(i) and 66(v)) and broader policy matters, viz, equity, social justice and regional policies and sustainable water management initiatives.

The Government's 2007-08 pricing decisions demonstrate movement towards upper revenue bound pricing over time, consistent with NWI obligations and interstate practice.

8.6 Consultation

As part of the Government's deliberations, relevant departments and agencies were consulted, including the Department of Treasury and Finance, Department for Environment and Heritage, Department of Water, Land and Biodiversity Conservation, Department of the Premier and Cabinet – Regulatory Impacts, Department for Families and Communities, Housing Executive Committee, the Department of Trade and Economic Development – Business Impacts and the Office of Regional Affairs.

9 Financial details relevant to the 2007-08 pricing decisions

9.1 Introduction

This chapter outlines some of the financial details that the Government reviewed in making its 2007-08 water and wastewater pricing decisions and other financial information related to SA Water's financial viability. The chapter includes:

- Table 10: Adjusted infrastructure asset base (nominal)
- Table 11: Asset base (real)
- Table 12, Table 13 and Table 14: regulatory model estimates (real)
- Table 15, Table 16 and Table 17: regulatory model estimates: metropolitan and regional areas (real)
- Table 18: Summary of SA Water's estimated capital expenditure (nominal)
- Table 19: Profit and distributions to the Government from SA Water (nominal)
- Table 20: Summary of financial ratios for SA Water (nominal).

Table 10 to Table 17 include forecasts provided by SA Water to the Government for the 2007-08 water and wastewater pricing decisions.

9.2 Upper and lower revenue bounds

9.2.1 Asset base

Table 10 illustrates the roll-forward estimate in nominal terms of the asset base for total infrastructure assets.

Table 10: Adjusted infrastructure asset base (nominal)

Year	Opening balance (\$M)	Capital Expenditure (\$M)	Inflation adjustment (\$M)	Depreciation (\$M)	Closing balance (\$M)
Total assets					
2006-07	6,769	145	169	(130)	6,953
2007-08	6,953	193	174	(135)	7,185
2008-09	7,185	149	180	(140)	7,373
2009-10	7,373	143	184	(143)	7,557
Water assets					
2006-07	4,418	108	110	(88)	4,548
2007-08	4,548	135	114	(91)	4,706
2008-09	4,706	90	118	(94)	4,819
2009-10	4,819	46	120	(97)	4,889
Wastewater assets					
2006-07	2,352	37	59	(43)	2,405
2007-08	2,405	58	60	(44)	2,479
2008-09	2,479	59	62	(46)	2,554
2009-10	2,554	97	64	(47)	2,668

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The average asset base in real terms is presented in Table 11. The average real asset figure (i.e. the asset base) is used to estimate the return on assets in the upper revenue bound.

Table 11: Asset base (in 2005-06 dollars)

Year	Opening balance (\$M)	Closing balance (\$M)	Average real assets (\$M)
Total assets			
2006-07	6,769	6,783	6,776
2007-08	6,783	6,839	6,811
2008-09	6,839	6,847	6,843
2009-10	6,847	6,846	6,847
Water assets			
2006-07	4,418	4,437	4,427
2007-08	4,437	4,480	4,458
2008-09	4,480	4,475	4,477
2009-10	4,475	4,429	4,452
Wastewater assets			
2006-07	2,352	2,346	2,349
2007-08	2,346	2,359	2,353
2008-09	2,359	2,372	2,366
2009-10	2,372	2,417	2,394

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9.2.2 Estimates of forecast target revenue and lower and upper revenue bounds

Table 12, Table 13 and Table 14 present the estimated lower revenue bounds, the upper revenue bounds and the forecast target revenue for SA Water, the water segment and the wastewater segment. The components of the upper and lower revenue bounds are also identified. The forecast target revenue includes the Government's 2007-08 water and wastewater pricing decisions.

Table 12: SA Water: regulatory model estimates (in 2005-06 dollars)

Outcome	SA WATER			
	2006-07 (\$M)	2007-08 (\$M)	2008-09 (\$M)	2009-10 (\$M)
Lower revenue bound				
Operating expenditure	248	252	251	257
Annuity	44	44	44	44
Interest	92	93	96	95
Income tax allocation	92	93	95	90
Dividend allocation	201	191	189	192
Lower revenue bound	677	673	675	678
Upper revenue bound				
Operating expenditure	248	252	251	257
Depreciation	127	128	130	130
Return on assets	407	409	411	411
Upper revenue bound (6% WACC)	782	789	792	797
Forecast target revenue outcome				
Forecast target revenue: i.e. Government decision*	743	751	761	770
GAP i.e. FTR less URB	(39)	(38)	(30)	(28)
FTR divided by URB	95%	95%	96%	97%

* Revenue does not include impacts from temporary water restrictions.

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Table 13: Water: regulatory model estimates (in 2005-06 dollars)

Outcome	WATER			
	2006-07 (\$M)	2007-08 (\$M)	2008-09 (\$M)	2009-10 (\$M)
<i>Lower revenue bound</i>				
Operating expenditure	163	166	164	169
Annuity	30	30	30	30
Interest	64	64	66	66
Income tax allocation	47	49	50	45
Dividend allocation	103	93	91	91
Lower revenue bound	407	402	402	401
<i>Upper revenue bound</i>				
Operating expenditure	163	166	164	169
Depreciation	85	86	87	87
Return on assets	266	268	269	267
Upper revenue bound (6% WACC)	514	520	520	524
<i>Forecast target revenue outcome</i>				
Forecast target revenue: i.e. Government decision*	453	459	468	475
GAP i.e. FTR less URB	(61)	(61)	(53)	(49)
FTR divided by URB	88%	88%	90%	91%

* Revenue does not include impacts from temporary water restrictions.

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Table 14: Wastewater: regulatory model estimates (in 2005-06 dollars)

Outcome	WASTEWATER			
	2006-07 (\$M)	2007-08 (\$M)	2008-09 (\$M)	2009-10 (\$M)
<i>Lower revenue bound</i>				
Operating expenditure	85	86	87	87
Annuity	14	14	14	14
Interest	28	28	29	29
Income tax allocation	45	44	44	45
Dividend allocation	99	98	99	101
Lower revenue bound	270	270	273	277
<i>Upper revenue bound</i>				
Operating expenditure	85	86	87	87
Depreciation	42	42	42	42
Return on assets	141	141	142	144
Upper revenue bound (6% WACC)	267	270	271	273
<i>Forecast target revenue outcome</i>				
Forecast target revenue: i.e. Government decision	290	292	293	295
GAP i.e. FTR less URB	23	23	22	22
FTR divided by URB	109%	108%	108%	108%

The forecast target revenue, the estimated upper revenue bounds and the lower revenue bounds for SA Water, the water segment and the wastewater segment, are graphically represented on the following page.

The forecast target revenue in Figure 3, Figure 4 and Figure 5, reflect the Government's 2007-08 water and wastewater pricing decisions.

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Figure 3: SA Water: regulatory model estimates (in 2005-06 dollars)

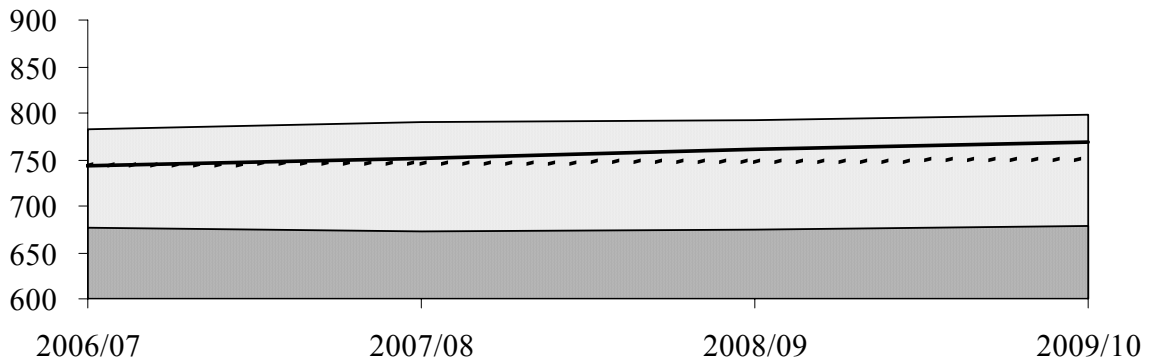


Figure 4: Water: regulatory model estimates (in 2005-06 dollars)

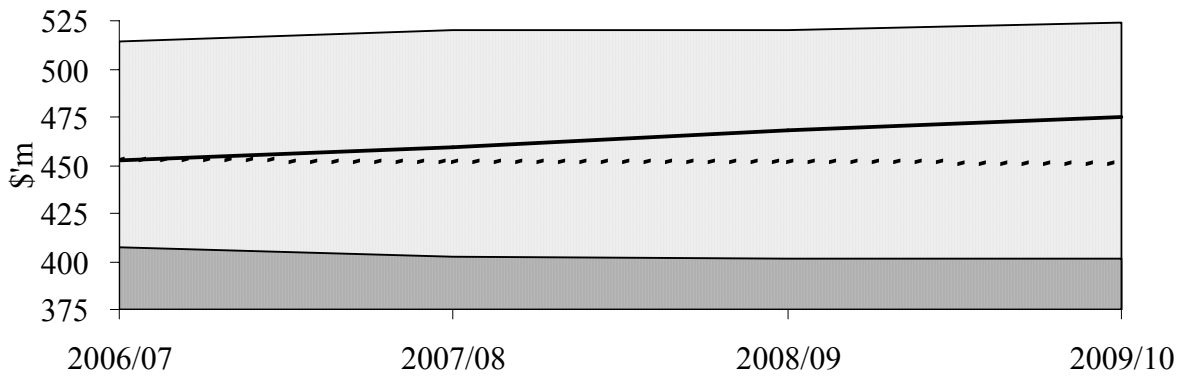
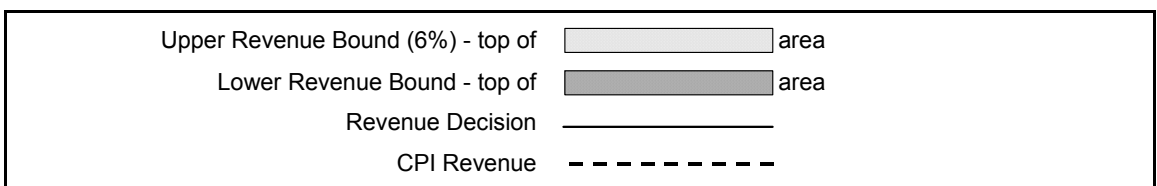
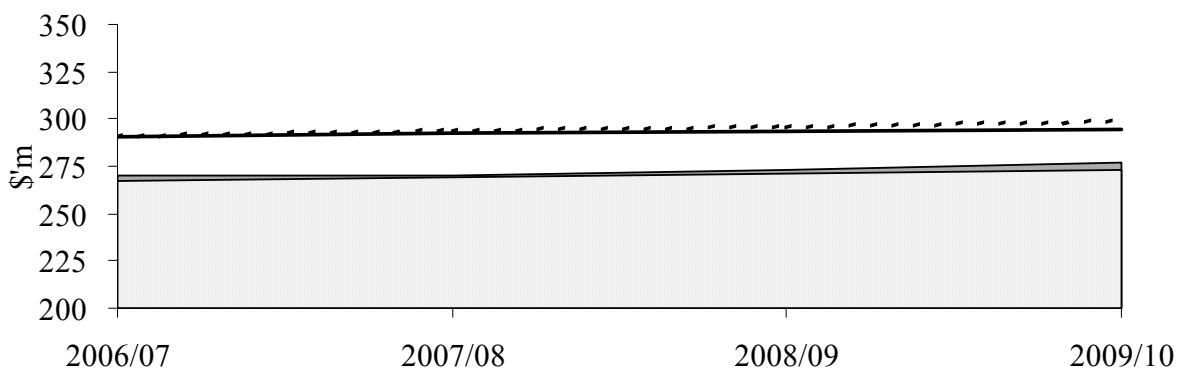


Figure 5: Wastewater: regulatory model estimates (in 2005-06 dollars)



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Figure 3 and Figure 4 illustrate that for SA Water and the water segment, estimated revenues are within the upper and lower revenue bounds, as required by 1994 CoAG pricing principles. Figure 5 illustrates that, for the wastewater segment, estimated revenues are above the lower revenue bound and upper revenue bound (based on a 6% WACC).

Table 15, Table 16 and Table 17 present forecast target revenue and the estimated upper revenue bound for SA Water, the water segment and the wastewater segment by metropolitan and regional areas.

Table 15: SA Water: regulatory model estimates: metropolitan and regional areas (in 2005-06 dollars)

Outcome	SA WATER			
	2006-07 (\$M)	2007-08 (\$M)	2008-09 (\$M)	2009-10 (\$M)
<i>Upper revenue bound</i>				
Metropolitan	512	515	516	522
Regional	270	275	276	276
Upper revenue bound (6% WACC)	782	789	792	797
<i>Forecast target revenue outcome</i>				
Metropolitan	469	477	487	496
Usage and Access Charges	440	449	457	463
CSOs	9	10	13	15
Other	19	18	18	18
Regional	274	274	274	274
Usage and Access Charges	126	131	134	137
CSOs	139	136	133	129
Other	9	8	8	8
Total metropolitan and regional forecast target revenue: i.e. Government decision	743	751	761	770

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Table 16: Water: regulatory model estimates: metropolitan and regional areas (in 2005-06 dollars)

Outcome	WATER			
	2006-07 (\$M)	2007-08 (\$M)	2008-09 (\$M)	2009-10 (\$M)
<i>Upper revenue bound</i>				
Metropolitan	291	292	292	296
Regional	223	227	228	228
Upper revenue bound (6% WACC)	514	520	520	524
<i>Forecast target revenue outcome</i>				
Metropolitan	225	232	241	248
Usage and Access Charges	209	216	222	228
CSOs	4	5	7	9
Other	12	11	11	11
Regional	227	227	227	226
Usage and Access Charges	101	105	108	111
CSOs	119	116	113	109
Other	7	6	6	7
Total metropolitan and regional forecast target revenue: i.e. Government decision	453	459	468	475

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Table 17: Wastewater: regulatory model estimates: metropolitan and regional areas (in 2005-06 dollars)

Outcome	WASTEWATER			
	2006-07	2007-08	2008-09	2009-10
	(\$M)	(\$M)	(\$M)	(\$M)
<i>Upper revenue bound</i>				
Metropolitan	221	222	224	226
Regional	47	47	48	48
Upper revenue bound (6% WACC)	267	270	271	273
<i>Forecast target revenue outcome</i>				
Metropolitan	243	245	246	247
Usage and Access Charges	231	233	234	235
CSOs	5	6	6	6
Other	7	6	6	6
Regional	47	47	47	48
Usage and Access Charges	26	26	26	27
CSOs	20	20	20	20
Other	1	1	1	1
Total metropolitan and regional forecast target revenue: i.e. Government decision	290	292	293	295

9.3 Capital expenditure

SA Water's estimated capital expenditure for 2006-07, as per the State Budget, is presented in Table 18. The values in Table 18 are in nominal terms.

Table 18: Summary of SA Water's estimated capital expenditure (nominal)

SA Water	Proposed Expenditure 2006-07 (\$M)	Total (\$M)
Christies Beach WWTP Capacity Upgrade		
Project to upgrade WWTP to allow for population growth and improved environmental outcomes.	3	140
Environment Projects		
Projects aimed to meet changes in external environmental regulations, standards or internal targets.	15	n.a.
Eyre Peninsula Water Supply Upgrade		
Augmentation of source water supplies to the Eyre Peninsula Region.	30	49
Improve Business Projects		
Projects aimed at improving the management and coordination of existing infrastructure and business services within current service standards.	7	n.a.
Information Technology Projects		
Projects aimed at improving information technology based customer and business systems.	15	n.a.
Maintain Business Projects		
Projects relating to the replacement or rehabilitation of components of SA Water's existing infrastructure in order to maintain existing service levels and capacity.	41	n.a.
Meter Replacement Stage 2		
Stage 2 of SA Water's meter replacement program involving the purchase and installation of 125,000 new meters and 14,000 additional meters to accommodate new services.	3	12
Middle River WTP – MIEX®		
Upgrade the water disinfection regime in Kingscote and surrounding area.	3	5
Millbrook Dam Safety		
Project to upgrade the dam to modern design safety standards.	3	9

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SA Water	Proposed Expenditure 2006-07 (\$M)	Total (\$M)
Safety Projects		
Projects relating to managing safety issues of the business, employees or the community.	5	n.a.
Security Projects		
Projects aimed at improving the security of SA Water's infrastructure assets	5	n.a.
Strategic Accommodation		
Fit out and provision of fixtures and fitting for new head office accommodation.	5	
System Growth Projects		
Projects relating to expansion (extension and/or capacity increase) SA Water's water and wastewater systems.	19	n.a.
Torrens System Upgrade		
Project to replace/upgrade the open channel aqueduct, which transports water from the Torrens Gorge Weir to Hope Valley Reservoir.	3	22
Water Quality Projects		
Projects relating to meeting changes in external water quality standards or regulations, and/or internal water quality targets.	9	n.a.
Total	165	n.a.

n.a denotes ongoing programs and projects

Source: SA 2006-07 Budget – Capital Investment Statement, p 51-52.

9.4 Profit and its distribution

SA Water's estimated accounting profit and its distribution for 2006-07 and 2007-08 are provided in Table 19. The values in Table 19 are in nominal terms and are based on 2006-07 MYBR estimates at the time of publication. Estimates include the effects of the 2006-07 water restrictions and the 2007-08 pricing decisions.

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Table 19: Profit and distributions to the Government from SA Water (nominal) (includes contributed assets, grants, etc, as well as water and wastewater charges)

Item	SA Water 2006-07 (\$M)	SA Water 2007-08 (\$M)
EBITDA #	529.3	564.4
Accounting profit after tax	207.8	223.7
Retained earnings	156.1	182.9
Dividend	197.4	196.9
Income tax expense	89.0	95.7

Earnings before interest, tax, depreciation and amortisation

9.5 Profitability and ongoing financial viability

Financial indicators of SA Water's ongoing viability, such as indicators of accounting profitability and financial management, are provided in Table 20. They are consistent with the Productivity Commission's definitions of financial performance indicators although reported statistics may differ as the Productivity Commission uses Government finance statistics.

The values in Table 20 are in nominal terms based on 2006-07 MYBR estimates at the time of publication. Estimates include the effects of the 2006-07 water restrictions and 2007-08 pricing decisions.

Table 20: Summary of financial ratios for SA Water (nominal)

Financial ratios	2006-07 (estimate)	2007-08 (estimate)
Profitability		
Return on assets*	5.0%	5.1%
Return on equity	3.9%	3.7%
Financial management		
Interest cover (times)	4.2	4.1
Total debt / total assets (target 15-25%)	18.3%	18.5%
Dividend payout ratio	95%	95%

*As per the definition used by the Productivity Commission.

These financial indicators demonstrate adequate profitability and interest cover. The total debt to total assets ratio and dividend payout ratio are forecast to remain stable, consistent with the public non-financial corporation ownership framework policy.

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APPENDICES

APPENDIX 1: TERMS OF REFERENCE

**NOTICE OF REFERRAL FOR AN INQUIRY INTO WATER AND
WASTEWATER PRICING IN METROPOLITAN AND REGIONAL
SOUTH AUSTRALIA**
**PURSUANT TO PART 7 OF THE ESSENTIAL SERVICES
COMMISSION ACT 2002**

FROM: Paul Holloway, Acting Treasurer

TO: The Essential Services Commission of South Australia

**RE: Water and Wastewater Prices in Metropolitan and
Regional South Australia 1 July 2007 to June 2008 and
Revenue Direction to June 2012**

BACKGROUND:

1. Pursuant to section 35(1) of the *Essential Services Commission Act, 2002* (**the Act**), the Commission must conduct an inquiry into any matter that the Minister, by written notice, refers to the Commission.
2. The Act is committed to the Treasurer by way of *Gazettal* notice dated 12 September 2002 (p. 3393).
3. The South Australian Government proposes to publish a Transparency Statement on SA Water's water and wastewater prices. The Government has prepared the attached Transparency Statement.
4. The Transparency Statement links Cabinet's decision on water and wastewater prices to the 1994 CoAG pricing principles and certain National Water Initiative obligations, provides information on SA Water's financial performance in the context of pricing decisions and past and future expenditures, and addresses details of estimates of revenues, community service obligations, capital expenditure program, profit and its distribution.
5. The Government has finalised the South Australian National Water Initiative Implementation Plan that has been accredited by the National Water Commission. This Transparency Statement process occurs pursuant to the 1994 CoAG pricing principles and relevant clauses of the South Australian National Water Initiative Implementation Plan.
6. SA Water is to meet the reasonable costs of the Commission in undertaking the inquiry.

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REFERRAL:

I, Paul Holloway, Acting Treasurer, refer to the Commission the matter described in paragraph (a) of the Terms of Reference for inquiry, in accordance with those matters in paragraphs (b) and (c) of the Terms of Reference and subject to the Directions set out in this Notice.

TERMS OF REFERENCE:

The following are the Terms of Reference for the inquiry referred pursuant to section 35(1) of the Act:

- (a) The Commission is to inquire into price setting processes undertaken in the preparation of advice to Cabinet, resulting in Cabinet making its decision on the level and structure of SA Water's water and wastewater prices in metropolitan and regional South Australia in 2007-08 and an in principle revenue direction to June 2012 having regard to:
 - a. the adequacy of the application of 1994 CoAG pricing principles taking into account the recommendations, conclusions and proposals of the National Water Commission in its *2005 NCP assessment of water reform progress*;
 - b. the National Water Initiative, specifically, Clause 65 with respect to the continued application of pricing principles to urban areas, Clause 66(i) with respect to water and wastewater pricing in the metropolitan area and Clause 66(v) with respect to water and wastewater pricing in regional (urban) areas; and
 - c. the accredited *South Australian National Water Initiative Implementation Plan* with respect to Clauses 65, 66(i) and 66(v)
- (b) In undertaking this inquiry, the Commission is to consider the *Transparency Statement Metropolitan and Regional Water and Wastewater Prices in South Australia 2007-08* (Part A) dated January 2007;
- (c) In considering the processes undertaken for the preparation of advice to Cabinet, the Commission is to advise on the extent to which information relevant to the 1994 CoAG pricing principles and the National Water Initiative was made available to Cabinet.

REQUIREMENTS FOR INQUIRY:

The following requirements are made pursuant to section 35(5) of the Act:

- (a) I require that the Commission undertake its inquiry and submit a Draft Report to the Treasurer and the Minister for Government Enterprises by no later than three months after receipt of these Terms of Reference;
- (b) I require that the Commission submit a Final Report on the inquiry to the Treasurer and the Minister for Government Enterprises by no later than six weeks after submitting the Draft Report.
- (c) In conducting the inquiry, the Commission is not required to hold public hearings, public seminars or workshops but may receive and consider any written submissions as it thinks appropriate and it must advertise to call for written submissions to be lodged no later than 28 days from the date of publication of the Notice of Inquiry;
- (d) If the Commission wishes to seek further information or guidance in relation to the conduct of this inquiry, it may contact the Director, Economic Regulation, Revenue and Economics Branch, Department of Treasury and Finance.

DIRECTIONS:

The following direction is made pursuant to section 35(5)(f) of the Act:

I direct that in undertaking its inquiry the Commission must preserve the confidentiality of any information, material or documentation provided by the Government to enable the Commission to undertake its inquiry and stamped "Strictly Confidential".



PAUL HOLLOWAY
Acting Treasurer

APPENDIX 2: COAG STRATEGIC FRAMEWORK

Relevant clauses from the CoAG Strategic Framework 1994

In relation to water resource policy, CoAG agreed:

- 2 to implement a strategic framework to achieve an efficient and sustainable water industry comprising the elements set out in (3) ... below.
- 3 In relation to pricing:
 - (a) in general —
 - i. to the adoption of pricing regimes based on the principles of consumption-based pricing, full-cost recovery and desirably the removal of cross-subsidies which are not consistent with efficient and effective service, use and provision. Where cross-subsidies continue to exist, they be made transparent, ...;
 - ii. that where service deliverers are required to provide water services to classes of customers at less than full cost, the cost of this be fully disclosed and ideally be paid to the service deliverer as a community service obligation;
 - (b) urban water services —
 - i. to the adoption by no later than 1998 of charging arrangements for water services comprising of an access or connection component together with an additional component or components to reflect usage where this is cost-effective;
 - ii. that in order to assist jurisdictions to adopt the aforementioned pricing arrangements, an expert group, on which all jurisdictions are to be represented, report to CoAG at its first meeting in 1995 on asset valuation methods and cost-recovery definitions, and
 - iii. that supplying organisations, where they are publicly owned, aiming to earn a real rate of return on the written down replacement cost of their assets, commensurate with the equity arrangements of their public ownership;

Source: NCC, 1998, *Compendium of National Competition Policy Agreements*, 2nd Edition, p 103–104, available at www.ncc.gov.au

Guidelines for applying Section 3 of the Strategic Framework and Related Recommendations in Section 12 of the Expert Group Report

1. Prices will be set by the nominated jurisdictional regulators (or equivalent) who, in examining full cost recovery as an input to price determination, should have regard to the principles set out below.
2. The deprival value methodology should be used for asset valuation unless a specific circumstance justifies another method.
3. An annuity approach should be used to determine the medium to long-term cash requirements for asset replacement/refurbishment where it is desired that the service delivery capacity be maintained.
4. To avoid monopoly rents, a water business should not recover more than the operational, maintenance and administrative costs, externalities, taxes or TERs

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(tax equivalent regime), provision for the cost of asset consumption and cost of capital, the latter being calculated using a Weighted Average Cost of Capital (WACC).

5. To be viable, a water business should recover, at least, the operational, maintenance and administrative costs, externalities, taxes or TERs (not including income tax), the interest cost on debt, dividends (if any) and make provision for future asset refurbishment/replacement (as noted in (3) above). Dividends should be set at a level that reflects commercial realities and stimulates a competitive market outcome.
6. In applying (4) and (5) above, economic regulators (or equivalent) should determine the level of revenue for a water business based on efficient resource pricing and business costs.
7. In determining prices, transparency is required in the treatment of community service obligations, contributed assets, the opening value of assets, externalities including resource management costs, and tax equivalent regimes.

Terms requiring further comment in the context of these guidelines (these comments form part of the CoAG Strategic Framework)

- The reference to *or equivalent* in principles 1 and 6 is included to take account of those jurisdictions where there is no nominated jurisdictional regulator for water pricing.
- The phrase *not including income tax* in principle 5 only applies to those organisations which do not pay income tax.
- *Externalities* in principles 5 and 7 means environmental and natural resource management costs attributable to and incurred by the water business.
- *Efficient resource pricing* in principle 6 includes the need to use pricing to send the correct economic signals to consumers on the high cost of augmenting water supply systems. Water is often charged for through a two-part tariff arrangement in which there are separate components for access to the infrastructure and for usage. As an augmentation approach, the usage component will ideally be based on the long-run marginal costs so that the correct pricing signals are sent.
- *Efficient business costs* in principle 6 are the minimum costs that would be incurred by an organisation in providing a specific service to a specific customer or group of customers. Efficient business costs will be less than actual costs if the organisation is not operating as efficiently as possible.

Source: NCC, 1998, Compendium of National Competition Policy Agreements, 2nd Edition, p 112–113, available at www.ncc.gov.au

APPENDIX 3: NATIONAL WATER INITIATIVE CLAUSES

Best Practice Water Pricing and Institutional Arrangements

Outcomes

64. The Parties agree to implement water pricing and institutional arrangements which:
- i) promote economically efficient and sustainable use of:
 - a) water resources;
 - b) water infrastructure assets; and
 - c) government resources devoted to the management of water;
 - ii) ensure sufficient revenue streams to allow efficient delivery of the required services;
 - iii) facilitate the efficient functioning of water markets, including inter-jurisdictional water markets, and in both rural and urban settings;
 - iv) give effect to the principles of user-pays and achieve pricing transparency in respect of water storage and delivery in irrigation systems and cost recovery for water planning and management;
 - v) avoid perverse or unintended pricing outcomes; and
 - vi) provide appropriate mechanisms for the release of unallocated water.

Actions

Water Storage and Delivery Pricing

65. In accordance with NCP commitments, the States and Territories agree to bring into effect pricing policies for water storage and delivery in rural and urban systems that facilitate efficient water use and trade in water entitlements, including through the use of:
- i) consumption based pricing;
 - ii) full cost recovery for water services to ensure business viability and avoid monopoly rents, including recovery of environmental externalities, where feasible and practical; and
 - iii) consistency in pricing policies across sectors and jurisdictions where entitlements are able to be traded.
66. In particular, States and Territories agree to the following pricing actions:

Metropolitan

- i) continued movement towards *upper bound pricing* by 2008;
- ii) development of pricing policies for recycled water and stormwater that are congruent with pricing policies for potable water, and stimulate efficient water use no matter what the source by 2006;
- iii) review and development of pricing policies for trade wastes that encourage the most cost effective methods of treating industrial wastes, whether at the source or at downstream plants by 2006; and
- iv) development of national guidelines for customers' water accounts that provide information on their water use relative to equivalent households in the community by 2006;

Rural and Regional

- v) full cost recovery for all rural surface and groundwater based systems, recognising that there will be some small community services that will never be economically viable but need to be maintained to meet social and public health obligations:
 - a) achievement of *lower bound pricing* for all rural systems in line with existing NCP commitments;
 - b) continued movement towards *upper bound pricing* for all rural systems, where practicable; and
 - c) where full cost recovery is unlikely to be achieved in the long term and a Community Service Obligation (CSO) is deemed necessary, the size of the subsidy is to be reported publicly and, where practicable, jurisdictions consider alternative management arrangements aimed at removing the need for an ongoing CSO.

Cost Recovery for Planning and Management

- 67. The States and Territories agree to bring into effect consistent approaches to pricing and attributing costs of water planning and management by 2006, involving:
 - i) the identification of all costs associated with water planning and management, including the costs of underpinning water markets such as the provision of registers, accounting and measurement frameworks and performance monitoring and benchmarking;
 - ii) the identification of the proportion of costs that can be attributed to water access entitlement holders consistent with the principles below:
 - a) charges exclude activities undertaken for the Government (such as policy development, and Ministerial or Parliamentary services); and
 - b) charges are linked as closely as possible to the costs of activities or products.
- 68. The States and Territories agree to report publicly on cost recovery for water planning and management as part of annual reporting requirements, including:
 - i) the total cost of water planning and management; and
 - ii) the proportion of the total cost of water planning and management attributed to *water access entitlement* holders and the basis upon which this proportion is determined.

Investment in new or refurbished infrastructure

- 69. The Parties agree to ensure that proposals for investment in new or refurbished water infrastructure continue to be assessed as economically viable and ecologically sustainable prior to the investment occurring (noting paragraph 66 (v)).

Release of unallocated water

- 70. Release of unallocated water will be a matter for States and Territories to determine. Any release of unallocated water should be managed in the context of encouraging the sustainable and efficient use of scarce water resources.
- 71. If a release is justified, generally, it should occur only where alternative ways of meeting water demands, such as through water trading, making use of the

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unused parts of existing entitlements or by increasing water use efficiency, have been fully explored.

72. To the extent practicable, releases should occur through market-based mechanisms.

Environmental Externalities

73. The States and Territories agree to:
- i) continue to manage environmental externalities through a range of regulatory measures (such as through setting extraction limits in water management plans and by specifying the conditions for the use of water in water use licences);
 - ii) continue to examine the feasibility of using market based mechanisms such as pricing to account for positive and negative environmental externalities associated with water use; and
 - iii) implement pricing that includes externalities where found to be feasible.

Institutional Reform

74. The Parties agree that as far as possible, the roles of water resource management, standard setting and regulatory enforcement and service provision continue to be separately institutionally.

Benchmarking Efficient Performance

75. The States and Territories will be required to report independently, publicly, and on an annual basis, benchmarking of pricing and service quality for metropolitan, non-metropolitan and rural water delivery agencies. Such reports will be made on the basis of a nationally consistent framework to be developed by the Parties by 2005, taking account of existing information collection including:
- i) the major metropolitan inter-agency performance and benchmarking system managed by the Water Services Association of Australia;
 - ii) the non-major inter-agency performance and benchmarking system managed by the Australian Water Association; and
 - iii) the irrigation industry performance monitoring and benchmarking system, currently being managed by the Australian National Committee of Irrigation and Drainage (ANCID).
76. Costs of operating the above performance and benchmarking systems are to be met by jurisdictions through recovery of water management costs.

Independent pricing regulator

77. The Parties agree to use independent bodies to:
- i) set or review prices, or price setting processes, for water storage and delivery by government water service providers, on a case-by-case basis, consistent with the principles in paragraphs 65 to 68 above; and
 - ii) publicly review and report on pricing in government and private water service providers to ensure that the principles in paragraphs 65 to 68 above are met.

Source: CoAG, 25 June 2004, *Intergovernmental Agreement on a National Water Initiative*, available at www.coag.gov.au/meetings/250604/#water_initiative

**APPENDIX 4: 2004-05 ANNUAL EFFICIENCY
REPORT**

**2004/05
ANNUAL EFFICIENCY REPORT**

**Prepared for the 2007-08
Transparency Statement**



November 2006

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EXECUTIVE SUMMARY

This report examines the efficiency of SA Water's operations by reviewing the performance of services provided up until the financial year ending June 2005. The analysis is undertaken as a key input into processes for:

- Pricing - to demonstrate that water and wastewater prices are based on "efficient resource pricing and business costs" and accordingly are compliant with CoAG pricing principles;
- Budgeting - to demonstrate to the Government (as owner) that the Corporation's budgets and financial targets are reflective of an efficient business.

The review of SA Water's performance is considered in terms of service levels, cost efficiency and value for money and explores trends over time as well as a comparison to similar water and wastewater companies in Australia. Appendix 1 provides a summary of key differences in the operating environment of SA Water and other States.

For metropolitan operations, comparisons are made with eight similar water and wastewater companies using the annual performance report of the Water Services Association of Australia (WSAA), *WSAAfacts*. Data is provided for the period 1999-00-2004/05 as *WSAAfacts* 2006 has not been published at the time of reporting.

For non-metropolitan operations, information on service levels is provided for the first time for six regional centres, namely, Pt Pirie, Pt Augusta, Pt Lincoln, Mt Gambier, Whyalla and Murray Bridge. The six centres were chosen as they are representative of the mix of different types of operating environments within SA Water's regional system and are viable comparators to regional areas interstate. Data of these centres will also be used for National Water Initiative performance benchmarking reporting commencing in 2005-06. Information on costs is provided on a total regional basis (non-metropolitan).

The three regions were originally selected as they represented the broad regional systems: Outer Adelaide covers the Barossa and Fleurieu regional areas including the western side of the Mt Lofty Ranges and Kangaroo Island. Whyalla's water supplies are drawn from the pipeline from the River Murray while Mt Gambier's supply is drawn from underground sources, primarily from Blue Lake. Outer Adelaide has a mix of these two supply types as well as from the local catchment.

Comparisons of performance are made using publicly available performance reports from New South Wales, Victoria, Queensland and Western Australia.

It should be noted that the water utilities included in these performance reports can differ significantly in terms of operating environments, the age of assets and the range and scope of services provided. Accordingly, caution should be taken in drawing conclusions directly from benchmarking against these utilities without some consideration of these factors. Such comparisons do provide a useful guide however, especially in terms of assessing relative trends in the Corporation's performance.

Key findings of the efficiency analysis are summarised as follows:

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Metropolitan service standards

Table 1 summarises the performance for the Corporation in terms of change over time and relative to the compared water companies.

Table 1

SA Water metropolitan service performance - summary comparisons

Category	Change over time			2004-05 Performance relative to other providers		
	% Change over last 3 years to 04-05	% change over last 5 years to 04-05	Trend	Average of compared companies	Average of WSAA companies	Rank ⁽¹⁾ 04-05
Water Supply:						
<i>Customer Service</i>						
Number of Water Quality Complaints per 1,000 Properties	-12.0	2.5	Not clear	Better	Better	2 (9)
Average Duration of an Unplanned Water Supply Interruption (hr)	0.0	-33.3	Improving	Worse	Worse	8 (9)
Average Connect Time to a Telephone Operator (seconds)	10.0	1.0	Not clear	Better	Similar	3 (7)
<i>Environmental</i>						
Infrastructure Leakage Index	0.0	0.0	n.a.	Better	Better	3 (9)
<i>System performance</i>						
No. of Water Main Breaks per 100 km of Main	10.2	0.0	Not clear	Better	Better	4 (9)
Wastewater:						
<i>Customer Service</i>						
Number of Property Connection Sewer Breaks & Chokes per 1,000 Properties	18.2	21.1	Not clear	Worse	Worse	7 (7)
Average Wastewater Break/Choke Repair Time (hr)	-12.5	-20.0	Not clear	Better	Better	2 (8)
Odour Complaints per 1,000 Properties	0.0	133.7	Not clear	Similar	Better	5 (9)
<i>Environmental</i>						
Number of Wastewater Overflows per 100 km ⁽²⁾	18.1	21.1	Not clear	Better	Better	6 (7)
Proportion of Wastewater Treated to a Tertiary Level	43.7	n.a.	Improving	Better	Better	3 (9)
Proportion of Water Recycled	37.1	31.6	Improving	Better	Better	1 (8)
Proportion of Bio-solids Reused	-18.4	-23.2	Not clear	Better	Better	1 (7)
<i>System Performance</i>						
Number of Wastewater Reticulation Main Breaks and Chokes per 1,000 Properties ⁽²⁾	37.9	23.1	Not clear	Similar	Similar	7 (9)

⁽¹⁾ Ranked from best to worst of average of compared companies. Parentheses contain number in comparison group.

⁽²⁾ "Average" affected by an extreme value in comparison group. Median is better indicator.

The customer service performance of the Corporation's metropolitan water supply operations can be summarised in the following terms:

- Over the five years to 2004-05, the Corporation had a static trend in water quality complaints while water quality was improving. Notwithstanding this, the Customer Satisfaction Survey shows that customers are increasingly less concerned about water quality as represented from survey data over the last six years.
- The average duration of water supply interruptions has improved but is high by comparison to the average of all WSAA companies.
- Connect times to a telephone operator have remained static over the five year period to 2004-05 despite increased enquiries as a result of water restrictions. The average remains better than the average of all WSAA companies of 30 seconds in 2004-05.

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Water quality is probably the most important of these indicators, at least in the Adelaide context, and therefore the key conclusion regarding customer service is that there has been a trend improvement over recent years.

The single indicator of the environmental attributes of the metropolitan water supply system, the Infrastructure Leakage Index, shows a flat trend. It also indicates that leakage in Adelaide is less than most other States.

The single indicator of system performance, the number of water main breaks per 100 km of main, has remained the same as it was five years ago and continues to be relatively low compared with the average of all WSAA companies.

In terms of customer service for metropolitan wastewater services the rate of breaks and chokes in property connections shows that performance has deteriorated with metropolitan customers experiencing relatively high rate of breaks and chokes in their property connection compared to the average of all WSAA companies. On the other hand the Corporation's performance in terms of odour complaints is about average and the average repair time for breaks and chokes has remained significantly better than the average of all WSAA companies.

A key component of wastewater service performance is its environmental impacts. There have been substantial improvements in performance against a number of environmental indicators over recent years. Overflow rates, while rising marginally over the five year to 2004-05, are well below the average of all WSAA companies, the prevalence of tertiary treatment has risen very rapidly to reach a high 97 per cent, there has been a substantial increase in the reuse of treated effluent, and reuse of biosolids exceeded annual biosolid production throughout the report period. In the interstate comparison, the Corporation is a better than average performer in terms of tertiary treatment, water reuse and biosolids reuse.

Metropolitan costs

Table 2 provides a summary comparison of SA Water's cost performance against the weighted average of the eight other urban water and wastewater service providers used in this study and the average of all WSAA companies.

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Table 2
Metropolitan Service Operating Costs (in 2004-05 dollars) – Summary Comparisons

Category	Change over time			2004-05 Performance Relative to other Companies		
	3 years to 04-05	5 years to 04-05	Trend	Weighted of Compared Companies	Median of all WSAA Companies	2003-04 Rank ⁽¹⁾
<i>Water Supply</i>						
Operating Cost Per Property	2.7%	-5.7%	Improving	Better	Better	2
<i>Wastewater</i>						
Operating Cost Per Property	14.3%	7.8%	Worsening	Better	Better	1

(1) Ranking is from cheapest to most costly out of 9 providers.

SA Water's metropolitan water supply costs have reduced in real terms over the six-year reporting period. This suggests favourable efficiency trends, especially when there has been an increasing level of customer satisfaction with water quality over the period.

SA Water's metropolitan water supply operating costs are well below the weighted average of the compared companies and significantly lower than the average costs of all WSAA companies. This is in spite of some manifest cost disadvantages for Adelaide metropolitan water supply, most obviously the need to pump water long distances and the need for relatively extensive treatment of that water to achieve drinking water standards. As might be expected, these disadvantages appear to some extent to be borne out by a higher level of consumer complaints with water quality compared to other States, but they could also be expected to push costs above average. In view of this the relatively low operating costs of SA Water's metropolitan water supply system suggests good cost performance.

For metropolitan wastewater, SA Water's costs have increased by approximately 8% in real terms over the reporting period largely attributable to the Environment Improvement Program required by the Environment Protection Authority. The results however, are improved quality of discharges into the environment.

Despite the increases in costs relative to other wastewater service providers the Corporation's metropolitan wastewater costs remain the lowest by a significant margin when compared to the weighted average of compared companies and the average of all WSAA companies.

Regional service standards

Table 3 provides a summary comparison of the Corporation's regional system and other regions for two primary indicators of regional service performance. Water quality is not included as no comparisons were made.

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Table 3

SA Water Regional Service Performance - Summary Comparisons

Category	Change over time			2004-05 Performance relative to other providers	
	3 years to 04-05	5 years to 04-05	Trend	Median	Rank ⁽¹⁾ 02-03
Water Supply:					
<i>Customer Service</i>					
Water Main Breaks per 100 km of Main	-17%	-16%	Flat	Best	1 (4)
Wastewater:					
<i>Customer Service</i>					
Number of Sewer Chokes per 100 km of Main	32	53%	Increasing	Best	1 (3)

(1) Ranked from best to worst. Parentheses contain number in comparison group.

On a regional basis (and for each of the six regional centres) the Corporation's water quality is consistently well above the relevant standard contained in the Australian Drinking Water Guidelines.

SA Water's regional water supply system shows an essentially flat trend on breaks per 100 km of main, however, the rate is relatively low when compared with estimates for the other States.

SA Water's regional wastewater system also shows an essentially flat trend on breaks and chokes per 100 km of main and the breakage rate is relatively low when compared with estimates for the other States.

Regional costs

Table 4 provides a summary comparison of SA Water's cost performance for regional services.

Table 4

SA Water Regional Service Costs (in 2004-05 dollars) – summary comparisons

Category	Change over time		
	3 years to 04-05	5 years to 04-05	Trend
<i>Water Supply</i>			
Operating Cost Per Property	-0.5	0.8	Flat
<i>Wastewater</i>			
Operating Cost Per Property	18.1	10.6	Increasing

Over the report period 1999-00 to 2004-05 there was a marginal increase in operating costs for water supply primarily due to an increase in variable costs especially in electricity and the establishment of new water treatment plants in several areas. Containment of these costs suggests a high level of efficiency is being maintained.

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Operating costs for regional water supply are generally higher in South Australia than interstate due to poor water accessibility and quality.

Operating costs for the South Australian regional wastewater system as a whole have shown a generally increasing trend in real terms over recent years largely attributable to a change in accounting policy (which has correspondingly had a downward effect on regional water supply cost estimates) and costs arising from meeting the requirements of the environmental regulator including higher treatment standards required in regional areas.

On the basis of the time series data, it can be concluded that costs have been well contained over time, and that this has been achieved without adverse performance consequences in terms of standards of service as described in Section 4. Interstate comparisons suggest that the costs of the Corporation's regional wastewater system are relatively low.

Value for money

The Customer Satisfaction Survey conducted by the Corporation in 2006 indicates customers are generally very satisfied with the range and quality of services provided by the Corporation. Eighty-four per cent (84%) of responses to the survey consider that the price of water represents good or average value.

The standard of service offered by the Corporation to its customers is predominately at the mid-to-highest level when compared with the service levels offered customers by the other water bodies.

Operating costs for water supply and wastewater services are comparatively low in Adelaide when compared with other Australian cities, however, the cost of the services as reflected by the customer's Bill, is comparatively high.

1. INTRODUCTION

CoAG pricing principles require that revenue targets be based on efficient resource and business costs. These costs need to be assessed in terms of:

- The performance of capital infrastructure;
- Levels of expenditure; and
- Levels of service.

Given the long-term nature of capital infrastructure in providing water and wastewater services, the opportunity for short term management decisions affecting efficiency is limited and is therefore not specifically considered in this analysis. In addition, as the majority of business inputs are sourced through competitive tendering processes, there is limited scope to achieve further efficiencies through competition.

In order to assess the efficiency of the provision of SA Water's metropolitan and regional services an analysis has been undertaken of the relative performance of the Corporation's water supply and wastewater services in terms of:

- Customer service – examined in terms of drinking water quality, reliability of service and customer communications;
- Management of environmental impacts;
- System performance; and
- Cost of providing services.

The analysis is undertaken in terms of trends in the Corporation's performance over a six-year period and by comparison with relevant water and wastewater companies in Australia.

SA Water participates in *WSAAfacts*, a national performance benchmarking publication of the Water Services Association of Australia (WSAA), which has been accepted by the National Competition Council and the National Water Initiative as a recognized source of benchmarking information for urban water and wastewater service providers. *WSAAfacts*, which is restricted to metropolitan operations, provides the major source of benchmarking data for the metropolitan component of this report.

Unfortunately, a similar publication for country operations is at present not available but comparative service data is provided for six regional areas of SA Water's operations, namely, Pt Pirie, Pt Augusta, Pt Lincoln, Mt Gambier, Whyalla and Murray Bridge. These areas were chosen as they represent the mix of systems and networks operated by the Corporation in regional South Australia. Information on costs is provided on a total regional basis (non-metropolitan).

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The analysis in this report is presented for water supply services and wastewater services for the metropolitan and regional operations of the Corporation. Comparisons are made with regional data from NSW, Victoria, Queensland and Western Australia. The Corporation conducts an annual customer satisfaction survey. Where relevant results of these surveys are included.

2. BENCHMARKING OF METROPOLITAN SERVICE STANDARDS

2.1 Introduction

SA Water's operations in the metropolitan area comprise a network of 8,739 km's of water main and 6,903 km's of wastewater main providing services to a population of approximately 1.09 million people.

While *WSAAfacts* provides information on 27 major urban water utilities, the scope of services provided by these utilities differs markedly. Some provide only retail services; others only bulk water services; while others provide the full range of water supply and wastewater services. Some serve a single city while others have a state-wide focus. Key differences between SA Water's operating environment and that of other water services providers are identified in Appendix 1.

In view of the wide differences, the comparative analysis herein is restricted to the following major urban water and wastewater service providers:

- ActewAGL – provides water, wastewater and electricity services for Canberra.
- Brisbane Water – provides water and wastewater services for Brisbane and bulk water for five neighbouring regional councils.
- Melbourne Consolidated – a 'composite' made up of the four companies which collectively provide water and wastewater services for Melbourne:
 - a) Melbourne Water (wholesale business)
 - b) City West Water (retail business)
 - c) South East Water (retail business)
 - d) Yarra Valley Water (retail business).

Melbourne Consolidated is a more relevant comparator to SA Water than its individual components because it integrates both wholesale and retail activities that SA Water undertakes in a single organisation. In addition, Melbourne Consolidated provides coverage of an entire metropolitan area and is therefore more representative of the scope of SA Water's metropolitan operations. However, where measures at this consolidated level are not provided in *WSAAfacts*, (i.e. they are principally measures relevant to a retailer) the result for the three retailers have been adopted for comparison.

- Power and Water – provides water, wastewater and electricity for the greater Darwin region and in centres throughout the Northern Territory including Katherine, Tennant Creek, Alice Springs and Yulara.
- Sydney Water – the largest public water corporation in Australia that provides water and wastewater services for Sydney, Illawarra and the Blue Mountains.

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- Water Corporation – provides water and wastewater services for the whole of Western Australia. Only its metropolitan Perth operations are reported in *WSAAfacts*.

These organisations are all public corporations serving urban water customers in State/Territory cities or major regional centres and Table 2.1 lists the water and wastewater services provided by each service provider included in the benchmarking exercise. Data from those companies with other segments such as electricity in their businesses has been restricted to only the water component. Similarly, data from those companies with regional segments has been removed.

Table 2.1
Water and Wastewater Services provided by Company

Service provider	Water Wholesale	Water Retail	Wastewater Wholesale	Wastewater Retail	Other
ActewAGL	Yes	Yes	Yes	Yes	Water- Bulk Storage
Brisbane Water	Yes	Yes	Yes	Yes	Stormwater
City West Water	No	Yes	Yes	Yes	None
Power and Water	Yes	Yes	Yes	Yes	Water- Bulk Storage
SA Water	Yes	Yes	Yes	Yes	Water- Bulk Storage
South East Water	No	Yes	Yes	Yes	None
Sydney Water	Yes	Yes	Yes	Yes	1. Water- Bulk Storage 2. Stormwater
Water Corporation	Yes	Yes	Yes	Yes	1. Water- Bulk Storage 2. Stormwater
Yarra Valley Water	No	Yes	Yes	Yes	None

These major urban water and wastewater service providers were chosen for this comparative analysis because they have sufficiently similar characteristics to be reasonably useful comparators. In particular, they each provide services in large metropolitan areas which can be expected to have some commonality in terms of economies of scale achieved and population density over the network. There is also a degree of benchmarking against other companies with the use of comparisons with the average of WSAAs companies.

WSAAfacts involves each participating water service provider reporting data using common definitions and some data items are independently audited. This means that *WSAAfacts* minimises differences in definitions used and assumptions made, although some inconsistencies are likely to remain. Moreover, the benchmarks considered are the outcome of detailed industry consideration of the range of indicators which capture relevant aspects of water service providers' operations. *WSAAfacts* has been recognised in the National Water Initiative as part of a new nationally consistent framework.

All indicators relating to service performance and costs in this review of SA Water's metropolitan operations have been obtained from *WSAAfacts*.

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Each service performance indicator is categorised as either: “customer service”, which include aspects of service which are directly relevant to the customer; “environmental performance”, by which we mean the extent of any environmental spillovers; and “system performance” by which we mean other indicators of system function. In some cases an indicator may touch on more than one of these categories, in which case it is allocated to the area where it has greatest relevance.

Data are presented in tabular and in a few cases graphic format for metropolitan water and wastewater services. A range of service, performance and quality indicators has been presented for the period 1999-00 to 2004-05 where data permits. Operating cost data for both water and wastewater services have also been presented. Data is not available for 2005-06 as WSAAfacts 2006 has not been published at the time of reporting.

Analysis of the data includes consideration of trends through time and comparisons across the providers. Percentage changes over the period, all company average and all company median³ values have been considered. A comparison is also made of the average of all (26) WSAA providers reported in WSAAfacts.

2.2 Metropolitan Water Supply Services

The following indicators were chosen to benchmark metropolitan water supply service performance:

Customer service

- Drinking Water Quality;
- Number of Water Quality Complaints per 1,000 Properties;
- Average Duration of an Unplanned Water Supply Interruption⁴;
- Average Connect Time to a Telephone Operator.

Environmental performance

- Infrastructure Leakage Index.

System performance

- Number of Water Main Breaks per 100km of Main.

³ The *median* is the score found for the comparator at the exact middle of a ranked set of comparators. In many instances 9 comparators are used in this comparison study, in which cases the median is simply the fifth best (and fifth worst) result.

⁴ A water supply interruption is an event that causes a total loss of water supply to some customers. One interruption generally causes multiple customer interruptions. WSAAfacts includes several other performance measures that assess reliability of supply such as the number of unplanned interruptions per 1,000 properties and the number of properties experiencing 1-5 interruptions per year. SA Water has not reported this data in the past because the information was not captured. Recognising this is a useful performance measure consideration is being given to how best to capture and report this data.

2.2.1 Customer service

Drinking water quality

SA Water is committed to supplying drinking water that is consistent with the *microbiological performance standards* for levels of *E-coli* and total coliform bacteria contained in the Australian Drinking Water Guidelines 1996 (the Guidelines). The Corporation also aims to achieve the *physical and chemical performance standards* contained in the Guidelines for colour, turbidity and acidity levels.

Table 2.2 illustrates SA Water's compliance with water quality standards as reported in WSAAfacts. This shows that over the last four years SA Water has achieved the bacterial and physical/chemical standards of the Guidelines.

Table 2.2

Compliance with Water Quality Standards

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05
Microbiological compliance (yes/no)	Yes	No*	Yes	Yes	Yes	Yes
Physical/chemical compliance (yes/no)	Yes	No**	Yes	Yes	Yes	Yes

* Full compliance with *E.coli* guideline, compliance with coliforms guideline was 93.8% (ADWG target is 95%)

** Full compliance with colour and turbidity; compliance for ph was 98.7% (ADWG target 100%)

Number of water quality complaints per 1,000 properties

While microbiological water quality is the most important indicator from a public health perspective, aesthetic qualities such as colour, taste and odour are important for customers and are often the main concern for complaint.

The 2006 Customer Satisfaction Survey sought a range of responses from participants about water quality. Table 2.3 shows responses from participants about their level of concerns with water quality for the period 2002-2006. The Table shows the percentage of consumers with concerns about the quality of their tap water has decreased significantly from 35% in 2002 to 16% in 2006. Correspondingly, those with no concerns increased significantly from 63% in 2002 to 83% in 2006.

Table 2.3

Level of tap water quality concerns

	2002	2003	2004	2005	2006
Yes, strong concerns	11%	9%	10%	6%	4%
Yes, moderate concerns	24%	21%	18%	15%	12%
No, no real concerns	63%	70%	68%	77%	83%
Can't say	2%	0%	4%	2%	1%
Total	100%	100%	100%	100%	100%

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Table 2.4 provides information from WSAAs facts about SA Water's and the compared water bodies number of complaints from customers regarding discolouration, taste, odour, stained washing, illness etc. Complaints relating to service interruption, adequacy of service, restrictions, pressure etc are not included.

Table 2.4
Number of Water Quality Complaints per 1,000 properties

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	% Change 3 years to 2004-05	% Change 5 years to 2004-05
ActewAGL	2.0	2.3	2.8	1.8	1.9	2.5	-10.7	25.0
Brisbane Water	12.1	8.1	4.4	3.3	4.8	3.7	-15.9	-69.4
City West Water	2.0	1.9	1.8	1.1	0.8	1.3	-27.8	-35.0
Power & Water	3.5	5.4	4.6	1.7	2.7	2.7	-41.3	-22.9
SA Water	2.3	2.4	1.7	1.6	1.1	1.2	-29.4	-47.8
South East Water	3.8	3.4	3.4	2.8	2.2	1.8	-47.1	-52.6
Sydney Water	4.8	3.2	2.4	2.0	1.4	1.1	-54.2	-77.1
Water Corporation	n.a.	18.8	16.5	18.6	20.1	17.3	4.8	n.a.
Yarra Valley Water	4.1	5.4	5.5	5.1	5.6	6.5	18.2	58.5
Average	4.3	5.6	4.8	4.2	4.5	4.2	-11.6	-2.1
Average all WSAAs companies	6.5	7.9	5.9	4.7	4.9	4.9	-20.6	-24.8

SA Water's results show almost a 50% reduction in the Number of Water Quality Complaints per 1,000 Properties over the reporting period to 2004-05 and the Corporation has consistently been the best or next best performer of each of the compared companies throughout the period.

SA Water's results have also consistently been better than the average of all WSAAs companies. Given the poor quality of the source water these results are outstanding.

Average Duration of an unplanned water supply interruption (hr)

The Customer Charter commits the Corporation to responding to interruptions to water supply and wastewater services to prescribed service standards. For example, in the metropolitan area, in 99% of cases of an interruption of service (category 1), service will be restored within 5 hours and in all cases (100%) will be restored in 12 hours.

Table 2.5 shows the average length of time (in hours) a customer is without potable water supply following an unplanned interruption. This interruption involves a total loss of water supply.

Under contractual arrangements with United Water, targets are set to restore service following an unplanned interruption. These targets are categorised according to their emergency status. The contractual performance targets have consistently been met and the length of time to restore service has not been an issue in customer surveys.

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Table 2.5

Average Duration of an Unplanned Water Supply Interruption (hr)

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	% Change 3 years to 2004-05	% Change 5 years to 2004-05
ActewAGL	1.9	1.9	1.7	1.6	2	1.4	-21.4	-26.3
Brisbane Water	2.7	2.6	2.7	2.6	2.5	2.7	0.0	0.0
City West Water	2.0	2.0	1.8	1.8	1.9	1.9	5.3	-5.0
Power & Water	1.5	1.0	1.0	1.0	0.9	1.0	0.0	-33.3
SA Water	2.2	2.8	4.3	3.8	3.2	2.7	-59.3	22.7
South East Water	2.2	2.0	2.0	1.8	1.6	1.5	-33.3	-31.8
Sydney Water	2.1	2.2	2.4	2.3	1.7	1.7	-41.2	-19.0
Water Corporation	2.1	2.0	2.0	2.3	2.2	2.3	13.0	9.5
Yarra Valley Water	1.5	1.4	1.3	1.5	1.6	1.5	13.3	0.0
Average	2.0	2.0	2.1	2.1	2.0	1.9	-15.0	-8.2
Average WSAA companies	2.2	2.2	2.2	2.1	1.9	1.9	-15.8	-13.6

For SA Water, the Average Duration of an Unplanned Water Supply Interruption increased by 22.7 per cent over the five years to 2004-05. This compares to a decline in the average across all responding companies of 8 per cent over the same period. In all years the Corporation's performance has been the poorest of the average of the compared companies. SA Water's performance was near the average of all WSAA companies until 2001-02 when the average duration increased sharply. However, the Corporation's results show an improving trend in the past three years.

Average Connect Time to a Telephone Operator

Table 2.6 reports the Average Connect Time to a Telephone Operator (in seconds) before a customer is connected to a company representative. It provides a comparison of the Corporation's performance since 1999-00 when this data was first collected. Complete data for the full reporting period is only available for 2 of the 9 companies.

Table 2.6

Average Connect Time to a Telephone Operator (seconds)

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	% Change 3 years to 2004-05	% Change 5 years to 2004-05
ActewAGL	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Brisbane Water	n.a.	n.a.	n.a.	21	24.3	15.6	100.0	n.a.
City West Water	n.a.	183	76.2	49.8	31	15.0	-408.0	n.a.
Power and Water	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
SA Water	19.8	19.2	18.0	27.0	26.0	20.0	10.0	1.0
South East Water	n.a.	n.a.	30	25.8	26.1	25.0	-20.0	n.a.
Sydney Water	n.a.	n.a.	12.8	15.8	18.8	25.9	50.6	n.a.
Water Corporation	15.0	13.8	15.6	18.4	19.9	21.0	25.7	40.0
Yarra Valley Water	n.a.	n.a.	30.6	28.8	28.6	28.6	-2.7	n.a.
Average	17.4	72.0	30.5	26.7	25.0	21.8	-40.3	25.0
Average WSAA companies	17.4	72.0	29.2	35.3	33.0	29.8	2.1	71.4

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The Average Connect Time to a Telephone Operator for SA Water increased by 10 per cent over the period 2000-01 to 2004-05 as a consequence of the imposition of water restrictions and resulting unusually high enquiry load.

Seven of the nine providers reported this item for 2004-05 and the Corporation's performance was in the top three performers.

SA Water's results, which show a gradual improvement until 2002-03, are in the median range of the selected companies. Until that year the results were very close to the best and were marginally better than the average for all WSAA companies. SA water considers a response in 20 seconds is a benchmark performance for this measure.

2.2.2 Environmental performance

The impact of SA Water's metropolitan operations on the environment is an important measure of efficiency and is assessed in terms of the proportion of water that is lost to the environment.

Infrastructure Leakage Index (ILI)

This measure examines the efficiency of the water distribution network. Losses in the network through leakage impact on the ability to provide service reliability and represent a financial loss to the business. Ultimately most losses result in water being extracted and harvested from the environment and not being consumed.

Table 2.7 reports the Infrastructure Leakage Index. This index for water losses comprises *current annual real water losses* divided by *unavoidable annual real water losses*. The lower the index the more efficient is water system management.

The Infrastructure Leakage Index is included here on the grounds that lower wastage implies reduced extractions from water sources and therefore more water available for economic uses or to provide environmental flows in areas of need. To the extent that the Corporation's marginal cost of raw water is reflective of environmental costs, reduced leakage rates could of themselves lead to lower operating costs.

Table 2.7

Infrastructure Leakage Index – 2001/02-2004/05

	2001-02	2002-03	2003-04	2004-05	% Change 3 years to 2004-05
ActewAGL	1.2	1.3	0.9	1.0	-20.0
Brisbane Water	2	2.3	2.4	2.5	20.0
City West Water	1.7	2.0	1.4	1.2	-41.7
Power and Water	4.6	5.5	4.9	5.8	22.4
SA Water	1.2	1.2	1.2	1.2	0.0
South East Water	1.5	1.4	1.3	1.0	-50.0
Sydney Water	2.8	2.9	2.1	1.8	-55.6
Water Corporation	1.3	1.5	n.a.	1.6	18.8
Yarra Valley Water	1.3	1.3	1	1.4	7.1
Average	1.9	2.2	1.7	1.9	0.0
Average WSAA companies	1.8	2.0	1.9	1.7	-5.9

The Infrastructure Leakage Index did not change for SA Water over the period 2001-02 (when it was introduced) to 2004-05. For the remaining companies three of the eight saw a decline in their Infrastructure Leakage Index and five saw an increase. Over the reporting period SA Water's index level was unambiguously better than average.

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SA Water’s performance has been consistent over the three years and consistently better than the average of all the compared companies. An ILI of 1.2 is in the range benchmarked as “excellent” and one of the best figures for Australian urban water authorities.

2.2.3 System performance

Number of Water Main Breaks per 100km of Main

Table 2.8 shows the number of water main breaks as a proportion of the total length of water main serviced by the provider. This does not include breaks in the service connection from the main to the customers’ property nor the internal plumbing.

The Number of Water Main Breaks per 100 km of Main is included as an indicator of frequency of system failure.

Table 2.8

Number of Water Main Breaks per 100 km of Main

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	% Change 3 years to 2004-05	% Change 5 years to 2004-05
ActewAGL	11.7	18.4	18.8	26.3	26.3	23.8	26.6	103.4
Brisbane Water	35.9	37.6	36.5	36.7	34.5	40.0	9.8	11.4
City West Water	70.1	58.3	56	102.9	91.6	65.9	17.7	-6.0
Power & Water	9.1	20.3	24.5	20.7	18.1	44.3	80.8	386.8
SA Water	24.6	24.5	22.1	24.2	23.4	24.6	11.3	0.0
South East Water	26.4	26	21.1	29	26.6	22.7	7.6	-14.0
Sydney Water	42.3	37.7	37.5	50.7	38	37.8	0.8	-10.6
Water Corporation	12.3	12.6	12.9	13.2	13.6	13.8	7.0	12.2
Yarra Valley Water	42.1	55.9	40.7	56.2	51.5	41.4	1.7	-1.7
Average	30.5	32.4	30.0	40.0	35.9	34.9	16.4	14.5
Average all WSAA companies	28.1	25.9	25.0	31.7	26.8	26.6	6.0	-5.3

For SA Water, the Number of Water Main Breaks per 100km of Main remained the same over the five years to 2004-05 while four of the other companies showed increases and three reductions. In all years SA Water’s performance has been better than the average of compared companies and below the median value of WSAA companies.

2.3 Metropolitan Wastewater Services

The following indicators were chosen to benchmark metropolitan wastewater service performance:

Customer service

- Number of Property Connection Sewer Breaks & Chokes per 1,000 Properties;
- Number of Odour Complaints per 1,000 properties;
- Average Wastewater Break/Choke Repair Time (hr).

Environmental performance

- Number of Wastewater Overflows per 100 km;
- Proportion of Wastewater Treated to a Tertiary Level;
- Proportion of Water Recycled;
- Proportion of Bio-solids Reused; and

System performance

- Number of Wastewater Reticulation Main Breaks and Chokes per 1,000 Properties.

“Environmental”, in this context, includes indicators which relate to a human impact affecting third parties, as well as those with a more direct ecological or natural resource impact. For instance, the Number of Wastewater Overflows per 100 km and Average Wastewater Break/Choke Repair Time are assumed mainly to indicate the extent of environmental health risks.

The Proportion of Wastewater Treated to a Tertiary Level, Per cent of Water Recycled and Per cent of Bio-solids Reused are included as indicators of the degree to which the sewage system is operating in a manner consistent with environmental sustainability.⁵

The Number of Wastewater Reticulation Main Breaks and Chokes per 1,000 Properties has been included as an indicator of system performance. It has not been included as an environmental indicator because it is assumed that the number of overflows captures the environmental impacts of any discharges of untreated effluent arising from reticulation main breaks or chokes.⁶

⁵ For this Category of Indicators, *WSAAfacts* also includes data on the percentage of wastewater treated to a primary and secondary level, the number of wastewater plants compliant at all times, the percentage of wastewater volume treated that was compliant and information on net greenhouse gas emissions.

⁶ *WSAAfacts* also has information for the percentage of wastewater reticulation main breaks and chokes caused by tree roots, and the number of property connection sewer breaks & chokes caused by tree roots.

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2.3.1 Customer service

Number of Property Connection Sewer Breaks & Chokes per 1,000 Properties

Table 2.9 shows the Number of Property Connection Sewer Breaks and Chokes per 1,000 Properties. The property connection is the short sewer that connects the reticulation main sewer to the customer sanitary drain.

The Corporation's performance for this measure declined by approximately 10 per cent over the five years to 2004-05, however, there was not a distinct trend through the period.

Table 2.9

Number of Property Connection Sewer Breaks & Chokes per 1,000 Properties

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	% Change 3 years to 2004-05	% Change 5 years to 2004-05
ActewAGL	11.1	9.7	10	11.7	12.1	15.0	33.3	-86.5
Brisbane Water	2.2	2.9	2.9	3.7	2.6	3.4	14.7	54.5
City West Water	9.8	9.5	8.6	12.6	11.2	10.7	19.6	9.2
Power and Water	n.a	5.4	4.1	3.5	4.9	4.7	12.8	n.a.
SA Water	35.1	32.1	31.5	35.1	36.1	38.5	18.2	9.7
South East Water	6.3	5.5	4.7	6.4	6.4	4.3	-9.3	-31.7
Sydney Water	n.a	n.a	n.a	n.a	n.a	n.a.	n.a.	n.a.
Water Corporation	n.a	n.a	n.a	n.a	n.a	n.a.	-0.9	-8.4
Yarra Valley Water	11.9	11.9	11	14.8	12.6	10.9	-0.9	-8.4
Average	29.4	23.4	10.4	12.5	12.3	12.5	16.8	-57.4
Average WSA companies	18.5	15.0	9.4	10.0	9.7	10.4	9.6	-43.8

SA Water's results for the period have been the poorest of all the selected companies for the last three years and have been consistently below the average of all WSA companies for the reporting period.

These results reflect completely different operating circumstances. For example, in some systems the connection to the main is the responsibility of the householder and therefore is not reported in *WSAAfacts*. Sydney Water and Water Corporation are notable examples. Other potential differences include:

Age of system

Adelaide's wastewater system on average is older than those of most other cities as the decision to sewer the city and suburbs was made quite early in its development.

The type of material used in construction

A higher proportion of earthenware pipes are believed to have been used in Adelaide because manufacturers of these pipes were South Australian-based and their products were used in order to support local industry. This occurred for many years after PVC was first introduced. Earthenware pipes, being shorter in length than PVC pipes, have more joints and therefore offer more opportunity for tree-root incursion.

Earthenware pipes also have a greater propensity to crack in the highly reactive clay soils that exist in much of the Adelaide metropolitan area and in some country towns.

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Siting and location of system

The majority (87%) of chokes are caused by tree roots. Rainfall, tree type and soil condition are all major factors in determining the extent and speed of root growth. Geographical analysis in metropolitan Adelaide has shown choke rates in the foothills may be three times those on the plains west of the city. The siting and location of the wastewater system is therefore relevant in the analysis of the number of chokes and breaks in the system.

Preventative maintenance of mains only

SA Water does not undertake preventative maintenance for property connections (preventative maintenance is undertaken for reticulation mains). SA Water understands most other authorities in Australia take a similar approach. It is therefore reasonable to conclude that the differences in the reported number of breaks and chokes may be more related to physical factors than operational practices.

Pipe replacement

The extent to which complaints are received from customers feeds into an active pipe maintenance program which drives the pipe replacement policy. SA Water has focussed on maintaining a high level of customer satisfaction by adopting tight response times for choke and overflow attendance in preference to adopting extensive pipe replacement programs. The Corporation receives very few customer complaints in this area.

Number of Odour Complaints per 1,000 Properties

The number of odour complaints per 1,000 properties is an indicator of the degree of customer dissatisfaction in respect of odours from the wastewater system.

Table 2.10 outlines the number of Number of Odour Complaints per 1,000 Properties.

Table 2.10

Odour Complaints per 1,000 Properties

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	% Change 3 years to 2004-05	% Change 5 years to 2004-05
ActewAGL	n.a.	n.a.	0	0.1	0.0	0.1	n.a.	n.a.
Brisbane Water	1.0	0.4	1.2	1.1	1.3	1.7	29.4	70.0
City West Water	0.3	0.3	0.3	0.3	0.4	0.5	40.0	66.7
Power and Water	1.5	1.6	1.9	1.8	1.0	1.0	-90.0	-33.3
SA Water	0.3	0.8	0.7	0.8	0.7	0.7	0.0	133.3
South East Water	n.a.	n.a.	n.a.	0.2	0.3	0.2	n.a.	n.a.
Sydney Water	0.5	0.7	0.9	1.1	1.0	1.0	10.0	100.0
Water Corporation	n.a.	1.4	1.6	1.6	1.1	1.0	-60.0	n.a.
Yarra Valley Water	0.3	0.2	0.2	0.2	0.2	0.3	33.3	0.0
Average	0.7	0.8	1.0	0.8	0.7	0.7	-34.5	11.1
Average WSAA companies	3.4	3.8	3.4	2.8	2.5	2.4	-41.7	-29.4

SA Water's results show little change over the reporting period. The Corporation's performance is in the mid range of the selected companies and has consistently been better than the average for all WSAA companies.

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Average Wastewater Break/Choke Repair Time (hr)

The Average Wastewater Break/Choke Repair Time in the reticulation main potentially influences the quantum of any spills of untreated effluent into the environment.

Table 2.11 presents the average time taken (in hours) to repair a reticulation main, from the time of arrival on site to restoration of full normal wastewater service. This does not include repair times relating to chokes, bursts and leaks in the property connection sewer.

Table 2.11

Average Wastewater Break/Choke Repair Time (hr)

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	% Change 3 years to 2004-05	% Change 5 years to 2004-05
ActewAGL	n.a.	n.a.	0.6	0.5	0.5	0.5	-16.7	n.a.
Brisbane Water	2.6	2.6	2.8	2.7	1.6	1.8	-35.7	-30.8
City West Water	4.0	4.2	2.0	3.0	3.0	2.7	35.0	-32.5
Power & Water	1.6	1.9	2.0	1.5	1.8	2.0	0.0	25.0
SA Water	1.0	1.2	0.9	1.0	0.9	0.8	-11.1	-20.0
South East Water	2.4	2.1	2.1	2.2	2.2	2.0	-4.8	-16.7
Sydney Water	1.5	1.6	1.2	1.2	1.3	1.2	0.0	-20.0
Water Corporation	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Yarra Valley Water	n.a.	n.a.	1.3	1.7	1.8	1.6	23.1	n.a.
Average	2.2	2.3	1.6	1.7	1.6	1.6	-2.3	-27.9
Average WSAA companies	1.8	2.2	1.8	1.8	1.80	1.80	0.0	0.0

Over the period 1999-2000 to 2004-05 there was no clear trend in the Corporation's performance although for the 5 and 3 year periods to 2004-05 it has improved by 11% and 20% respectively.

There were improvements in several other jurisdictions, but much of this may be related to "catch-up" as SA Water's average repair time is considerably below the average values for all companies in each year where data is available. SA Water's metropolitan operations remained a better than average performer on this indicator in 2004-05.

2.3.2 Environmental management

The impact of SA Water's metropolitan wastewater operations on the environment is an important measure of efficiency.

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Table 2.12 reports on the incidence of untreated wastewater spills or discharges and escapes from the wastewater system (i.e. pumping stations, pipes, maintenance holes or designed overflow structures) to the external environment. It does not include overflows caused by a blockage in the property connection sewer or spills, discharges or overflows that escape to designed storages.

Table 2.12

Number of Wastewater Overflows per 100 km

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	% Change 3 years to 2004-05	% Change 5 years to 2004-05
ActewAGL	n.a.	46	93.5	102.8	96.6	107.2	14.7	n.a.
Brisbane Water	11.7	29	16	19.5	20.3	12.3	-23.1	5.1
City West Water	8.3	10.9	7.4	10.1	8.2	6.7	-9.5	-19.3
Power and Water	n.a.	0.3	0.6	1.1	0.6	6.7	11.7	n.a.
SA Water	12.3	11.5	12.2	14.2	13.7	14.9	22.1	21.1
South East Water	5.5	3.5	1.8	1.4	1.6	3.7	105.6	-32.7
Sydney Water*	63.4	72.3	69.1	85.7	n.a.	na	n.a.	n.a.
Water Corporation	9.3	9.1	9.7	10.4	8.6	9.1	-6.2	-2.2
Yarra Valley Water	21.1	17.4	9	7.5	5	na	n.a.	n.a.
Average	9.4	16.6	20.9	23.9	22.3	22.9	9.5	143.6
Average WSAA companies	13.9	28.2	29.3	31.0	34.7	23.8	-23.1	71.2

SA Water's results show the number of wastewater overflows has increased over the 5-year reporting period to 2004-05 by 21%. However, the Corporation's results have consistently been in the low to mid range of the selected companies although ActewAGL's results skew the range. The results are consistently and significantly better than the average and the average for all WSAA companies.

Wastewater Treatment

The degree to which wastewater is required to be treated is an important marine environment performance measure. It is also a significant cost driver because there are significant cost differences in meeting primary, secondary and tertiary levels of treatment with respect to both operating and capital expenditure.

Tertiary treatment includes biological nutrient removal plants, chemical dosing, enhanced pond treatment, reverse osmosis and filtration systems. This is typically the most complex and sophisticated treatment level and, therefore, the most expensive to operate.

It can be assumed that where tertiary treatment is undertaken the balance of treatment will be done at either the primary or secondary level. For example, in 2002-03, 82% of all SA Water wastewater collected was treated to the tertiary level and, therefore, the remaining 18% was treated to the primary or secondary level. Data is available to compare each level of treatment but for this review only the tertiary level is compared to provide a view of the extent of treatment costs faced by SA Water.

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Table 2.13 shows the Proportion of Wastewater Treated to a Tertiary Level

Table 2.13
Proportion of Wastewater Treated to a Tertiary Level (per cent)

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	% Change 3 years to 2004-05	% Change 5 years to 2004-05
ActewAGL	100	100	100	100	100	100	0.0	0.0
Brisbane Water	37.0	53.0	67.0	76.0	66.5	66.3	-1.1	81.1
City West Water	0.0	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.
Power & Water	2.0	2.0	2.0	2.0	1.4	2.5	20.0	66.7
SA Water	0.0	17.0	55.0	82.0	91.0	97.0	43.7	n.a.
South East Water	13.0	12.0	6.0	8.0	7.3	55.8	89.2	326.0
Sydney Water	19.0	12.0	17.0	22.0	17.0	17.7	2.3	-7.3
Water Corporation	0.0	0.0	14.0	40.0	40.4	39.0	63.1	n.a.
Yarra Valley Water	100	100	100	100	100	100	0.0	0.0
Average	30.0	33.0	40.1	47.8	47.1	53.1	24.5	77.0
Average WSAA companies	24.5	26.4	26.6	29.7	30.3	40.3	33.9	77.0

Of the selected companies only Yarra Valley Water and ActewAGL treat more wastewater to the tertiary level than SA Water. Until and including 1999-00, SA Water treated all (100%) of its wastewater in the metropolitan area at the secondary level. Since then, following requirements of the Environment Protection Authority, the Corporation has gradually increased the proportion of treatment to the tertiary level. This has a corresponding impact in increased treatment costs.

The results for 2004-05 show a further increase (to 97%) in the percentage of wastewater treated to the tertiary level.

Per cent of water recycled

Table 2.14 provides the percentage of all water collected that is treated and used (eg recycled) by either the water business itself or a business supplied by the water business. This is an indicator of efficiency in the provision of wastewater services and in environmental management as it reduces the impact on the marine environment.

SA Water's results show a significant increase (81.6%) in the percentage of water recycled over the five years to 2004-05 following requirements of the Environment Protection Authority.

The Corporation has been the best or next best performer of the selected companies in all years. Its results have effectively been double the average and well ahead of the average of all WSAA companies.

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Table 2.14

Proportion of Wastewater Recycled (per cent)

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	% Change 3 years to 2004-05	% Change 5 years to 2004-05
ActewAGL	4.6	4.6	5.5	7.3	8.1	7.9	43.6	71.7
Brisbane Water	0.7	2.6	4.0	3.5	3.2	5.0	25.0	614.3
City West Water	3.2	2.9	3.8	4.1	na	n.a.	n.a.	n.a.
Power and Water	2.2	4.5	3.9	3.5	2.6	4.1	5.1	86.4
SA Water	11.4	15.9	15.1	19.2	21.4	20.7	37.1	81.6
South East Water	12.7	12.5	11.3	22.8	18.9	17.9	58.4	40.9
Sydney Water	2	1.9	2.2	2.6	3.2	2.8	27.3	40.0
Water Corporation	3.2	2.9	3.8	4.1	3.6	3.6	-5.3	12.5
Yarra Valley Water	1.9	1.7	1.5	3.1	3.2	2.2	46.7	15.8
Average	4.8	5.8	5.9	8.3	8.0	8.0	35.7	65.9
Average WSAA companies	9.4	10.2	8.9	12.7	11.3	11.8	32.6	25.5

Per cent of bio-solids reused

Table 2.15 reports on the reuse of bio-solids. Bio-solids are the stabilised organic solids derived from wastewater treatment processes. Reuse involves managing bio-solids safely and sustainably to utilise their nutrient, energy, or other values. The dry weight of bio-solids reused may be greater than the dry weight of bio-solids produced if the business is also reusing existing stockpiles. This is a significant environmental performance measure.

Table 2.15

Proportion of Bio-solids Reused (per cent)

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	% Change 3 years to 2004-05	% Change 5 years to 2004-05
ActewAGL	100	100	100	100	100	100	0.0	0.0
Brisbane Water	0.0	0.0	0.0	0.0	0.0	5.1	n.a.	n.a.
City West Water	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Power and Water	0.0	0.0	0.0	0.0	0.0	0.0	n.a.	0
SA Water	168.0	154.0	158.0	144.0	168.0	129.0	-18.4	-23.2
South East Water	53.0	17.0	58.0	177.0	122.0	33.4	-42.4	-37.0
Sydney Water	97.0	99.0	99.0	100	100	100	1.0	3.1
Water Corporation	71.0	70.0	86.0	98.0	93.0	96.0	11.6	n.a.
Yarra Valley Water**	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Average	97.8	88.1	100.2	123.8	97.6	77.3	-22.0	-21.0
Average WSAA companies	74.6	67.3	73.6	92.3	87.2	78.3	6.4	5.0

SA Water treatment operations generate approximately 25,000 dry tonnes per annum of bio-solids which pose an escalating financial and environmental concern if not appropriately managed and disposed off-site. With limited storage space and other environmental management constraints imposed by the EPA, ongoing storage

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is not a viable option. Re-use by land application is the most accepted and least cost practice method of disposal by water authorities in Australia and overseas. Re-use, while not commercially viable in isolation, ensures that the issue is addressed on an ongoing basis and is not allowed to become a hidden, deferred liability.

Farmers are supplied with quantities of bio-solids for use principally as soil conditioner. To encourage take-up SA Water provides advice to farmers and the necessary administration for the required approvals from the EPA to meet the requirements of the SA Biosolids Guidelines administered by the EPA. SA Water does not charge for supplying the product or for providing advice. Farmers meet the cost of transportation and subsequent application.

SA Water markedly increased the level of bio-solids reused from 1999-00 when it began to reuse from its stockpile. This shows an efficient and sustainable approach to wastewater management. In addition to SA Water, three of the selected companies reuse all (100%) of their bio-solids.

The result for 2004-05 showed a continued use of the stockpile with 129% of bio-solids being re-used, down from the previous years as the stockpile is progressively used up as intended.

2.3.3 System performance

Number of Wastewater Reticulation Main Breaks and Chokes per 1,000 Properties

Table 2.16 provides the Number of Wastewater Reticulation Main Breaks and Chokes per 1,000 Properties serviced by the Corporation. Reticulation mains take wastewater from the property connection and transport it to the wastewater treatment plant.

Table 2.16
Number of Wastewater Reticulation Main Breaks and Chokes per 1,000 Properties

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	% Change 3 years to 2004-05	% Change 5 years to 2004-05
ActewAGL	24.2	25.1	22.8	26.5	23.3	28.5	25.0	17.8
Brisbane Water	3.8	6.2	5.8	5.3	3.8	4.6	-20.7	21.1
City West Water	3.5	3.6	3.3	4.1	3.7	3.2	-3.0	-8.6
Power & Water	n.a.	3.0	1.6	2.0	1.5	2.1	31.3	n.a.
SA Water	6.5	5.9	5.8	7.1	7.0	8.0	37.9	23.1
South East Water	1.7	1.8	1.6	2.3	2.5	2.1	31.3	23.5
Sydney Water	9.2	10.2	9.8	11.9	10.4	11.7	10.4	27.2
Water Corporation	4.1	3.8	3.5	3.8	3.4	3.2	-8.6	-22.0
Yarra Valley Water	4.8	4.8	4.2	6.0	6.3	5.9	40.5	22.9
Average	7.2	7.2	6.5	7.7	6.9	7.7	18.7	6.6
Average WSAA companies	8.4	8.1	7.8	9.2	8.5	8.8	12.8	4.8

For SA Water, the Number of Wastewater Reticulation Main Breaks and Chokes per 1,000 Properties increased by 23 per cent over the five years to 2004-05. The performance of the Corporation's metropolitan system was generally better than the average of the compared companies and the average of all WSAA companies.

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Adelaide has reactive clay soils which are prone to movement. This creates problems for the metropolitan sewage system where there is widespread use of earthenware pipes. *WSAAfacts* shows that the metropolitan system is prone to tree root damage with 85% of property connection sewer breaks and chokes caused by tree roots.

SA Water's performance showed a general trend of improvement over the reporting period until 2002-03 when performance of most companies deteriorated slightly due to the drought where tree root incursion was a major problem. The results do not indicate a change in operation and the worsening drought conditions may see a deterioration of these results. The Corporation will act to minimise this.

2.4 Summary - Metropolitan Water Supply and Wastewater Service Standards

Table 2.17 provides a summary of SA Water's metropolitan service performance.

Table 2.17

SA Water metropolitan service performance - summary comparisons

Category	Change over time			2004-05 Performance relative to other providers		
	% Change over last 3 years to 04-05	% change over last 5 years to 04-05	Trend	Average of compared companies	Average of WSAA companies	Rank ⁽¹⁾ 04-05
Water Supply:						
<i>Customer Service</i>						
Number of Water Quality Complaints per 1,000 Properties	-12.0	2.5	Not clear	Better	Better	2 (9)
Average Duration of an Unplanned Water Supply Interruption (hr)	0.0	-33.3	Improving	Worse	Worse	8 (9)
Average Connect Time to a Telephone Operator (seconds)	10.0	1.0	Not clear	Better	Similar	3 (7)
<i>Environmental</i>						
Infrastructure Leakage Index	0.0	0.0	n.a.	Better	Better	3 (9)
<i>System performance</i>						
No. of Water Main Breaks per 100 km of Main	10.2	0.0	Not clear	Better	Better	4 (9)
Wastewater:						
<i>Customer Service</i>						
Number of Property Connection Sewer Breaks & Chokes per 1,000 Properties	18.2	21.1	Not clear	Worse	Worse	7 (7)
Average Wastewater Break/Choke Repair Time (hr)	-12.5	-20.0	Not clear	Better	Better	2 (8)
Odour Complaints per 1,000 Properties	0.0	133.7	Not clear	Similar	Better	5 (9)
<i>Environmental</i>						
Number of Wastewater Overflows per 100 km⁽²⁾	18.1	21.1	Not clear	Better	Better	6 (7)
Proportion of Wastewater Treated to a Tertiary Level	43.7	n.a.	Improving	Better	Better	3 (9)
Proportion of Water Recycled	37.1	31.6	Improving	Better	Better	1 (8)
Proportion of Bio-solids Reused	-18.4	-23.2	Not clear	Better	Better	1 (7)
<i>System Performance</i>						
Number of Wastewater Reticulation Main Breaks and Chokes per 1,000 Properties⁽²⁾	37.9	23.1	Not clear	Similar	Similar	7 (9)

(1) Ranked from best to worst of average of compared companies. Parentheses contain number in comparison group.

(2) "Average" affected by an extreme value in comparison group. Median is better indicator.

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Water supply

The customer service performance of the Corporation's metropolitan water supply operations can be summarised in the following terms:

- Over the five years to 2004-05, the Corporation had a static trend in water quality complaints while water quality was improving. Notwithstanding this, the Customer Satisfaction Survey shows that customers are increasingly less concerned about water quality as represented from survey data over the last six years.
- The average duration of water supply interruptions has improved but is high by the average of all WSAA companies.
- Connect times to a telephone operator have remained static over the five year period to 2004-05 despite increased enquiries as a result of water restrictions. The average remains better than the average of all WSAA companies of 30 seconds in 2004-05.

Water quality is probably the most important of these indicators, at least in the Adelaide context, and therefore the key conclusion regarding customer service is that there has been a trend improvement over recent years.

The single indicator of the environmental attributes of the metropolitan water supply system, the Infrastructure Leakage Index, shows a flat trend. It also indicates that leakage in Adelaide is less than most other States.

The single indicator of system performance, the number of water main breaks per 100 km of main, has remained the same as it was five years ago continues to be relatively low compared with the average of all WSAA companies.

Wastewater services

In terms of customer service for metropolitan wastewater services the rate of breaks and chokes in property connections shows that performance has deteriorated with metropolitan customers experiencing a relatively high rate of breaks and chokes in their property connection compared to the average of all WSAA companies. On the other hand the Corporation's performance in terms of odour complaints is about average and the average repair time for breaks and chokes has remained significantly better than the average of all WSAA companies.

A key component of wastewater service performance is its environmental impacts. There have been substantial improvements in performance against a number of environmental indicators over recent years. Overflow rates, while rising marginally over the five year to 2004-05, are well below the average of all WSAA companies, the prevalence of tertiary treatment has risen very rapidly to reach a high 97 per cent, there has been a substantial increase in the reuse of treated effluent, and reuse of biosolids exceeded annual biosolid production throughout the report period.

In the interstate comparison, the Corporation is a better than average performer in terms of tertiary treatment, water reuse and biosolids reuse.

3. BENCHMARKING OF METROPOLITAN SERVICE COSTS

3.1 Introduction

This section presents information regarding the Corporation's costs of providing metropolitan services. For consistency, an attempt has been made to use the same water and wastewater service providers used in the service performance comparisons. However, as indicated in Table 2.1, Section 2, Yarra Valley Water, City West, and South East Water do not provide wholesale water services. They have therefore been replaced in the cost comparison by Melbourne Consolidated, a composite business made up of the wholesale business, Melbourne Water, and the three Melbourne retail businesses of Yarra Valley Water, City West and South East Water.

Difficulties associated with determining total cost measures, particularly with respect to the treatment of capital, mean that the more limited operating cost measure is widely used for comparison purposes.⁷ Moreover capital costs are to a significant degree a legacy of decisions taken long ago and it may be preferable to confine attention to aspects which are potentially in the control of current management.

In this review operating cost data is presented but total cost data is not. Operating costs account for about 40 per cent of total costs for SA Water's metropolitan water supply and about 35 per cent of total metropolitan wastewater costs. *WSAAfacts* presents the operating cost data in 2004-05 dollars so as to abstract from the effects of general price inflation and this inflation adjusted data is used herein.⁸ Data for 2005-06 have been used to indicate trends and forward estimates are used.

WSAAfacts Indicator Guidelines require that operating costs should, where possible or material, include:

- charges for bulk treatment/transfer of wastewater;
- salaries and wages and associated overheads;
- materials/chemicals/energy;
- contracts;
- accommodation; and
- all other operating costs that would normally be reported.

Furthermore, they require that operating costs should exclude all non-core business operating costs.

As costs are clearly dependent on the size of operations comparisons are weighted for size differential using the number of properties serviced.

Again, as a consequence of differences in operating environment, cost comparisons of these water utilities must be interpreted with caution.

⁷ SA Water values its assets at "fair value" which is standard practice and is akin to depreciated optimised replacement cost (DORC). But to construct a DORC estimate one needs to form a view as to efficient operating costs. Using a DORC estimate in an efficiency review such as this would seem therefore to be circular.

⁸ *WSAAfacts* uses the 8-Capitals Consumer Price Index to make the inflation adjustments.

3.2 Metropolitan Water Supply Costs

Operating cost per property.

The performance indicator from WSAAfacts that assesses the costs of providing water supply services in the metropolitan area is Operating Cost per Property for water supply services.

Table 3.1
Operating Cost per Property for Water Supply Services (in 2004-2005 dollars)

	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	% change 3 years to 04-05	% change 5 years to 04-05
ActewAGL	208.02	230.44	266.94	270.47	291.08	297.85	11.6	43.2
Brisbane Water	205.43	208.69	221.51	197.88	196.15	210.58	-4.9	2.5
Power and Water Corp	548.02	399.37	289.97	370.61	393.90	307.05	5.9	-44.0
SA Water	182.36	181.56	167.51	183.12	169.77	172.02	2.7	-5.7
Melbourne Consolidated	111.33	108.28	110.54	124.2	119.18	131.11	18.6	17.8
Sydney Water Corporation	295.62	277.54	239.9	250.64	221.17	230.05	-4.1	-22.2
Weighted Average	202.52	194.28	183.04	189.44	178.13	187.10	2.8	-7.6
Average all WSAA Companies	234.82	222.96	218.38	241.26	229.00	232.09	6.3	-1.2

SA Water’s operating costs decreased from \$182 to \$172 (approximately 5.7%) per property in real terms over the 6 years despite fluctuations throughout the period. The rate of reduction compares with an overall reduction of 8% of the compared companies while the average of all WSAA companies showed only a small reduction of 1% for the same period.

As previously noted, direct comparisons of costs can be misleading; for example the least cost utilities are in Melbourne which have substantially better source water supplies that require little or no filtration. Accordingly, the primary focus of this report is directed at analysis of the trends, and some key cost drivers, over the reporting period.

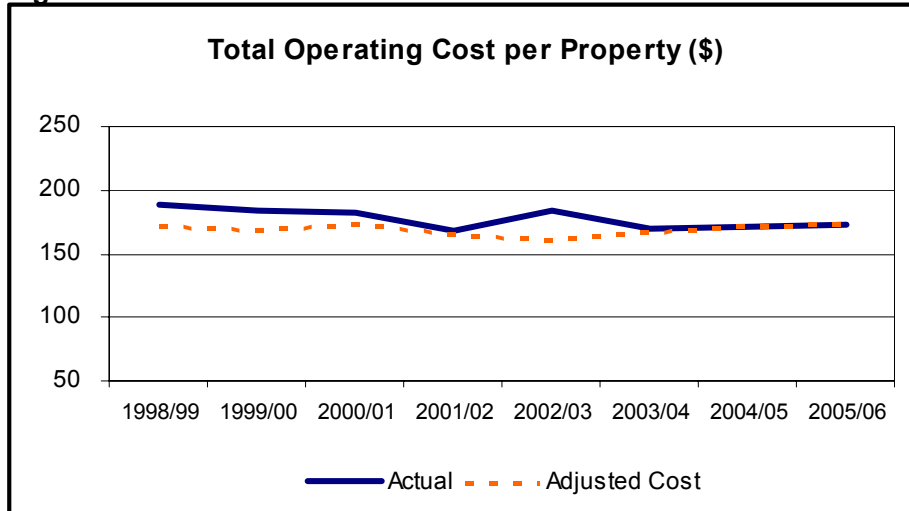
Fluctuations in operating costs are mainly as a result of weather conditions during the winter and summer period. To properly assess the cost efficiency of SA Water it is necessary to adjust/normalise the cost per property figures to demonstrate the underlying trend. The adjustment is due to:

- weather conditions during the winter/spring period, impacting on the level of intakes into SA Water reservoirs. During dry/drought periods, intakes are required to be supplemented through significant volumes of water that are pumped from the River Murray causing increased electricity costs for SA Water; and
- weather conditions during the summer period impact the level of consumption by customers. During drought summer conditions customers consume higher volumes of water resulting in SA Water incurring higher water treatment and distribution costs. Water conservation measures have been in place since 2003.

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Figure 3.1 shows an “adjusted” operating cost per property reflecting constant major pumping and customer consumption patterns across all years.

Figure 3.1



Overall, costs of providing water supply services have declined over the last six years while service quality has been maintained or improved.

There is a range of factors independent of the Corporation’s own operating efficiency with a potential bearing on operating costs per property, such as:

- water consumption per property;
- length of mains per property;
- access to water services;
- source water quality;
- topography;
- environmental and customer service standards;
- climatic conditions; and
- soil conditions.

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In a separate context the Commonwealth Grants Commission investigated the impacts of water availability and quality variations across regions on water supply costs and produced an index of water cost disadvantages arising from accessibility and water quality; it is presented in Table 3.2⁹ The Table shows that SA Water has a 0.9 disadvantage index in water accessibility and quality. Only two other water companies (ActewAGL and Water Corporation) have a disadvantage index and in each case are relatively small.

The data strongly support the contention that transporting water long distances (from the River Murray to Adelaide), and the low quality of that water, impose significant cost disadvantages for South Australia's metropolitan water supply arising from very poor availability and poor quality.

Table 3.2
Index of Disadvantage in Water Accessibility and Quality by Drainage Division

	Availability	Quality	Combined impact ¹
ActewAGL (Murray-Darling)	0	1	0.1
Brisbane Water (NE Coast)	0	0	0
City West Water (SE Coast)	0	0	0
Power & Water* (Timor Sea)	0	0	0
SA Water (SA Gulf)	2	1	0.9
South East Water (SE Coast)	0	0	0
Sydney Water (SE Coast)	0	0	0
Water Corporation (SW Coast)	0.2	1	0.18
Yarra Valley Water (SE Coast)	0	0	0

¹ Calculated by the Grants Commission as $0.4 \times \text{Availability} + 0.1 \times \text{Quality}$. Availability. Commonwealth Grants Commission.

3.3 Metropolitan Wastewater Service Costs

Operating cost per property

The performance indicator from WSAAfacts that reflects relative efficient business costs in providing wastewater services is Operating Cost per Property for wastewater services. Data is provided in Table 3.3 for the six year period to 2004-05.

⁹ Commonwealth Grants Commission (2004), 'Concessions and other payments – water, sanitation and protection of the environment', *2004 Review Working Papers*. See especially pp 80-81.

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Table 3.3

Operating Cost per Property for Wastewater Services (in 2004-05 dollars)

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	% change 3 years to 04-05	% change 5 years to 04-05
ActewAGL	244.22	247.90	262.18	267.56	277.45	270.18	3.1	10.6
Brisbane Water	157.54	139.86	186.57	196.53	169.26	160.39	-14.0	1.8
Power and Water Corp	562.12	322.92	280.81	347.41	305.57	291.14	3.7	-48.2
SA Water	132.32	120.16	124.84	126.50	134.94	142.63	14.3	7.8
Melbourne Consol	115.03	109.40	107.47	99.61	117.41	141.99	32.1	22.4
Sydney Water	275.73	244.23	283.72	272.89	198.95	199.14	-29.8	-27.8
Water Corporation	161.19	148.61	147.25	150.80	166.59	172.34	17.0	6.9
Weighted Average	190.02	171.09	188.94	184.74	164.32	173.21	-8.9	-9.4
Average of all WSAA Companies	217.62	204.06	213.53	222.15	215.15	232.61	8.9	6.4

The Corporation's Operating Cost per Property for wastewater services rose by approximately 8% in real terms over the five years to 2003-04.

Notwithstanding the actual increase in costs, SA Water's costs have been the lowest of the compared companies and substantially below the average of all WSAA companies for the six year report period.

The increase in operating costs is largely attributable to additional costs incurred as a result of the Corporation's Environment Improvement Program which has been introduced to meet higher environmental standards required by the Environment Protection Authority. SA Water has over the past several years adjusted its operating practices, at cost, to reduce negative environmental impacts. It has been documented previously that there has been a substantial increase in the Proportion of Wastewater Treated to a Tertiary Level, in the Proportion of Water Recycled and in the Proportion of Bio-Solid Reuse. Of these, wastewater treatment and water reuse are likely to be the major cost drivers.

To properly assess the cost efficiency of SA Water it is therefore necessary to adjust the cost per property figures to demonstrate the underlying trend (see Figure 3.2). In particular the adjustment takes account of:

- Commissioning of assets built as part of the Environmental Improvement Programs required by the Environment Protection Authority (EPA) including the Bolivar DAFF plant and associated sludge dewatering process, the Queensbury Diversion, and the Christies Beach and Glenelg EIPs.

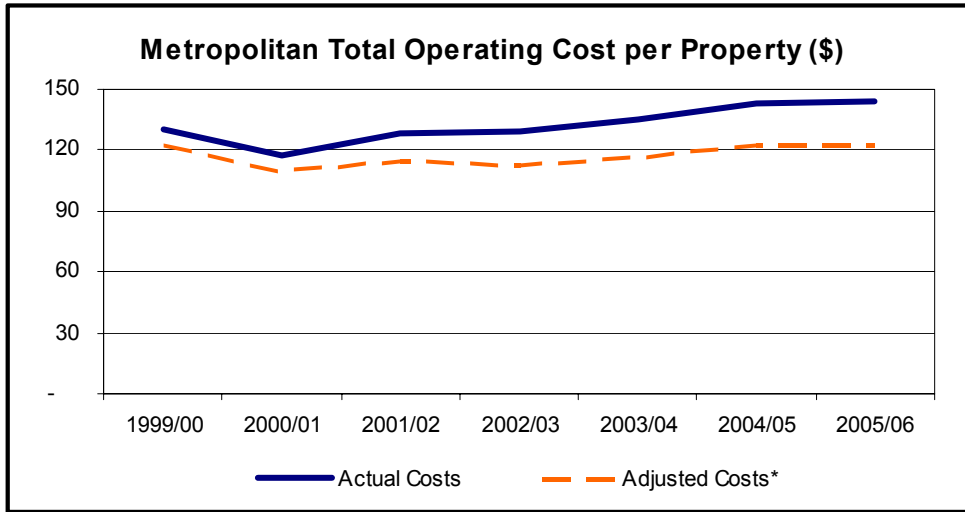
The increased costs associated with these initiatives are funded in part from additional revenue generated by the Environmental Enhancement Levy, introduced in 1990 as a 10% levy on sewerage rates.

- A tightening of the Corporation's capitalisation policy in 2000-01 which resulted in costs previously capitalised being expensed.

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- The costs of conducting a major efficiency review across the Corporation, the Value Based Management project, which partly accounted for an increase in 1999-00 costs.

Figure 3.2



As can be seen, after adjusting for the incremental cost of the key environmental initiatives, there has been a general downward trend in metropolitan operating costs.

The adjusted operating costs per property has increased marginally due to: drought conditions causing tree root intrusion into the wastewater network resulting in increased choke rates and maintenance costs during the period 2003-04 to 2005-06; and the electricity generating turbine at the Bolivar Treatment Plant having significant periods of down time during the years 2003-04 and 2005-06 due to the need to undertake essential maintenance. A study is currently being undertaken of the power supply at Bolivar to minimise costs, improve overall reliability of supply and to maximise the use of renewable energy. It is anticipated that results of this work will address the issue of the turbines down time.

The operation of SA Water's wastewater assets are expected to remain fairly stable over the next four years. However the Christies Beach Capacity Upgrade project is expected to increase the cost of wastewater operations from 2011-12.

3.4 Summary - Metropolitan Water and Wastewater Business Costs

Table 3.4 provides a summary comparison of SA Water's cost performance against the weighted average of the eight other urban water and wastewater service providers used in this study and the average of all WSAA companies.

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Table 3.4

**SA Water Metropolitan Service Operating Costs (in 2004-05 dollars)
– Summary Comparisons**

Category	Change over time			2004-05 Performance Relative to other Companies		
	3 years to 04-05	5 years to 04-05	Trend	Weighted of Compared Companies	Median of all WSAA Companies	2003-04 Rank ⁽¹⁾
<i>Water Supply</i>						
Operating Cost Per Property	2.7%	-5.7%	Improving	Better	Better	2
<i>Wastewater</i>						
Operating Cost Per Property	14.3%	7.8%	Worsening	Better	Better	1

(1) Ranking is from cheapest to most costly out of 9 providers.

Water supply

As Table 3.4 shows, SA Water’s metropolitan water supply costs have reduced in real terms over the six-year reporting period. This suggests favourable efficiency trends, especially when there has been an increasing level of customer satisfaction with water quality over the period (see Section 2.2).

SA Water’s metropolitan water supply operating costs are well below the weighted average of the compared companies and significantly lower than the average costs of all WSAA companies. This is in spite of some manifest cost disadvantages for Adelaide metropolitan water supply, most obviously the need to pump water long distances and the need for relatively extensive treatment of that water to achieve drinking water standards. As might be expected, these disadvantages appear to some extent to be borne out by a higher level of consumer complaints with water quality, but they could also be expected to push costs above average. In view of this the relatively low operating costs of SA Water’s metropolitan water supply system suggests good cost performance.

Wastewater

For metropolitan wastewater, SA Water’s costs have increased by approximately 8% in real terms over the reporting period largely attributable to the Environment Improvement Program required by the Environment Protection Authority. The results, however, are improved quality of discharges into the environment.

Despite the increases in costs relative to other wastewater service providers the Corporation’s metropolitan wastewater costs remain the lowest by a significant margin when compared to the weighted average of compared companies and the average of all WSAA companies.

4. BENCHMARKING OF REGIONAL SERVICE STANDARDS

4.1 Introduction

SA Water's operations in regional South Australia comprise a network of 16,616 km's of water main and 1,321 km's of wastewater mains supplying a population of approximately 144,500 people.

This section presents benchmark data for regional service standards for water supply and wastewater in South Australia, New South Wales, Victoria, Western Australia and Queensland.

Until 2002 the Australian Water Association (AWA) produced a compendium *Performance Monitoring Report – Australian Non Major Urban Water Utilities* but the compilation finished with the 2000-01 edition. This means that more recent interstate comparison data must be assembled from a range of state or region-specific publications. The following publications were used to draw together regional data:

- *NSW Water Supply and Sewerage Performance Monitoring Report 2004-05* produced by the NSW Department of Energy, Utilities and Sustainability (New South Wales Government, 2006, covering 126 local water utilities in NSW);
- *Victorian Water Review 2004-05*, a performance monitoring report published by the Victorian Water Industry Association (covering metropolitan Melbourne's retail water businesses, the metropolitan bulk water supplier Melbourne Water, and 15 regional urban water authorities);
- *Queensland local government comparative information 2004-05*, produced by the Queensland Department of Local Government, Planning, Sport and Recreation (covering 125 Local Governments); and
- *Water and Wastewater Performance Information 2001-02 to 2004-05 on 32 Major Western Australian Towns*, produced by the Economic Regulation Authority of WA.

The publication used to compare metropolitan systems, *WSAAfacts*, is prepared with an agreed set of definitions and is audited, but this is not the case for the individual State publications. The data in the publications is not all in an ideal format for the purposes of comparative benchmarking. Typically data is available for geographically defined constituents of each States' regional water supply and wastewater systems. However, datasets are not complete. While most States publish for the period 2000-01 to 2004-05, which gives some degree of continuity from previous comparison studies, Queensland does not and publishes only some incomplete data for individual water service providers.

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Reference benchmarks were therefore constructed for Queensland with sets of regional providers from the State. A group of 30 providers which had complete data for the period 1999-00 to 2004-05 in urban regional and rural communities was selected, but large city councils (eg Cairns City, Gold Coast City and Maroochy Shire) were excluded on the grounds that there were no comparable regional areas in South Australia.

The inconsistency in data reporting referred to above will change from 2006-07 when national water reporting requirements under the National Water Initiative (NWI) commence.

In the past data has been published for elements of the SA regional system (Mt Gambier, Outer Adelaide and Whyalla). Much of that data has not been collected since 2000-01, and while it is useful in terms of indicating the diversity of experience across regions, it is of little value in revealing contemporary trends. However, in order to gain a more robust assessment of regional operations and to comply with the NWI reporting requirements, the Corporation's country operations have been categorised into six regional centres, namely: Mt Gambier, Murray Bridge, Pt Augusta, Pt Pirie and Whyalla. Data is provided for these centres for the 2004-05 year unless otherwise indicated.

This diversity in performance across providers means that there is little to be gained by comparing benchmark levels of specific elements of any regional system, other than to demonstrate that benchmark performance is highly location specific. For this reason benchmarks for the six regional centres as well as a South Australian regional system as a whole are provided.

The data that are available can most usefully be employed to consider trends through time. The groups of water providers under observation in each State are believed to be reasonably consistent and as such trend analysis will be more robust than interstate comparisons of levels.

4.2 Regional Water Supply

The primary performance indicators chosen to assess trends in the efficiency of country water supply systems are water quality, as represented by the % of samples free from E.coli, and the Number of Water Main Breaks per 100 km of Main. Information for the following secondary indicators is also presented:

- Number of Water Quality Complaints per 1,000 properties;
- Average Duration of an Unplanned Water Supply Interruption (hr);
- Number of Water Main Breaks and Chokes per 100km of Main;
- Average Unplanned Interruption Time per Customer (mins); and
- Average Unplanned Interruption Frequency per 1,000 Properties.

Water quality - % of samples free from E. coli

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Table 4.1 provides data on the proportion of water samples free from *E. coli*¹⁰ in the regional water supply system. *E. coli* (or thermo-tolerant coliforms) are used as specific indicators of faecal contamination and hence the safety of water for drinking. The Australian Drinking Water Guidelines (ADWG) sets a value target of 0 > 98% free from *E. coli*.

Table 4.1

E coli in the SA Regional Water Supply System

	2001-02 (Per cent)	2002-03 (Per cent)	2003-04 (Per cent)	2004-05 (Per cent)
Per cent of samples free from <i>E. coli</i>	99.9	99.9	99.9	99.9

Over the period 2001-02 to 2004-05 ninety-nine per cent (99%) of samples have been found free of *E. coli* well above the ADWG standard reflecting a very reliable quality of water.

Table 4.2 provides a breakdown of water quality results for the six regional centres in the Corporation's non-metropolitan system for the period 2003/04-2004/05. Earlier data is not available in this format. The data reveals consistently high quality results for each centre.

Pt Augusta, Pt Pirie and Whyalla are supplied from the Morgan Water Treatment Plant. Pt Lincoln is supplied from the Lincoln/Uley South Water treatment Plant.

Table 4.2

Per cent of samples free from *E. coli* – Regional centres

Region	2003-04 (Per cent)		2004-05 (Per cent)	
	Samples	Comp % Health	Samples	Comp % Health
Mt Gambier	108	100	101	100
Murray Bridge	123	100	180	100
Pt Augusta	740	100	770	100
Pt Lincoln	70	100	65	100
Pt Pirie	740	100	770	100
Whyalla	740	100	770	100

¹⁰

E. coli is probably the most common bacterium and can cause gastroenteritis, haemorrhagic colitis or urinary and genital tract infections. Its resistance is very high and getting worse. 50 percent of Australian strains resist the most commonly used cure, Amoxicillin.

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The Corporation's Customer Satisfaction Survey of 2006 sought responses about relative rating of various water quality factors. Table 4.3 shows these responses which are categorised into metropolitan and rural households. The comparative ratings in 2006 indicate that rural householders rate the taste of tap water significantly lower than the ratings of taste given by their metropolitan counterparts, but rate the look/appearance significantly higher. Importantly, also there is still a continuing high level of confidence that health standards are in place for tap water (94%).

Table 4.3
Comparisons of water quality ratings between metropolitan and rural households

	Metropolitan households			Rural households		
	2004	2005	2006	2004	2005	2006
Quality	6.6	6.3	7.3	6.3	6.2	7.3
Taste	5.8	5.9	6.9	5.4	6.1	6.7
Smell	6.8	6.4	7.6	6.7	6.7	7.6
Look / appearance	7.2	7.0	7.9	7.2	7.3	8.2
Safety	7.4	7.3	8.1	7.1	7.2	8.2

Number of Water Main Breaks per 100 km of Main

Table 4.4 shows the Number of Water Main Breaks per 100 km of Main in each regional system.

Table 4.4
Number of Water Main Breaks per 100 km of Main

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	% Change 3 years to 2004-05	% Change 5 years to 2004-05
SA Regional	11.0	12.9	11.2	13.3	10.1	9.3	-17	-16
NSW State-wide Average ⁽¹⁾	n.a.	18.0	12.0	15.0	11.0	11.0	-8.3	n.a.
Vic Regional Average ⁽²⁾	22.0	30.0	26.0	24.0	26.0	22.0	-15	0
QLD Regional Subset Average	29.4	37.4	33.4	28.8	26.4	27.3	-22.3	-7.1
WA (Average all towns less Perth)	16.6	13.9	14.2	9.9	14.3	19.0	34	15

(1) Average of ten (10) best performing utilities.

(2) For regional bodies with less than 35,000 customer connections.

The breakage rate for the South Australian regional system as a whole in 2004-05 was the lowest over the six year period, however, no consistent trend is apparent over the period. Interstate data suggests that there is no consistent trend to be seen Australia-wide as well. The results for the Corporation's regional operations are generally best of the compared state regions except for 2002-03.

Secondary benchmarks

Table 4.5 presents an interstate comparison of States and regions for a secondary set of benchmarks. Trends are not presented for this data because it is not available on an up-to-date basis for the South Australian regional system. Data for the SA regional centres is provided for 2005-06 as the data was unavailable for these centres earlier. Data for the State regions is for 2004-05.

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Table 4.5

Secondary Benchmarks

Region	Number of Water Quality Complaints per 1,000 properties	Average Unplanned Water Supply Duration of Interruption (hrs)	Number of Water Main Breaks per 100 km	Average Unplanned Interruption Time per Customer (mins)	Average Unplanned Interruption Frequency per 1,000 Customers (mins)
Mt Gambier ¹	68.8	2.1	4.6	1.4	10.6
Murray Bridge ²	94.2	4.1	21.9	11.7	47.9
Pt Augusta ³	39.9	2.1	23.8	13.7	106.8
Pt Lincoln ⁴	104.4	1.2	6.8	5.0	72.3
Pt Pirie ⁵	31.2	3.6	12.1	7.4	34.6
Whyalla ⁶	42.1	2.6	19.7	10.0	63.4
SA Regional ⁷	62.1	2.5	14.4	7.7	51.5
NSW State-wide median ⁸	5.0	3.3	13.0	11.0	46.0
Vic Regional ⁹	2.5	1.1	22.0	n.a.	168
QLD Regional Subset ¹⁰	n.a.	n.a.	27.3	n.a.	n.a.
WA Regional ¹¹	8.0	n.a.	19.0	n.a.	106*

(1-7) Data for 2005-06 used in the absence of 2004-05 data.

(8) The figure for water main breaks is the average of ten (10) best performing utilities for 2004-05.

(9) For regional bodies with less than 35,000 customer connections. 2004-05.

(10) Regional subset, 2004-05.

(11) Average of all towns less Perth, 2004-05. The average unplanned interruption frequency figure is taken from data of service interruptions greater than 1 hour per 1,000 properties.

From the comparisons the Corporation's regional centres and total regional systems display the following characteristics:

- Significantly higher water quality complaints;
- Mixed in terms of the duration of water supply interruptions;
- At the mid to low end of the range for main breakages;
- Relatively short outage times (but only limited comparison data is available); and
- Generally low customer interruption frequency.

4.3 Regional Wastewater Services

The primary performance indicator chosen to assess trends in the efficiency of regional wastewater services is the Number of Breaks and Chokes per 100 km of Main. Data for the following secondary indicators is also presented:

- Average sewer main repair time (hr)
- Number of breaks and chokes per 100 km of main;
- Number of sewage overflows per 100 km of main; and
- Number of odour complaints per 1,000 properties.

Number of breaks and chokes per 100 km of main

Table 4.6 reports the Number of Breaks and Chokes per 100 km of Main regionally.

Table 4.6

Number of Breaks and Chokes per 100 km of Main

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	% Change 3 years to 2004-05	% Change 5 years to 2004-05
SA Regional	19	21	22	21	22	29	32	53
NSW State-wide mean ⁽¹⁾	n.a.	30	36	n.a.	41	49	36	n.a.
Vic Regional ⁽²⁾	n.a.	n.a.	n.a.	26	35	30	n.a.	n.a.
QLD Regional	42	42	58	74	37	31	-87.1	-26.2
WA Regional	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

(1) The NSW report refers to chokes and collapses.

(2) For regional bodies with less than 35,000 customer connections.

In 2004-05 the Number of Breaks and Chokes per 100 km of Main for the Corporation's regional system was the highest it has been for the report period. Apart from that year the Corporation's performance has been relatively stable while the data for New South Wales show an increasing trend and Queensland has a year to year variability but no apparent underlying trend. Regional South Australia, however, has consistently been the lowest of the compared regions.

Secondary benchmarks

Table 4.7 presents a comparison of regions and sub-systems in South Australia for a secondary set of benchmarks. Trends are not presented for this data because it is not available on an up-to-date basis for the South Australian regional wastewater system.

Table 4.7

Secondary Benchmarks

Region	Average Sewer Main Repair Time (hrs)	Number of Breaks & Chokes per 100 km of Main	Number of Sewer Overflows per 100 km of Main	Number of Odour Complaints per 1000 Properties
Mt Gambier ¹	2.1	5.9	14.2	0.5
Murray Bridge ¹	2.7	16.8	41.6	1.2
Pt Augusta	2.0	16.1	6.9	0.5
Pt Lincoln	2.5	67.6	31.6	0.2
Pt Pirie	3.6	33.0	26.1	1.2
Whyalla ¹	1.3	25.6	20.7	0.1
SA Regional ¹	2.6	28.7	22.6	0.6
NSW State median ²	2.8	49.0	11.0	1.0
Vic Regional ³	1.9	30.0	n.a.	n.a.
QLD Regional Subset ⁴	n.a.	31	n.a.	n.a.
WA Regional ⁵	n.a.	n.a.	3.3	23.3

(1) Data for breaks and chokes is for the 2004-05 year while for the remaining indicators it is 2005-06 when this information became available.

(2) State mean 2004-05.

(3) Regional <25,000 2004-05.

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- (4) Overflow data derived from average of 2002-05 overflows, by length of mains less Perth. Number of Breaks & Chokes per 100 km of main are for 04-05.
- (5) For regional bodies with less than 35,000 customer connections.

The comparisons show the Corporation's regional system displays the following characteristics:

- About the average in terms of the sewer main repair time (but only limited comparison data is available);
- The lowest of the range for breaks and chokes except for Pt Lincoln;
- Generally higher overflows than the comparators (although as before only limited comparison data is available); and
- Significantly fewer odour complaints than Western Australia and on a par with New South Wales.

4.4 Summary – Regional Water and Wastewater Service Standards

Table 4.8 provides a summary comparison of the Corporation's regional system and other regions for the two primary indicators of regional service performance. Water quality is not included as no comparisons were made.

Table 4.8

SA Water Regional Service Performance - Summary Comparisons

Category	Change over time			2004-05 Performance relative to other providers	
	3 years to 04-05	5 years to 04-05	Trend	Median	Rank ⁽¹⁾ 02-03
Water Supply:					
<i>Customer Service</i>					
Water Main Breaks per 100 km of Main	-17%	-16%	Flat	Best	1 (4)
Wastewater:					
<i>Customer Service</i>					
Number of Sewer Chokes per 100 km of Main	32	53%	Increasing	Best	1 (3)

(1) Ranked from best to worst. Parentheses contain number in comparison group.

Water supply

On a regional basis (and for each of the six regional centres) the Corporation's water quality is consistently well above the relevant standards contained in the Australian Drinking Water Guidelines. SA Water's regional water supply system shows an increasing trend on breaks per 100 km of main, however, the water supply system's breakage rate is relatively low when compared with estimates for the other States.

Wastewater

The regional sewage system in South Australia also shows an essentially flat trend on breaks and chokes per 100 km of main. The Corporation's regional wastewater system's breakage rate is relatively low when compared with estimates for the other States.

5. BENCHMARKING OF REGIONAL SERVICE COSTS

5.1 Regional Water Supply Costs

Table 5.1 outlines the operating cost per property of providing water services in SA Water’s total regional operations (all non-metropolitan operations) along with similar data for the New South Wales, Victorian and Queensland regional systems. No data is publicly available for the regional systems of Western Australia.

Table 5.1
Water Supply Operating Costs per Property (in 2004-05 dollars)

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	% Change 3 years to 2004-05	% Change 5 years to 2004-05
SA Regional	366	384	371	388	347	369	-0.5	0.8
NSW Regional Subset ¹	287	292	305	332	261	260	-17.5	-10
Vic Regional ²	276	287	294	312	342	360	18.3	23.4
QLD Regional Subset	270	281	309	328	326	360	14.2	23.0
WA	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

1 For regional bodies with less than 35,000 customer connections

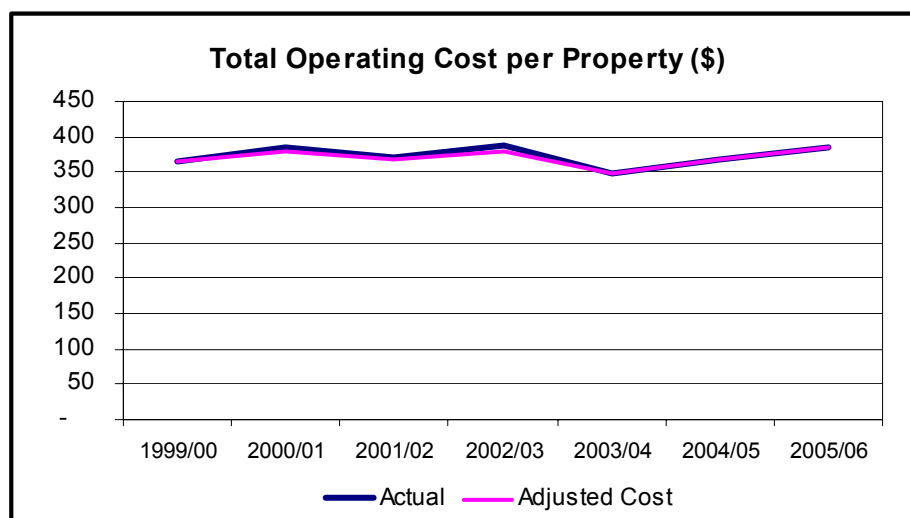
2 In the years where aggregate data has not been provided the NSW Regional average is calculated using a sample of 30 water utilities.

An important implication of intrastate diversity is that whole-of-State regional averages will depend on the proportions of “low cost” and “high cost” regions that are present in the State. This diminishes the validity of an interstate comparison of levels.

While South Australia’s operating costs per property for regional water supply rose in real terms in 2004-05 this followed a marginal decrease over the previous three years. SA Water’s total regional operating costs increased marginally (0.8%) from \$366 to \$369 per property in real terms over the 7 years, as illustrated in Figure 5.1.

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Figure 5.1
South Australian Regional Water Supply Operating Costs per Property
 (in 2004-05 dollars)



Major pumping (electricity) costs have risen since 2001-02 largely through increased prices due to SA Water being subject to the National Electricity Market regime. In spite of these unavoidable electricity price increases there has been a flat trend in real operating costs while, as the material presented in Section 4 indicates, service standards are being maintained.

5.2 Regional Wastewater Service Costs

Table 5.3 outlines a comparison of operating cost per property for the provision of wastewater services in the same way as provided for water supply.

Table 5.2
Wastewater Services Operating Cost per Property (in 2004-05 dollars)

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	% Change 3 years to 2004-05	% Change 5 years to 2004-05
SA Regional	227	212	208	212	248	254	18.1	10.6
NSW Regional Subset ¹	231	230	236	242	261	270	12.6	14.4
Vic Regional ²	232	217	229	237	229	269	14.9	13.8
QLD Regional Subset	198	218	216	230	230	231	6.5	14.3
WA Regional	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

1 For regional bodies with less than 35,000 customer connections

2 In the years where aggregate data has not been provided the NSW Regional average is calculated using a sample of 30 water utilities.

The Corporation's costs have shown an 11% increase over the reporting period, primarily due to the need to upgrade facilities to meet increased environmental standards. Notwithstanding these increases, the SA Water regional average is lower than the NSW regional sub-set and lower than the Victorian regional average in all but one year.

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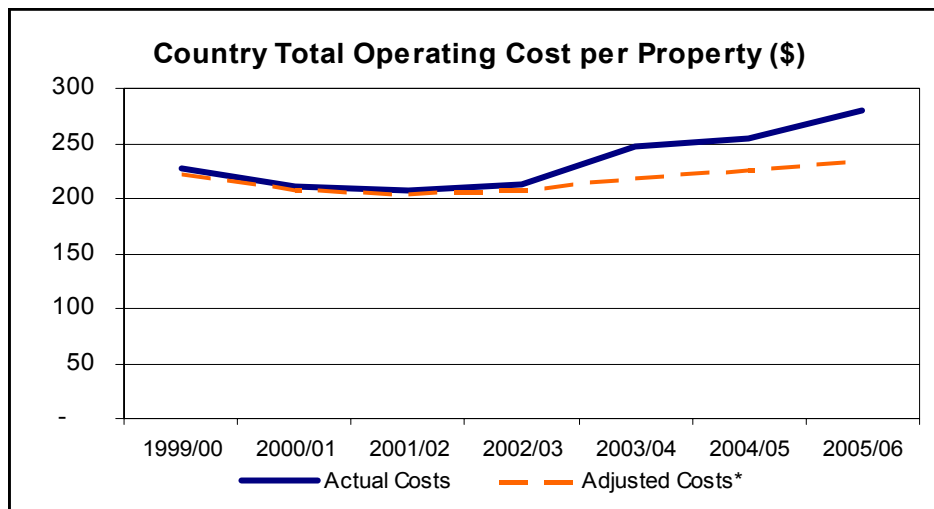
To properly assess the cost efficiency of SA Water, the cost per property figures need to be adjusted for the following factors, to demonstrate the underlying trend:

- A shift in the allocation of indirect costs in 2003-04 following a detailed review of program reporting. A change was made in the allocation of indirect costs, with a greater proportion allocated to the regional wastewater segment rather than regional water. This will result in more accurate recognition of cost activities in future.
- The costs involved in the new wastewater treatment plant at Victor Harbour.
- A tightening of the Corporation's capitalisation policy in 2000-01 which resulted in costs previously capitalised being expensed.
- The costs of conducting a major efficiency review across the Corporation, the Value Based Management project, which partly accounted for an increase in 1999-00 costs.

The actual and adjusted operating cost trends are demonstrated in Figure 5.2.

Figure 5.2

Adjusted Regional Wastewater Operating Cost Per Property (\$)



After adjusting for these factors, the cost per property has been relatively stable over the period. The slight upward trend since 2001-02 is primarily attributable to new initiatives in wastewater treatment, preventative maintenance to reduce the incidence of chokes, and increased electricity charges.

The peak in costs in 2005-06 year relates to the new wastewater treatment plant at Victor Harbor.

The forecast shows a relatively flat trend with no major treatment plant upgrades or new plants scheduled. Following completion of the new plant at Victor Harbor the projects included in the country environment improvement program will be completed.

5.3 Summary - Regional Water and Wastewater Business Costs

Table 5.3 provides a summary comparison of SA Water's cost performance for regional services.

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Table 5.3

SA Water Regional Service Costs (in 2004-05 dollars) – summary comparisons

Category	Change over time		
	3 years to 04-05	5 years to 04-05	Trend
<i>Water Supply</i>			
Operating Cost Per Property	-0.5	0.8	Flat
<i>Wastewater</i>			
Operating Cost Per Property	18.1	10.6	Increasing

Over the report period 1999-00 to 2004-05 there was a marginal increase in operating costs for water supply primarily due to an increase in variable costs especially in electricity and the establishment of new water treatment plants in several areas. Containment of these costs suggests a high level of efficiency is being maintained.

Operating costs for regional water supply are generally higher in South Australia than interstate due to poor water accessibility and quality.

Operating costs for the South Australian regional wastewater system as a whole have shown a generally increasing trend in real terms over recent years largely attributable to a change in accounting policy (which has correspondingly had a downward effect on regional water supply cost estimates) and costs arising from meeting the requirements of the environmental regulator including higher treatment standards required in regional areas.

On the basis of the time series data, it can be concluded that costs have been well contained over time, and that this has been achieved without adverse performance consequences in terms of standards of service as described in Section 4. Interstate comparisons suggest that the costs of the Corporation's regional wastewater system are quite low.

6. VALUE FOR MONEY FOR CUSTOMERS

6.1 Introduction

Value for money for customers of a water company like SA Water that is highly asset-based and does not set the prices it charges is problematic and difficult to assess. Demonstrating value for money is made even more challenging when comparable water providers interstate do not have the same operating conditions. For example, most do not pump source water long distances; most have access to source water that is of generally good quality; and most provide their services in geographical conditions with soils that are either sandy or more readily worked compared with the clay soils around Adelaide. To compound problems associated with the use of comparisons, there is an inconsistent approach to the valuation of assets in the water industry in Australia which has a consequential impact on the calculation of total costs.

Notwithstanding these quite significant obstacles it is important to consider the services being provided in the context of the charges being levied, that is, the value for money for customers who purchase water and wastewater services. Value for money for customers is considered here in terms of:

- Customer feedback – that is, what customers say about the quality of services and the price;
- An assessment of the relative quality of service compared to other water bodies; and
- An assessment of the costs of providing the services relative to the customer's bill.

In aggregate this information provides some assessment of the value for money customers derive from the services provided by the Corporation.

6.2. Customer Feedback

As indicated earlier in this report, in June 2006 the Corporation undertook its sixth annual customer satisfaction benchmarking study to measure satisfaction with its service delivery and performance across a broad range of areas. The state-wide study involved 911 households and 303 businesses participating in a telephone survey seeking responses to a comprehensive questionnaire (124 questions).

Table 6.1 provides results of the survey split into metropolitan and rural areas. The results are shown as a satisfaction score (out of ten (10)) for five attribute measures. The results show that:

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- In metropolitan Adelaide, satisfaction ratings increased from 2005 to 2006 on:
 - Reliability of supply
 - Value for money
 - Not causing inconvenience.
- In metropolitan Adelaide, ratings decreased in 2006 on:
 - Ease of access
 - Responsiveness when something goes wrong.
- In rural SA, satisfaction ratings increased from 2005 to 2006 on:
 - Reliability of supply
 - Responsiveness when something goes wrong
 - Value for money
 - Not causing inconvenience.
 -
- In rural SA, satisfaction ratings did not decrease on any attribute.

Table 6.1

Total Random Household Sample - Metro and Rural

Attribute	Metropolitan Random Households			Rural Random Households		
	2004	2005	2006	2004	2005	2006
Reliability of service	9.1	8.6	8.9	8.9	8.7	8.9
Ease of Access	8.1	8.1	7.9	8.0	8.0	8.0
Responsiveness to a problem	7.8	7.8	7.6	7.7	7.9	8.0
Value for Money	6.7	7.1	7.2	6.9	7.1	7.7
Not causing any inconvenience	8.4	8.3	8.5	8.3	8.4	8.5
Overall Response	8.1	8.2	8.3	8.1	8.2	8.3

Table 6.2 shows the total results of the random household survey. Overall, these results show:

- An increase in satisfaction with “*reliability of supply*” from 2005 to 2006. However, the 2006 satisfaction rating on this attribute is not statistically different from the 2001 benchmark measure.
- A drop in “*ease of access*” from 2005 to 2006, but the 2006 result is no different from the 2001 benchmark.
- No change in “*responsiveness when something goes wrong*”, compared with 2005 and the 2001 benchmark.
- An increase in satisfaction with “*value for money*” between 2005 and 2006, and between the 2001 benchmark and 2006.
- An increase in satisfaction with “*not causing inconvenience*” between 2005 and 2006, but no statistical difference between the 2001 and 2006 results on this attribute.

Overall the survey again confirmed SA Water is well regarded as a service provider with customer satisfaction remaining at a high rate (8.3 out of a possible 10 – up from 8.2 in 2005).

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Table 6.2

Total Random Household Sample

Attribute	2001	2002	2003	2004	2005	2006	% Change 3 years to 2006	% Change 5 years to 2006
Reliability of service	8.8	8.7	8.8	9.0	8.6	8.9	1.12	1.12
Ease of Access	7.9	8	7.8	8.1	8.1	7.9	0.00	0.00
Responsiveness to a problem	7.8	7.9	7.6	7.8	7.8	7.8	0.00	0.00
Value for Money	7.1	6.8	7.0	6.7	7.1	7.3	2.74	2.74
Not causing inconvenience	8.4	8.3	8.2	8.3	8.5	8.5	1.18	1.18
Overall Response	8.2	8.1	8.1	8.2	8.2	8.2	0.00	0.00

Pricing – value for money

The Survey also sought responses to questions about water and wastewater pricing. The questions and responses are summarised here:

- (1) Whether the price of water represents good value for money or not. Responses were as follows:

Good	34%
Average	50%
Poor	13%
Unsure	3%

- (2) Whether the fixed water supply charge represents good value. Responses were as follows:

Yes	74%
No	14%
Unsure	12%

- (3) Whether the sewerage charge represents value for money. Responses were as follows:

Yes	61%
No	18%
Unsure	21%

In total, responses to the survey from customers showed that eighty-four per cent (84%) believe that the price of water represents good or average value, with thirteen per cent (13%) believing it represents poor value.

6.3 Comparative Levels of Service

Metropolitan operations

The Corporation's performance in a range of service measures compared to others for its metropolitan operations is summarised in Table 2.17, Section 2 of this report. Thirteen service measures are compared and the Corporation's performance for each is ranked relative to the eight water companies compared giving a ranking out of 9. The ranking for each performance measure gives some appreciation of the quality of the Corporation's relative service levels and, in turn, provides an input to the consideration of value for money for customers.

In comparing relative performance it is assumed that a ranking in the top three companies is considered high performance, middle ranking results are considered medium performance and a ranking in the bottom three companies is low performance as follows:

Ranking of 1-3 High
 Ranking 4-6 Medium
 Ranking of 7-9 Low

Table 6.3 provides the Corporation's performance ranked against the eight compared water companies for each of the comparative service measures.

Table 6.3

SA Water's comparative ranking performance

Service Standard	Rank ⁽¹⁾ 04-05	Corporation Performance
Water Supply:		
Number of Water Quality Complaints per 1,000 Properties	2 (9)	High
Average Duration of an Unplanned Water Supply Interruption (hr)	8 (9)	Low
Average Connect Time to a Telephone Operator (seconds)	3 (7)	High
Infrastructure Leakage Index	3 (9)	High
No. of Water Main Breaks per 100 km of Main	4 (9)	Medium
Wastewater:		
Number of Property Connection Sewer Breaks & Chokes per 1,000 Properties	7 (7)	Low
Average Wastewater Break/Choke Repair Time (hr)	2 (8)	High
Odour Complaints per 1,000 Properties	5 (9)	Medium
Number of Wastewater Overflows per 100 km ⁽²⁾	6 (7)	Medium
Proportion of Wastewater Treated to a Tertiary Level	3 (9)	High
Proportion of Water Recycled	1 (8)	High
Proportion of Bio-solids Reused	1 (7)	High
Number of Wastewater Reticulation Main Breaks and Chokes per 1,000 Properties ⁽²⁾	7 (9)	Low

(1) The bracketed number is the number of regions compared. This varies due to the availability of data.

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The Corporation's performance against the 13 service standards is summarised as follows:

Ranking	No. of Performance Measures at the Ranking
High	7
Medium	3
Low	3

For seven (7) performance measures the Corporation's results were ranked as high (in the top 3) when compared to the eight water companies. For another three (3) performance measures the Corporation's results were ranked as medium (ranked 4-6) and so on.

Regional operations

The results of comparisons of performance of the Corporations regional operations relative to interstate regions are provided in Tables 4.4 and 4.6 of Section 4 of this report. Unfortunately, the data is not complete and in some areas is not consistently applied. However, on the basis of the data available, Table 6.4 provides a summation of the Corporation's relative performance in eight measures for 2004-05 compared to regional operations in New South Wales, Victoria, Queensland and Western Australia. A ranking is provided according to the number of regions with data supplied in a similar manner to the metropolitan operations.

Table 6.4
SA Water's relative performance – Regional operations – service standards

Performance measure	Ranking	Corporation Performance
<i>Water supply</i>		
Number of water quality complaints/1,000 properties	4 (4)	Poor
Average Unplanned water supply duration of interruptions	1(2)	Good
Number of water main breaks/100 km	2 (5)	Good
Average unplanned interruption frequency/1,000 customers	1(2)	Good
<i>Wastewater services</i>		
Average sewer main repair time	2(3)	Fair
Number of breaks and chokes/100km	1(4)	Good
Number of sewer overflows/100 km	3(3)	Poor
Number of odour complaints/1000 properties	1(3)	Good

The Corporation's performance against the eight service standards is summarised as follows:

Ranking	No. of Performance Measures at the Ranking
High	5
Medium	1
Low	2

Overall comparison of service level

When comparing the range of service measures with other water companies in Australia (8 in the metropolitan area and 4 in regional areas), the Corporation displays the following overall relative performance in standards of service:

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Service Standards	Relative Performance		
	High	Medium	Low
Metropolitan	7	3	3
Regional	4	2	2
Total	11	5	5

That is, 76% of the Corporation's performance results are at the high and medium comparative level with the remaining 24% at the low comparative level. It can therefore be concluded that the standard of service offered by the Corporation to its customers is predominately at the mid-to-high level when compared with the service levels offered customers of the other water bodies.

6.4 Comparative Level of Costs of Services and Customer Bills

A customer's assessment of value for money invariably will be the intersection of value or quality of service and the cost or charge. Customer feedback has been discussed in section 6.2 and a comparison of levels of service has been made in section 6.3. This section considers the relative costs of providing the service and the corresponding charges levied on customers.

The 'costs' are reflected by the Operating Cost per Property for Water Supply and Operating Cost per Property for Wastewater Services contained in *WSAAfacts 2005*. This data has been provided already in this report but it is combined in Table 6.5 for broader comparison purposes. Also, for ease of comparison, data is presented for each Australian mainland city (based on the relevant water utility in each State/Territory). A weighted average has been used to recognise the substantially different number of properties served in each city. For example, Darwin has substantially higher costs than the other cities but has little impact on the weighted average given its size.

Charges to customers are presented in Table 6.6 as a combined average water and wastewater bill based on a water consumption of 250kL per annum. Again, a weighted average has been used.

Table 6.5
Operating cost per property for water supply & wastewater services
(2004-05 dollars)

	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
Canberra	452.24	478.34	529.12	538.03	568.53	568.03
Brisbane	362.97	348.55	408.08	394.41	365.41	370.97
Melbourne	226.36	217.68	218.01	223.81	236.59	273.05
Darwin	1110.14	722.29	570.78	718.02	699.47	598.19
Adelaide	314.68	301.72	292.35	309.62	304.71	314.65
Sydney	571.35	521.77	523.62	523.53	420.12	429.19
Perth	322.47	305.27	304.69	303.30	327.63	345.24
Weighted Average	392.54	365.37	370.97	374.19	342.44	359.30

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Table 6.5 shows the operating costs for water supply and wastewater services in Adelaide are consistently 2nd lowest of each city except in 2002-03 when they were 3rd lowest. Costs in Adelaide are consistently below the weighted average cost for each of the six years as illustrated in Figure 6.1.

Figure 6.1

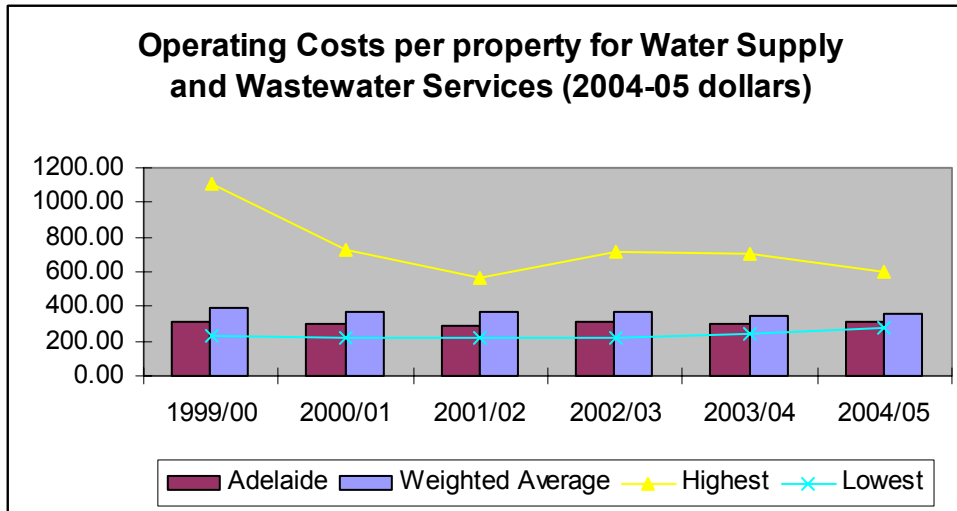


Table 6.6 shows that Adelaide residents are charged on average more for the same service than most of their interstate counterparts and consistently more than the weighted average. Figure 6.2 illustrates that Adelaide's charge is generally in the higher bracket of the compared cities. From a customer viewpoint the Adelaide Bill was 5th lowest of all (7) compared Bills for 2004-05.

Table 6.6

Residential Average Annual Water Bill

	1999/00	2000/01	2001/02 ¹⁰	2002/03	2003/04	2004/05
Canberra	511.12	518.60	n.a.	594.70	633.20	651.82
Brisbane	483.80	533.04	n.a.	620.00	650.00	665.30
Melbourne	406.13	405.58	n.a.	501.31	518.32	539.95
Darwin	496.25	554.25	n.a.	594.30	713.40	722.27
Adelaide	562.19	565.46	n.a.	664.54	692.03	715.52
Sydney	547.90	566.35	n.a.	638.39	677.08	677.53
Perth	601.50	622.90	n.a.	694.72	719.96	722.27
Weighted Average	508.71	522.54	n.a.	606.80	635.32	645.58

¹ WSSA did not produce data for the 2001-2002 year

Figure 6.2

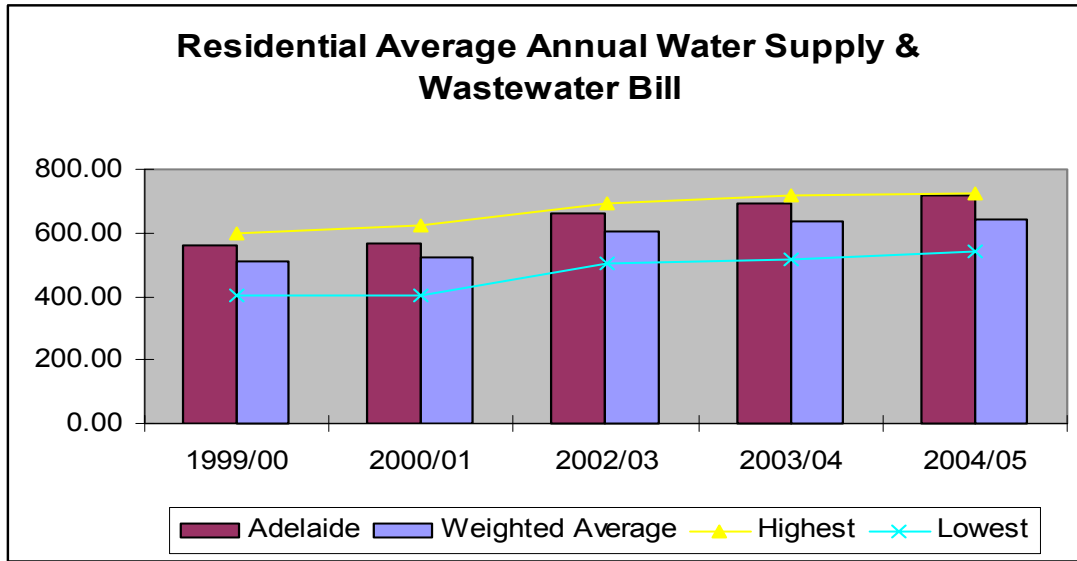
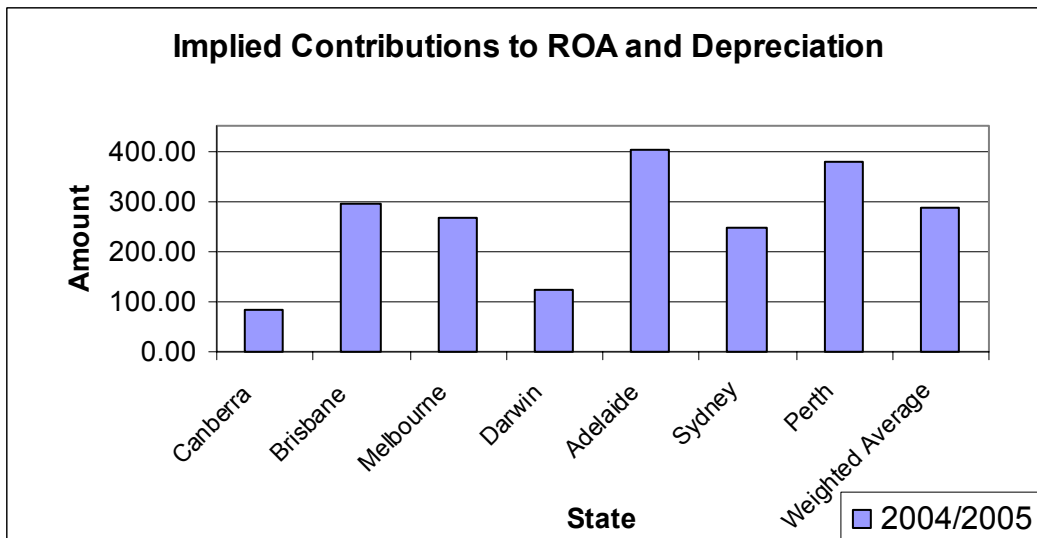


Figure 6.3 provides a comparison of the implied contribution that individual customers make in their bills toward depreciation and providing a return on the value of assets (i.e. it reflects revenue per customer less operating costs per customer). Although SA Water’s operating costs are low the contribution that the Corporation’s customers make towards its assets is high by interstate standards as illustrated in Figure 6.3. To some extent this level of contribution may reflect the relative quality of assets which, in turn, as earlier demonstrated, provides a generally high level of standards of service.

It may also be relevant that various jurisdictions have taken different approaches to asset valuation and in particular some have adopted a “line in the sand” methodology to price setting which have established asset valuations consistent with the accounting standards related to impairment tests.

Figure 6.3



The costs of providing country services are almost invariably higher than the costs of providing metropolitan services. Despite this the Government’s state-wide pricing policy ensures that the bills for country customers are on average no more than those of metropolitan customers.

6.5 Summary – Value for Money

The Customer Satisfaction Survey conducted by the Corporation in 2006 indicates customers are generally very satisfied with the range and quality of services provided by the Corporation. Eighty-four per cent (84%) of responses to the survey consider that the price of water represents good or average value.

The standard of service offered by the Corporation to its customers is predominately at the mid-to-highest level when compared with the service levels offered customers of the other water bodies.

While SA Water's operating costs for water supply and wastewater services are comparatively low in Adelaide when compared with other Australian cities, the cost of services, are comparatively high. This reflects a higher effective contribution toward the costs of the assets employed and to some extent is a reasonable cost of providing what are demonstrated above to be high levels of service.

KEY DIFFERENCES IN PROVIDING WATER SUPPLY AND WASTEWATER SERVICES

Some key differences between SA Water's operating environment and that of other water supply providers include:

- Access to water resources: Approximately 40% of metropolitan Adelaide's water is sourced from the River Murray in average rainfall years and up to 90% in dry years. A network of pipelines is required to transport bulk water from the River. The capital cost of the pipeline infrastructure is extremely high and ongoing maintenance and operating costs are also significant. Typically, the systems in other States involve local catchments and reservoirs, underground water systems and where applicable, access to Rivers is more readily available.
- Water quality: Many water utilities have access to clean, high quality water that can, with little treatment, be provided directly to customers. In South Australia the quality of raw water is generally quite poor and as a result needs considerable treatment in order to meet acceptable drinking standards. Water treatment plants have been established to ensure water supplied to customers is potable and safe to drink. The capital cost of these plants has been substantial and the ongoing operating costs are also considerable.
- Topography: Some areas in Australia have source water in elevated areas (eg Brisbane, Sydney and Melbourne). By utilising gravity the water utilities in these areas are able to minimise pumping costs in transporting water to the reticulation systems. In South Australia the topography does not enable use of gravity to the same extent as other States and systems are subject to extensive pumping and associated costs. Electricity use associated with pumping water such distances is very high and electricity costs in South Australia are among the highest in Australia.
- Soil conditions: A significant cost in the maintenance of underground pipelines and in augmentation lies in digging and trenching. In clay and rocky soils for example, costs are considerably higher than the costs associated with working in sandy conditions as found in Perth and many parts of Brisbane. It is recognised that sandy conditions have problems associated with stability. Adelaide and surrounding areas as well as areas in regional South Australia are characterised by clay soils.

Some key differences between SA Water's operating environment and that of other wastewater services providers are:

- Topography – as discussed above.
- Age of system

Adelaide's wastewater system on average is older than those of most other cities as the decision to sewer the city and suburbs was made quite early in its development.

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- The type of material used in construction

A higher proportion of earthenware pipes are believed to have been used in Adelaide because manufacturers of these pipes were South Australian-based and their products were used in order to support local industry. This occurred for many years after PVC was first introduced. Earthenware pipes, being shorter in length than PVC pipes, have more joints and therefore offer more opportunity for tree-root incursion. Earthenware pipes also have a greater propensity to crack in the highly reactive clay soils that exist in much of the Adelaide metropolitan area and in some country towns.
- Siting and location of system

The majority (87%) of chokes are caused by tree roots. Rainfall, tree type and soil condition are all major factors in determining the extent and speed of root growth. Geographical analysis in metropolitan Adelaide has shown choke rates in the foothills may be three times those on the plains west of the city. The siting and location of the wastewater system is therefore relevant in the analysis of the number of chokes and breaks in the system.
- Preventative maintenance of mains only

SA Water does not undertake preventative maintenance for property connections (preventative maintenance is undertaken for reticulation mains). SA Water understands most other authorities in Australia take a similar approach. It is therefore reasonable to conclude that the differences in the reported number of breaks and chokes may be more related to physical factors than operational practices.
- Pipe replacement

The extent to which complaints are received from customers feeds into an active pipe maintenance program which drives the pipe replacement policy. SA Water has focussed on maintaining a high level of customer satisfaction by adopting tight response times for choke and overflow attendance in preference to adopting extensive pipe replacement programs. The Corporation receives very few customer complaints in this area.