TRANSPARENCY STATEMENT
WATER AND WASTEWATER PRICES IN METROPOLITAN AND REGIONAL SOUTH AUSTRALIA
2006-07

TRANSPARENCY STATEMENT – PART A
WATER AND WASTEWATER PRICES IN METROPOLITAN AND REGIONAL SOUTH AUSTRALIA
2006-07

Government
of South Australia

South Australian Government

August 2005

Overview of the Transparency Statement

This *Transparency Statement on Water and Wastewater Pricing in Metropolitan and Regional South Australia 2006-07* continues to:

- provide greater transparency in the setting of water and wastewater prices
- document and report on the matters considered in the Government's 2006-07 water and wastewater pricing decisions
- document the extent to which the Government's water and wastewater pricing processes have complied with Council of Australian Governments' (CoAG) agreements and pricing principles.

The Government published the *Transparency Statement: Water and Wastewater Prices in Metropolitan and Regional South Australia 2005-06* in December 2004, which was referred to the Essential Services Commission of South Australia (ESCOSA) for its independent review.

For 2006-07, the Government has largely retained this process and sought to develop aspects of its price setting approach to address, to the extent possible, the findings of ESCOSA's inquiry into the 2005-06 price setting process and assessments by the National Competition Council (NCC). The NCC has previously assessed the Government's progress in implementing CoAG water reforms and made recommendations to the Federal Treasurer on National Competition Policy (NCP) payments to jurisdictions.

In May 2005 the Government approved a 2.5% average increase for 2006-07 water and wastewater charges, consistent with the consumer price index. In reaching this decision, the Government took into consideration economic efficiency, social justice, environmental issues, regional development and existing CoAG obligations.

Similar to the 2005-06 water and wastewater pricing decisions, the Government intends to refer the 2006-07 Transparency Statement to ESCOSA for an independent inquiry into the pricing processes and the adequacy of the application of the CoAG principles.

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Abbreviations

AASB	Australian Accounting Standards Board
APS	accounting policy statement
BOD	biochemical oxygen demand
CoAG	Council of Australian Governments
CPA	Competition Principles Agreement
CSIRO	Commonwealth Science and Research Organisation
CSO	community service obligation
DFC	Department for Families and Communities
DTF	Department of Treasury and Finance
DWLBC	Department of Water, Land and Biodiversity Conservation
EBIT	earnings before interest and taxes
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
EWS	Engineering and Water Supply Department
GPOC	Government Prices Oversight Commission (of Tasmania)
ICRC	Independent Competition and Regulatory Commission (of the Australian Capital Territory)
IPART	Independent Pricing and Regulatory Tribunal of New South Wales
kL	kilolitre (1000 litres)
LRMC	long run marginal cost
ML	megalitre (1 million litres)
n.a.	not available
NCC	National Competition Council
NCP	National Competition Policy
NMU	non-major urban
NWC	National Water Commission
NWI	National Water Initiative
OMA	operating, maintenance and administrative
pa	per annum
PNFC	public non-financial corporation
QCA	Queensland Competition Authority

TER	tax equivalent regime
SA Water	South Australian Water Corporation
SAIPAR	South Australian Independent Pricing & Access Regulator
WACC	weighted average cost of capital
WSAA	Water Services Association of Australia
WWTP	wastewater treatment plant

1 Introduction

1.1 Purpose

The main purpose of this Transparency Statement is to document, for public scrutiny, the South Australian Government's 2006-07 water and wastewater pricing decisions.

This Transparency Statement also documents the processes undertaken and the matters considered by the Government in reaching its decisions. It includes discussion of the 1994 CoAG Strategic Framework for water reform and the matters raised by the Essential Services Commission of South Australia (ESCOSA) in its independent inquiry into the Government's 2005-06 pricing processes. This Transparency Statement demonstrates that the 2006-07 pricing decisions continue to comply with the 1994 CoAG pricing principles.

The Government will refer the 2006-07 Transparency Statement to ESCOSA to assist it in undertaking an independent inquiry into the Government's 2006-07 price setting processes.

The Government remains committed to the National Water Initiative (NWI), signed at the CoAG meeting of 25 June 2004. As agreed in the NWI, the National Water Commission (NWC) will undertake the 2005 assessment and report to the Commonwealth on South Australia's final compliance with the 1994 CoAG Strategic Framework. This Transparency Statement, together with the 2005-06 Transparency Statement, are expected to be components of the Government's submission to the NWC for the 2005 final assessment of CoAG compliance.

NWI matters, over and above 1994 CoAG requirements, are not dealt with in this document. The Government's NWI Implementation Plan has not yet been negotiated and accredited by the NWC.

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, retail and industrial customers throughout metropolitan and country 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.

SA Water operates in accordance with its Charter (SA Water, 2003) prepared by the Treasurer and the Minister for Administrative Services 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. The Government understands that SA Water is currently in the process of preparing an updated version of its Customer Charter including expanded provisions relating to supply interruptions and customer service standards.

1.3 Structure of Transparency Statement

In this Transparency Statement, Chapter 2 outlines the processes followed in setting water and wastewater prices in South Australia for 2006-07 and in preparing the Transparency Statement. It also discusses the forthcoming referral of the Transparency Statement to ESCOSA.

Chapter 3 outlines the 1994 CoAG Strategic Framework and independent assessment of South Australia's compliance with the reform agenda by the NCC and ESCOSA.

Chapters 4 and 5 outline the methodology used to calculate the Upper Revenue Bound (or maximum revenue outcome) and the Lower Revenue Bound (or minimum revenue outcome), respectively.

Chapter 6 discusses the price setting methodology for 2006-07.

Chapter 7 presents the Government's decisions on water and wastewater prices to be implemented in 2006-07.

Chapter 8 presents the financial details supporting the 2006-07 water and wastewater pricing decisions.

2 Processes

2.1 Introduction

This chapter outlines the processes undertaken by the Government in reaching its 2006-07 metropolitan and regional water and wastewater pricing decisions.

2.2 Institutional framework

The 1994 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 Administrative Services, who is responsible for SA Water providing water and wastewater services, brings to Cabinet matters relating to water and wastewater price setting, including the price-setting methodology. The Minister for Environment and Conservation and the Minister for the River Murray are responsible for water resource management policy.

The Treasurer is responsible for budget deliberations and financial performance monitoring related to SA Water's functions. The Treasurer, as the Minister responsible for ESCOSA, refers water and wastewater pricing decisions to ESCOSA. ESCOSA is an independent statutory authority.

2.3 Process for price setting

In March 2005, the Government approved the processes to be adopted and the timeframes involved in setting and reviewing 2006-07 water and wastewater prices. The document considered by Cabinet is set out in Appendix 1.

In March 2005, the Government also endorsed the methodology for setting 2006-07 water and wastewater prices (Appendix 2) and noted the 1994 CoAG price setting principles.

In May 2005 Cabinet considered a draft of this Transparency Statement that described:

- water and wastewater price setting processes
- the Government's 1994 CoAG commitments
- maximum revenue outcome and its components
- minimum revenue outcome and its components.

At the same time, the Minister for Administrative Services also brought a submission to Cabinet seeking an increase in 2006-07 metropolitan and regional water and wastewater prices, in accordance with the previously approved price setting methodology.

Based on these documents, the Government, through Cabinet, approved 2006-07 metropolitan and regional water and wastewater prices.

Following the Government's pricing decisions, legal aspects were identified regarding the administrative and accounting treatment of some wastewater revenues (discussed further in Section 4.5). This decision did not impact upon or vary the Government's 2006-07 water and wastewater pricing decisions.

Revisions to the *Transparency Statement Water and Wastewater Prices in Metropolitan and Regional South Australia 2006-07* were noted by the Government in August 2005.

In accordance with the *Waterworks Act 1932,* water prices to apply to most SA Water customers in 2006-07 will be gazetted in the South Australian Government Gazette by December 2005. The commercial water property rate will be gazetted in June 2006.

Wastewater rates to apply to SA Water wastewater customers in 2006-07 will be gazetted by June 2006, in accordance with the *Sewerage Act 1929*.

2.4 Matters considered by Cabinet

In the 2006-07 price setting process the Government explicitly considered CoAG principles and outstanding commitments under the 1994 CoAG Strategic Framework. It also considered matters relating to regulatory practice arising from ESCOSA's inquiry into the 2005-06 Transparency Statement.

In addition to achieving economically efficient outcomes, the Government considered other matters that contribute to the public benefit, such as equity, social justice, environmental issues and regional development.

2.5 Transparency Statement

The Government has decided to continue the practice of an inquiry by ESCOSA into the 2006-07 pricing processes and the adequacy of the application of 1994 CoAG pricing principles. This 2006-07 Transparency Statement will be referred to ESCOSA, as occurred with the 2004-05 and 2005-06 Transparency Statements.

2.5.1 Part A

The Transparency Statement (Part A) documents and provides an overview of the processes and the application of the methodology in the Government's 2006-07 pricing decisions in accordance with 1994 CoAG pricing principles.

The Department of Treasury and Finance prepared this Transparency Statement on behalf of the Treasurer. Officers from relevant public sector agencies including the Departments of Treasury and Finance, Environment and Heritage, Water, Land and Biodiversity Conservation, Premier and Cabinet, Families and Communities, Trade and Economic Development, and the South Australian Housing Trust were consulted in its preparation. SA Water was consulted on factual accuracy and completeness of information.

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 2006-07 metropolitan and regional water and wastewater price setting processes. The terms of reference to ESCOSA are provided in Appendix 3.

ESCOSA's final report will form Part B of this Transparency Statement.

Statement of Compliance 1

The Government's institutional arrangements, price setting and review processes remain compliant with the 1994 CoAG Strategic Framework.

3 The CoAG Water Reform Agenda and the National Water Initiative

3.1 The 1994 CoAG Strategic Framework

In February 1994, CoAG endorsed the CoAG Strategic Framework for the efficient and sustainable reform of the Australian water and wastewater industry.

The CoAG Strategic Framework, which includes broad CoAG pricing principles and the more specific CoAG guidelines, emphasises the principles of consumption-based pricing, full cost recovery, the removal or transparent reporting of cross-subsidies, and the full disclosure of community service obligations (CSOs), where services are provided to customers at less than full cost. CoAG also agreed that water businesses should earn a real rate of return on the written down replacement cost of assets. The relevant clauses of the CoAG Strategic Framework are included in Appendix 4.

On 10 February 1997, the Prime Minister wrote to all Heads of Government agreeing to extend the CoAG water reform framework to include groundwater and storm/wastewater (NCC, 1998, p 110).

3.2 The CoAG guidelines

The Agriculture and Resource Management Council of Australia and New Zealand endorsed the Expert Group (1995) report and guidelines for the application of the CoAG Strategic Framework in future pricing determinations on 27 February 1998.

All Premiers and Chief Ministers subsequently endorsed these CoAG guidelines[i]. On the basis of the Expert Group's recommendations, the CoAG guidelines outlined the two core principles of:

- avoiding monopoly rents
- maintaining the ongoing commercial viability of the business.

The guidelines require that prices should be set to achieve a revenue target consistent with these principles and based on efficient resource pricing and business costs.

3.2.1 Avoiding monopoly rents — maximum revenue outcome

The CoAG guidelines stipulate that in order to avoid extracting monopoly rents from consumers the water business should recover:

- efficient business costs
- taxes
- externalities[ii]
- provision for asset consumption

[i] Noted at the Tripartite Meeting on 14 January 1999.
[ii] 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 minimum revenue outcome. No requirement is specified for the maximum revenue outcome.

- the opportunity cost of capital — calculated using a weighted average cost of capital (WACC).

Full economic cost recovery conceptually defines an upper revenue bound for a water business's revenue generation — called the 'maximum revenue outcome'.

3.2.2 Ongoing commercial viability — minimum revenue outcome

The principle of maintaining the ongoing commercial viability adopted in the CoAG guidelines indicates that a water business should recover, at least:

- efficient business costs
- externalities[i]
- taxes or tax equivalent regimes (TERs)
- interest cost on debt
- dividends (if any)
- provision for future asset replacement/refurbishment (using the annuity approach).

The principle of maintaining ongoing commercial viability therefore conceptually represents the lower revenue bound for the business's revenue requirements — called the 'minimum revenue outcome'.

3.2.3 Transparency

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 Other principles in the 1994 CoAG Strategic Framework

A number of other CoAG non-pricing principles are relevant to metropolitan and regional water and wastewater service provision.

3.3.1 Performance monitoring (Clause 6)

CoAG approved the adoption of performance monitoring and international best practice as principles to be adopted to ensure efficient service delivery (ie an appropriate quality of service delivery at minimum cost). Performance monitoring is also relevant for assessing efficient business costs.

3.3.2 Commercial focus (Clause 6)

CoAG agreed that, subject to each jurisdiction's particular circumstances, water businesses should adopt a commercial focus by contracting out, corporatising or privatising.

3.3.3 Public consultation and education (Clause 7)

CoAG agreed that the service provider should undertake public consultation before new initiatives are adopted. CoAG recommended the development of public education programs on water use and the benefits of reform.

3.4 National Water Initiative

The SA Government recently committed to 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.

Under the NWI, the NWC will undertake the scheduled 2005 assessment of compliance with the 1994 CoAG water pricing principles, rather than the NCC.

With regard to the implementation of the NWI, jurisdictions are co-operatively developing implementation plans, which will be assessed and accredited by the NWC. The NWC will undertake its first of three biennial assessments of progress against jurisdictions' implementation plans in 2006-07.

3.5 Independent assessments of South Australia's compliance with 1994 CoAG pricing principles

The NCC has previously assessed South Australia's compliance with the 1994 CoAG Strategic Framework and made recommendations to the Commonwealth on NCP payments. The NCC's final annual assessment was undertaken in 2004.

ESCOSA has also undertaken independent inquiries into water and wastewater price setting processes with regard to the adequacy of the application of CoAG principles, upon referral by the Treasurer. In 2005, the NWC will undertake the final assessment of South Australia's compliance with the 1994 CoAG Strategic Framework.

3.5.1 NCC

2004 NCP Assessment

The NCC's 2004 assessment of the Government's implementation of NCP included an assessment of the Government's pricing practices with respect to metropolitan and regional water and wastewater pricing. The NCC concluded that:

> …South Australia has achieved satisfactory progress for 2004 against its CoAG urban water and wastewater pricing obligations (NCC, 2004, p. xxxi)

The NCC report also identified that for continuing compliance with CoAG pricing principles:

- the Government would need to continue to demonstrate that it is achieving at least the lower bound of cost recovery; and
- that ESCOSA continues to have full opportunity to comment publicly on the processes adopted and the data used in preparing the Cabinet advice on SA Water's pricing, and on whether the CoAG pricing principles are being appropriately applied.

3.5.2 ESCOSA

In its inquiry into 2005-06 water and wastewater prices in metropolitan and regional South Australia, ESCOSA concluded compliance in the following areas:

- efficient business costs
- asset values
- contributed assets
- depreciation
- annuity estimate
- externalities
- return on assets
- dividends
- tax equivalent regime
- efficient resource pricing (ESCOSA, 2005, p 47).

In view of current regulatory practices, ESCOSA also recommended more significant improvement in the areas of pre-1995 contributed assets and efficiency of business costs. The Government responded to ESCOSA's 2005-06 assessment, forming Part C to the 2005-06 Transparency Statement. The 2005-06 Transparency Statement (Parts A, B and C) was tabled in the South Australian Parliament on 23 May 2005.

3.5.3 NWC

NWC assessment framework

At the time of writing, the NWC's 2005 assessment of jurisdictions' progress towards implementation of CoAG pricing principles had not been undertaken. Further, the Government's NWI Implementation Plan has not yet been negotiated and accredited by the NWC.

3.6 Conclusion

The CoAG principles on pricing of water-related services are broad and generic. The CoAG Strategic Framework states:

> a prescriptive approach that can be universally applied is not practicable (NCC, 1998, p 111).

The methodology for setting prices in South Australia for 2006-07 is based on the broad CoAG principles. The Government has made decisions on the detailed application of these principles. In addition, the Government also considers broader policy objectives, such as social equity, regional development and the environment. In this way prices are established which should generate sufficient revenue to support an appropriate standard of service based on efficient business costs.

Statement of Compliance 2

ESCOSA independently validated the Government's 2005-06 water and wastewater pricing decisions as being compliant with 1994 CoAG pricing principles. By continuing to adopt similar approaches to setting 2006-07 water and wastewater prices, the Government considers it remains CoAG compliant.

4 Maximum revenue outcome — avoiding monopoly rents

4.1 Introduction

Under the 1994 CoAG Strategic Framework, water businesses are required to recover no more than the maximum revenue outcome which consists of:

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

The same principles are applied to both the water and wastewater segments of SA Water's business.

Each component of the maximum revenue outcome is discussed below. Estimates of the maximum revenue outcome for 2004-05 to 2006-07 are reported in Chapter 8.

4.2 Operating, maintenance and administrative expenses

OMA expenses are required by the CoAG guidelines to be based on efficient business costs. These 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).

The CoAG Strategic Framework also states 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).

In its final report on the 2005-06 water and wastewater pricing process, ESCOSA's Statement of Compliance confirmed the Government's compliance with the CoAG principle that OMA expenses should be based on efficient business costs (ESCOSA, 2005, p 47).

4.2.1 Competitive tendering

Contracting out by competitive tendering is a form of 'competition *for* the market', which in the absence of 'competition *in* the market', can achieve price and quality outcomes that are competitive, efficient and low cost.

SA Water has contracted, by competitive tender, for services (eg electricity) or supplies (eg chemicals) in order to promote efficient business costs, where possible.

Approximately 71% of all SA Water's water and wastewater OMA expenditure (excluding labour costs) are subject to competitive tendering arrangements.

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.

4.2.2 Benchmarking of service performance

In its inquiry into the 2004-05 and the 2005-06 pricing processes, ESCOSA indicated that the Transparency Statement should further develop interstate benchmarking of regional services and the trend analysis of key cost drivers. In its final report on the 2005-06 water and wastewater pricing processes, ESCOSA also expressed the view that the Transparency Statement should:

> explore the link between efficient business costs and the SA Water Performance Statement and Customer Charter, to better enable a conclusion to be drawn on efficient business costs by providing more transparency on the 'value-for-money' issue (ESCOSA, 2005, p 21).

The Government sought independent advice regarding benchmarking of SA Water's customer service standards and the efficiency of its metropolitan and regional business costs. The South Australian Centre for Economic Studies (SACES) delivered its final report entitled *"A Review of the Efficiency of SA Water's Business Costs and Performance"* on 29 March 2005.

In undertaking its independent review, SACES noted the difficulties in undertaking performance and cost benchmarks, as follows:

> In an exercise like this it must be recognised that while differences in the efficiency and effectiveness of utilities' operations can give rise to differences in benchmark indicators, there are also substantial interregional differences in the environments within which utilities must operate that also contribute to differences in benchmark indicators. For example, in South Australia the reliance on River Murray source water, which is of relatively low quality, will either lead to lower quality drinking water or create a requirement for costly filtration processes.
>
> Region-specific factors which may affect water utility performance include:
>
> - the size and population density of the area served;
> - access to water resources;
> - water quality;
> - topography;
> - soil conditions;
> - effluent disposal opportunities; and
> - environmental standards.
>
> The potential influence of factors such as these needs to be kept in mind in a benchmarking exercise such as this. An effort to understand them is made by presenting some information regarding the contribution of variations in cost drivers to variations in benchmarks. However, our understanding of variations in cost drivers is still far from complete, especially across regions. For this reason there is a widely held view that trend analysis of providers is likely to be more robust than interstate comparisons of performance differences. Consistent

with that view, most of the emphasis in this report is on how benchmarks change over time.

The remainder of section 4.2, as well as section 4.3, are direct excerpts from the report's Executive Summary. The full report is attached as Appendix 6.

4.2.3 Benchmarking of metropolitan service performance

Table 1 summarises the benchmarks used and the outcomes achieved.

Table 1

SA Water metropolitan service performance - summary comparisons

	Change over time			Relative to other providers		
Category	**3 years to 03-04**	**5 years to 03-04**	**Trend**	**Average**	**Median**	**Rank[1] 03-04**
Water Supply:						
Customer Service						
Number of Water Quality Complaints per 1,000 Properties	-54%	-50%	Improving	Better	Better	2 (9)
Proportion of Customers Dissatisfied with Water Quality	-6 pts	-6 pts	Improving	Worse	Worse	8 (8)
Water Main Breaks per 100 km of Main	-4%	-24%	Not clear	Better	Better	3 (9)
Average Duration of an Unplanned Water Supply Interruption (hr)	+14%	+39%	Not clear	Worse	Worse	9 (9)
Proportion of Customers with No Water Supply Problems	n.a.	n.a.	n.a.	Better	Similar	4 (8)
Average Connect Time to a Telephone Operator (seconds)	+26	n.a.	Worsening	Similar	Similar	3 (7)
Environmental						
Infrastructure Leakage Index	n.a.	n.a.	n.a.	Better	Better	3 (8)
Wastewater:						
Customer Service						
Number of Property Connection Sewer Breaks & Chokes per 1,000 Properties	+12%	-10%	Not clear	Worse	Worse	7 (7)
Environmental						
Number of Wastewater Overflows per 100 km[2]	+19%	-18%	Not clear	Better	Usually Worse	6 (8)
Average Wastewater Break/Choke Repair Time (hr)	-29%	n.a.	Not clear	Better	Better	2 (8)
Odour Complaints per 1,000 Properties	-13%	-13%	Not clear	Similar	Similar	5 (9)
Proportion of Wastewater Treated to a Tertiary Level	+74 pts	+91 pts	Improving	Better	Better	3 (9)
Proportion of Water Recycled	+6 pts	+17 pts	Improving	Better	Better	1 (8)
Proportion of Bio-solids Reused	+14 pts	+101 pts	Flat	Better	Better	1 (8)
System Performance						
Number of Wastewater Reticulation Main Breaks and Chokes per 1,000 Properties[2]	+19%	-14%	Not clear	Similar	Worse	7 (9)

(1) Ranked from best to worst. Parentheses contain number in comparison group.
(2) "Average" affected by an extreme value in comparison group. Median is better indicator.

Water supply

The key conclusions to emerge regarding the customer service performance of SA Water's metropolitan water supply operations are:

- Over the five years to 2003-04, SA Water had a declining trend in water quality complaints and a reduction in the proportion of people who were dissatisfied with water quality. Water quality was improving. Although current complaint rates are below the average for Australian metropolitan water suppliers, the dissatisfaction level is significantly higher. SA Water's reliance

on the River Murray as a source obviously raises particular challenges in respect of water quality

- The average duration of water supply interruptions has increased and is high by Australian standards, but the number of breaks per 100 km of main has fallen and is relatively low. South Australians have a lower level of dissatisfaction with supply reliability than their interstate counterparts
- Connect times to a telephone operator have increased because of increased enquiries as a result of water restrictions, but the average remains below 30 seconds

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 there is less leakage in Adelaide than in other States.

Wastewater

The key customer service indicator for the metropolitan wastewater service, the rate of breaks and chokes in property connections, does not show a clear trend. In fact, although SA metropolitan customers have a relatively high rate of breaks and chokes in their property connection, complaint rates are not high. SA Water's approach is to minimise customer problems by responding rapidly when problems do arise, rather than extensive pipe replacement programs.

There have been substantial improvements in performance against a number of environmental indicators over recent years. Overflow rates have fallen, the prevalence of tertiary treatment has risen very rapidly to reach a high 91%, there has been a substantial increase in the reuse of treated effluent, and reuse of biosolids now exceeds annual biosolid production.

In the interstate comparison, SA Water performs worse than average in terms of overflows, but is a better than average performer in terms of tertiary treatment, water reuse and biosolid reuse. It is about average for odour complaints.

4.2.4 Benchmarking of regional service performance

Table 2 summarises the benchmarks used and the outcomes achieved.

Table 2

SA Water regional service performance - summary comparisons

	Change over time			Relative to other providers	
Category	**3 years to 03-04**	**5 years to 03-04**	**Trend**	**Median**	**Rank(1) 02-03**
Water Supply:					
Customer Service					
Water Main Breaks per 100 km of Main	-23%	-17%	Flat	Better	2 (5)
Wastewater:					
Customer Service					
Number of Property Connection Sewer Breaks & Chokes per 1,000 Properties	+5%	+38%	Flat	Better	1 (3)

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

Water supply

The regional water supply system in South Australia shows an essentially flat trend on breaks per 100 km of main. There are other dimensions of the water supply service that matter to customers, but for which there is not much data, such as the quality of the water product and the ease of liaison with SA Water. SA Water *E. coli* testing results show a steady water quality performance in the regional system.

The South Australian regional water supply system's breakage rate is relatively low when compared with estimates for the other States. However, those estimates for other States are sensitive to the inclusion or exclusion of particular regional providers.

Wastewater

The regional sewage system in South Australia shows an essentially flat trend on breaks per 100 km of main. There are other dimensions of the wastewater service that are important, but for which there is not data, such as environmental performance.

The South Australian regional wastewater system's breakage rate is relatively low when compared with estimates for the other States. However, those estimates are sensitive to the inclusion or exclusion of particular regional providers.

4.2.5 Benchmarking of metropolitan service costs

Table 3 summarises the benchmarks used and the outcomes achieved.

Table 3

SA Water metropolitan operating costs (in 2003-04 dollars) – summary comparisons

	Change over time			Relative to other providers		
Category	**3 years to 03-04**	**5 years to 03-04**	**Trend**	**Average**	**Median**	**2003-04 Rank[1]**
Water Supply						
Operating Cost Per Property	-6%	-10%	Improving	Better	Better	3
Wastewater						
Operating Cost Per Property	+12%	20%	Worsening	Better	Better	2

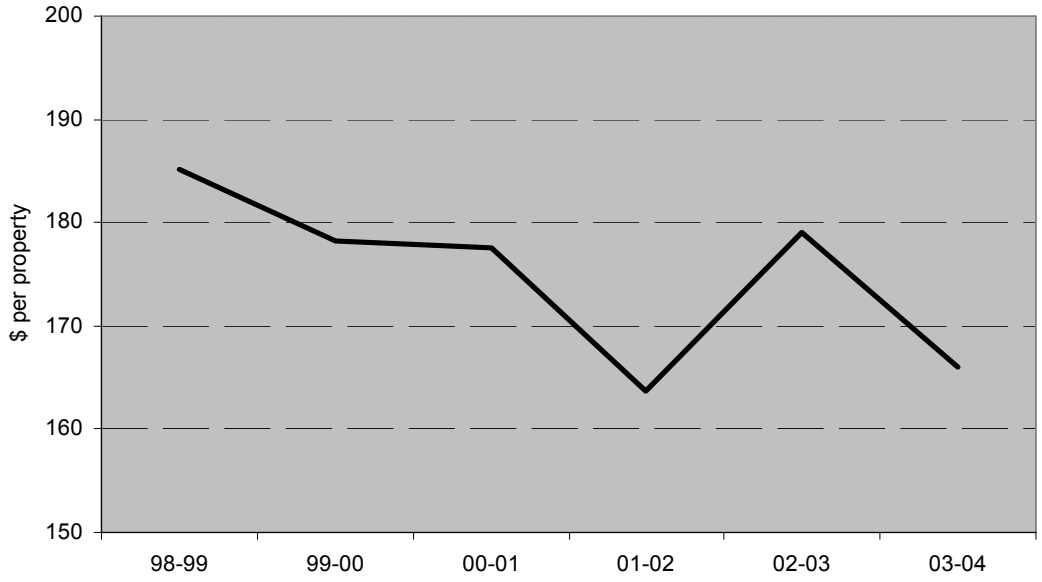
(1) Ranked from best to worst out of 7.

Water supply

SA Water's metropolitan water supply costs per property declined in real terms over the five years to 2003-04 (Table 4 and Figure 1). This is suggestive of favourable efficiency trends, especially after taking into account an increasing level of customer satisfaction with water quality over the period (see section 4.2.3).

Figure 1

South Australian Metropolitan Water Supply Operating Costs (2003-04 dollars)



SA Water's metropolitan water supply operating costs are close to the Australian median value. 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. These disadvantages could be expected to push costs above average. Seen in this light, the fact that the SA metropolitan water supply system operating costs are below the median is suggestive of good cost performance.

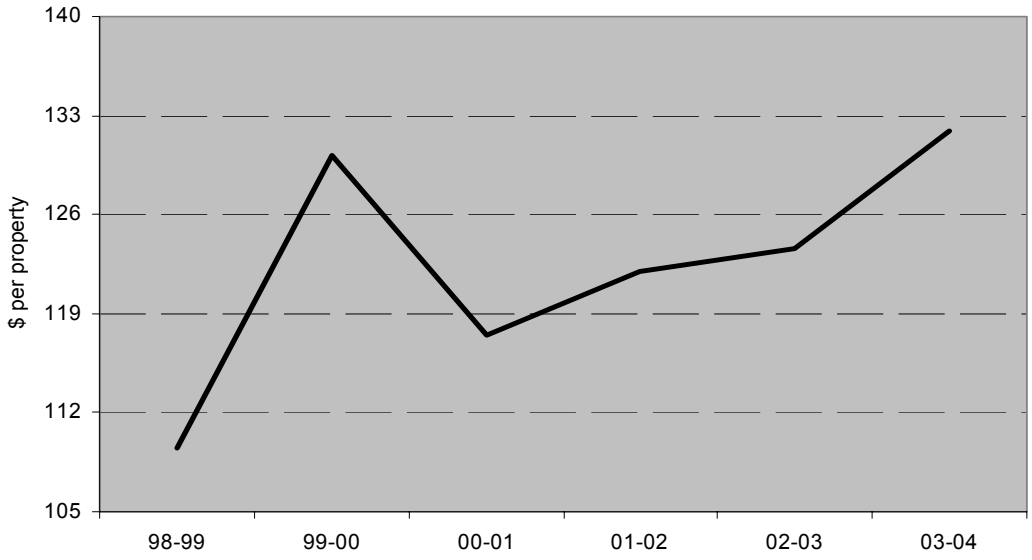
Wastewater

SA Water's metropolitan wastewater costs per property have increased in real terms over the reporting period (Table 5 and Figure 2). It appears that this is largely attributable to an Environment Improvement Program, arising from requirements of the Environment Protection Authority. The impact of metropolitan wastewater operations on the physical environment has diminished.

Metropolitan wastewater costs remain low in comparison with costs in other metropolitan systems. The fact that SA Water operates wastewater plants at above average scale may significantly contribute to this cost effectiveness.

Figure 2

South Australian Metropolitan Wastewater Operating Costs (in 2003-04 dollars)



4.2.6 Benchmarking of regional costs

Table 6 summarises the benchmarks used and the outcomes achieved.

Table 6

SA Water regional service costs (in 2003-04 dollars) - summary comparisons

	Change over time		
Category	**3 years to 03-04**	**5 years to 03-04**	**Trend**
Water Supply			
Operating Cost Per Property	-9%	-3%	Flat
Wastewater			
Operating Cost Per Property	+18%	+16%	Flat

Water supply

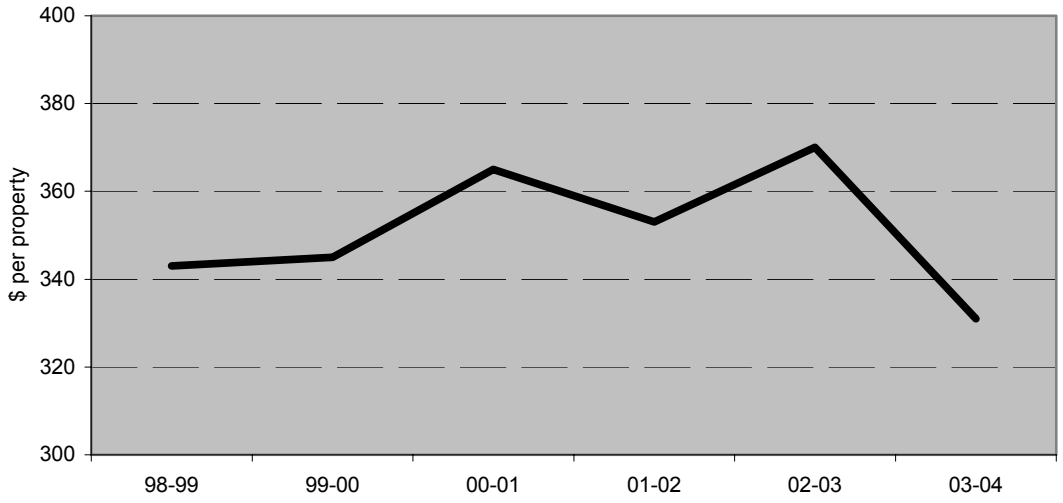
In 2003-04 there was a decline in real operating costs per property for regional water supply in South Australia. However, the decline appears to be mainly seasonal and no upward or downward trend is apparent (Table 6 and Figure 3). There is no evidence of any trend change in service standards although the indicators are limited in scope. This is suggestive that efficiency is being maintained but is not conclusive. There are significant extraneous influences on SA Water, over and above any internal operating efficiencies, which can affect cost measures.

Operating costs for regional water supply are generally higher in South Australia than interstate. However, poor water accessibility and quality are factors that would lend to a higher cost structure in South Australia. It is not realistic to draw any conclusions about the relative efficiency of the South Australian regional water supply system versus those interstate.

Figure 3

South Australian Regional Water Supply Operating Costs per Property

(in 2003-04 dollars)



Wastewater

Operating costs per property for the South Australian regional wastewater system have shown a generally flat trend in real terms over recent years although there was an increase in 2003-04 (Table 6 and Figure 4). SA Water has advised that the 2003-04 rise is largely attributable to a change in the way indirect costs are allocated between regional water supply and wastewater (which has correspondingly had a downward effect on regional water supply cost estimates). The essentially flat trend has been achieved in spite of upward pressures from higher treatment standards.

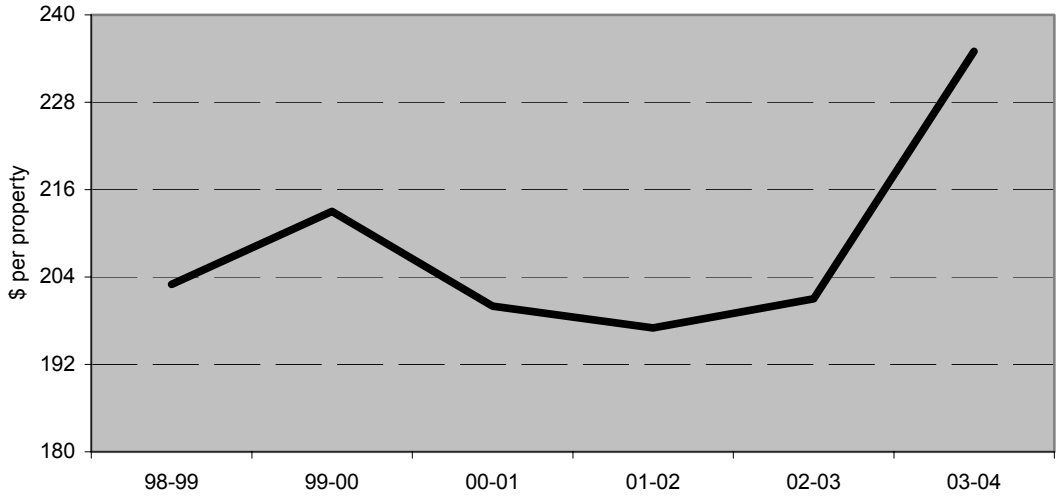
There is insufficient evidence to make strong statements about the efficiency of SA Water's regional operations. However, it seems reasonable to conclude, on the basis of the time series data, that costs have been reasonably well contained over time, and that this has been achieved without adverse performance consequences. Interstate comparisons suggest that South Australia's regional water supply is relatively costly

and its regional wastewater is relatively cheap, but given the importance of location-specific cost drivers it is not realistic to draw any inferences about relative efficiency levels.

Figure 4

South Australian Regional Wastewater Operating Costs per Property

(in 2003-04 dollars)



Statement of Compliance 3

> The Government's 2006-07 pricing decisions are compliant with the 1994 CoAG pricing principle that OMA expenses should be based on efficient business costs.
>
> Nevertheless, the Government intends, to the extent possible, to further explore links between service/performance standards, cost and prices, including an examination of the SA Water Performance Statement and Customer Charter over the next 12 – 18 months.

4.3 Return on assets

The CoAG Strategic Framework requires that a water business earn a real risk-adjusted return on the written down replacement cost of assets using a WACC.

The issues that arise in applying CoAG principles are:

- valuation of assets
- the rolling forward of the asset base
- contributed assets
- WACC.

4.3.1 Valuation of assets

The CoAG guidelines require:

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

In its final report on 2005-06 water and wastewater pricing processes, 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 23).

The Government continues to use the fair value method in the 2006-07 pricing decisions.

4.3.2 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.

The Government continues to follow the methodology used in previous Transparency Statements for rolling forward the asset base. This approach is consistent with standard regulatory practice.

4.3.3 Contributed assets

Contributed assets comprise customer contributions for provision of infrastructure, such as new mains, and subdivider contributions.

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

In its final report ESCOSA stated that:

> 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 CoAG pricing principles (ESCOSA, 2005, p 26).

The Government has adopted the same treatment of contributed assets as in its 2005-06 pricing decisions. It has removed post-corporatisation contributed assets from SA Water's regulatory asset base; the associated depreciation from the maximum revenue outcome; and the annual capital contributions from the forecast target revenue.

ESCOSA's final report also indicated that:

> … it would be timely for the Government to now seek a best estimate of contributed assets pre-1995 (ESCOSA, 2005, p 25).

In its response to ESCOSA (Part C), the Government noted that it carefully reviewed the treatment of contributed assets in its 2005-06 Transparency Statement (Part A). The Government reconfirmed that there are insufficient records prior to 1995 to identify contributed assets with any degree of accuracy. Methods of estimating pre-1995 contributed assets are dependent upon crucial and sometimes arbitrary assumptions.

With respect to the 2006-07 pricing decisions, the Government remains of the view that there is no sound information on which an estimate of contributed assets prior to 1995 can be based.

4.3.4 WACC

CoAG principles require that the maximum revenue outcome should include 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. The return on assets in the maximum revenue outcomes is determined by applying a WACC to the estimated asset base, as rolled forward, after the removal of estimated contributed assets.

In its final report, ESCOSA reported that

> Opportunity cost is recognised in the Transparency Statement as required by the CoAG pricing principles (ESCOSA, 2005, p. 35).

ESCOSA observed that:

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

ESCOSA also expressed a preference for the adoption of a post-tax WACC, rather than a pre-tax WACC.

The Government continues to adopt a range of pre-tax real WACC for its 2006-07 water and wastewater pricing decisions of 6–7%. The estimate is based on the evidence and precedents of jurisdictional regulators, the timing of other regulators' decisions and the views on input values of comparable utilities presented by SA Water.

The Government considers that WACC issues remain an area of developing regulatory practice, particularly in respect of improving methods by which input variables are estimated. In addition, there remain a number of regulators that adopt a pre-tax, rather than a post-tax, WACC. Accordingly, the Government intends to keep differences of approach between it and ESCOSA under review as well as broader developments in regulatory practice that may arise.

Statement of Compliance 4

> The Government's 2006-07 pricing decisions are compliant with the 1994 CoAG pricing principles in its treatment of the asset base, including valuation of assets, roll forward of the asset base and contributed assets, as well as in its estimate of the return on assets in the maximum revenue outcome.

4.4 Depreciation — provision for asset consumption

The CoAG guidelines require that the maximum revenue outcome include provision for asset consumption (or depreciation).

In its final report ESCOSA found that:

> The Transparency Statement is consistent with the CoAG principles in its treatment of depreciation (ESCOSA, 2005, p 27).

In its 2006-07 pricing decisions the Government has continued to estimate depreciation in the maximum revenue outcome using the straight-line method, based on the estimated useful lives of assets.

Statement of Compliance 5

> The Government's 2006-07 pricing decisions are compliant with the 1994 CoAG pricing principles by including estimated straight-line depreciation in the maximum revenue outcome.

4.5 Externalities

4.5.1 Water

In the 2005-06 water pricing decisions the minimum and maximum revenue outcomes included externalities internalised through explicit charges to SA Water, such as payments by SA Water to the catchment water management boards. This approach has been retained in 2006-07.

In its inquiry into the 2005-06 water pricing processes ESCOSA stated:

> The inclusion of externalities costs that are "both attributable to and incurred by" SA Water in the Transparency Statement is compliant with the CoAG Principles (ESCOSA, 2005, p 32).

Externality costs attributable to SA Water's water business are included in operating expenditure amounts.

4.5.2 Wastewater

The independent Environment Protection Authority (EPA) is responsible for setting the environmental standards SA Water is required to meet for processing and disposing of wastewater. All environmental costs attributed to and incurred by SA Water are incorporated into the maximum and minimum revenue outcomes.

In its inquiry into the 2005-06 wastewater pricing process, ESCOSA indicated that:

> The inclusion of externalities costs that are "both attributable to and incurred by" SA Water in the Transparency Statement is compliant with the CoAG principles (ESCOSA, 2005, p 32).

A portion of SA Water's costs in meeting EPA requirements are recovered through the Environment Enhancement Levy (EEL). The 2005-06 Transparency Statement detailed projects against which future EEL revenues have already been expended, up

until June 2004. The same arrangements are retained in the Government's 2006-07 wastewater pricing decisions.

The 2005-06 Transparency Statement (page 38) stated that the connection between the revenue and payment arrangements to the EPA of a component of the Environmental Enhancement Levy (1.4%, approximately $3.7m) would be reviewed. The Government's review of this arrangement identified that the funding of the EPA should continue to be through direct appropriation from the Government and by licence fees. The 'EPA component' of the levy remains incorporated into wastewater revenues.

Externality costs attributable to SA Water's wastewater business (mainly capital expenditure projects) continue to be included in the asset base.

Statement of Compliance 6

> The Government's 2006-07 water and wastewater pricing decisions are compliant with the 1994 CoAG pricing principles by including externality costs that are both attributable to and incurred by SA Water in the maximum revenue outcome.

4.6 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.

In the 2005-06 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.

In its final report ESCOSA stated:

> In the Commission's view, the Transparency Statement includes TER and is compliant with the CoAG Principles (ESCOSA, 2005, page 39).

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, page 39).

In its response to ESCOSA's final report, the Government noted that a number of regulators continue to adopt a pre-tax approach and indicated it has no plans to move to a post-tax approach. However, this matter will be kept under review.

Statement of Compliance 7

The Government's 2006-07 pricing decisions are compliant with the 1994 CoAG pricing principles by using a pre-tax real rate of return on assets.

5 Minimum revenue outcome — maintaining commercial viability

5.1 Introduction

According to the CoAG Strategic Framework, prices should be set to ensure the ongoing commercial viability of the business. This is achieved when the forecast target revenue recovers at least the minimum revenue outcome, which is the sum of:

- operating, maintenance and administrative expenses — efficient business costs
- provision for future asset refurbishment/replacement
- dividends
- interest costs on debt
- externalities
- taxes and TERs.

The same principles are applied to both the water and wastewater segments of SA Water's business.

Each component is discussed below. Estimates of the minimum revenue outcomes are reported in Chapter 8.

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 the 2005-06 water and wastewater pricing decisions, the Government used an annuity estimate for estimating the cost of asset refurbishment and replacement.

In its final report ESCOSA found that the Government complied with the 1994 CoAG pricing principles by including an annuity estimate in the minimum revenue outcome.

Statement of Compliance 8

> The Government's 2006-07 pricing decisions are compliant with the 1994 CoAG pricing principles by including an annuity estimate of SA Water's future asset replacement/refurbishment requirements in the minimum revenue outcome.

5.4 Dividends

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

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

In November 2004, the Government approved a new ownership framework for PNFCs, which included a capital structure and dividend policy. The 2005-06 Transparency Statement outlined the new dividend policy and its relationship with SA Water's capital structure (p 44-46).

ESCOSA's final report 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 37).

Further, ESCOSA noted, with respect to the revised PNFC Ownership Framework Policy, that:

> While the final details of the application of these new policies were still being determined at the time of the pricing decision, the dividend policy itself appears to better reflect a commercial reality standard, as is required (ESCOSA, 2005, p 37).

In March 2005, the Government approved a dividend payout ratio and target gearing ratio, consistent with the PNFC Ownership Framework Policy Guidelines approved in October 2004, to apply from 1 July 2005.

The Government's decision provides for:

- a debt to total assets ratio range of 15-25% for the next 4-5 years, with a target ratio of 20%; and
- a dividend payout ratio of 95%, based on *actual* after-tax profit.

The target capital structure takes into account factors such as:

- the volatility of cash flows
- the characteristics of the market in which the business operates
- the capital intensity of the business
- financial flexibility to allow for approved and unexpected capital expenditure and changes in operating conditions.

With regard to the calculation of dividends based on after tax profit and actual outcomes, the Government considers that this more closely reflects commercial realities and provides appropriate incentives to the management and board.

Relationship between capital structure and dividend policy
The determination of the target gearing level takes into consideration the capital intensity of SA Water's operations and the riskiness of its operating revenue and expenses, with provision for consideration of a number of other criteria.

Benchmarking data were drawn from the published reports of industry regulators, the Productivity Commission and academic research. These data showed that the weighted average gearing ratio for all Australian water utilities was 15.6% in 2002-03, with the average gearing ratio of those businesses with assets of over $1 billion being 22.9%. The difference in the averages arises from a combination of differences in asset valuation methodologies and the level of aggregation of entities in each market[i].

SA Water's gearing ratio in 2003-04 was 18.9% and is expected to be maintained at around 20% until 2008-09.

SA Water does not require significant retained surpluses to fund its capital expenditure program. Accordingly, the Government has determined a dividend payout ratio of 95% of NPAT to apply from 2005-06.

The Government has undertaken to annually review the target capital structure of SA Water. This will include consideration of SA Water's debt funding requirements, arising from the development of SA Water's long term (25 year) capital plan, and impacts on SA Water's capital structure arising from the implementation of the International Financial Reporting Standards. The Government will reassess the target gearing if such factors vary SA Water's circumstances materially.

Statement of Compliance 9

> The Government's 2006-07 pricing decisions are compliant with the 1994 CoAG pricing principles by including a best estimate of dividends in the minimum revenue outcome.

5.5 Interest cost on debt

Interest expenses are included in the estimation of the minimum revenue outcome, which complies with the 1994 CoAG pricing principles.

[i] The benchmark gearing ratios have not been adjusted for differences in asset valuation methodologies in different jurisdictions. For example, historical cost valuation is applied in Victoria, resulting in generally higher gearing ratios than jurisdictions applying fair value valuations, such as South Australia. With respect to the level of aggregation, the disaggregated Victorian water utilities have relatively higher gearing ratios (4 entities with assets between $1 billion and $3 billion, 3 with gearing ratios above 30%) while the large New South Wales water utility has a relatively lower gearing ratio (assets of $13 billion and a gearing ratio of 16%).

5.6 Externalities

The estimate of externalities in the minimum revenue outcome includes those externalities attributable to and incurred by SA Water, which complies with the 1994 CoAG pricing principles. A discussion of externality costs is contained in Chapter 4.

5.7 Tax equivalent regime

Accrued tax expenses continue to be included in the estimated minimum revenue outcome, which complies with the 1994 CoAG pricing principles. This has been confirmed by ESCOSA (ESCOSA, 2005, p 39).

6 Price setting methodology 2006-07 — efficient resource pricing

6.1 Overview

This chapter outlines the efficient resource pricing principles considered by the Government when setting water and wastewater prices in South Australia for 2006-07.

6.2 CoAG principles and efficient resource pricing

The CoAG principles require:

> 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 CoAG guidelines also specify that the required revenue for a water business should be based on efficient resource pricing in order to send the correct signals to consumers on the high cost of water consumption and augmentation.

6.3 Pricing structure for water

Water customers are classified into two broad groups:

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

SA Water's water pricing structure is based on a two-part tariff: an access (supply) charge and a two-tier water usage charge, with the first tier up to 125 kL.

Chapter 7 outlines the charges for commercial and non-commercial customers in 2006-07.

6.4 Basis of water pricing structure

6.4.1 Consumption based pricing

In the water industry, marginal costs generally lie below average costs. 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).

SA Water introduced consumption-based charges for all non-commercial customers in July 1995. Consumption based charging for commercial customers was subsequently phased in over a five year period from 2002-03.

In 2006-07 commercial customers will pay the same water use charges as other customers and will pay a supply charge based on property value. Accordingly, commercial customers face appropriate consumption charges against which they evaluate their marginal water usage.

6.4.2 Efficient resource pricing based on long run marginal cost

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).

Long run marginal cost (LRMC) is the cost of providing an extra unit of service when all production costs (including capital) are allowed to vary (ie including smoothing of the incremental cost of lumpy capital investments to meet increased consumer demand). It is equivalent to the cost that would be saved in the long term from additional water not being consumed.

In addition to the supply charge, SA Water has a two-tier usage charge. The first tier applies to the first 125 kilolitres of water consumed. This component facilitates affordability of an essential service and is justified by consistency with the Government's social policy, rather than on the basis of economic efficiency.

While LRMC is very difficult to quantify, the second tier is consistent with the upper end of the range of current preliminary estimates for the LRMC of supply to Northern Adelaide.

In its final report on the 2005-06 water and wastewater pricing process, 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. 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).

Statement of Compliance 10

The Government's 2006-07 water pricing decision is compliant with the 1994 CoAG pricing principles as the second tier water price reflects current estimates of LRMC, sending an appropriate price signal. The first tier water price is justified on the basis of general affordability of an essential service, rather than economic efficiency, and is transparently reported.

6.5 Pricing structure for wastewater services — other than trade waste

For other than large trade waste discharger customers, wastewater pricing is based on property value. The rating scales used to calculate wastewater charges are updated every June 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 country customers than Adelaide metropolitan customers reflecting generally lower property values in country areas. Country customers still pay lower average charges however, than metropolitan customers.

6.5.1 Consumption based pricing

Although CoAG principles indicate a preference for usage charges to be based on consumption, the NCC has noted that:

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

In addition, ESCOSA's final report into the 2005-06 water and wastewater pricing process noted:

> 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).

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 (ie less than 10% of the minimum household charge of $276 in 2006-07).

6.5.2 Property based charging

CoAG principles do not stipulate how fixed wastewater charges should be apportioned. This was confirmed by ESCOSA in its inquiry into the 2005-06 water and wastewater pricing process, 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).

The Government's 2006-07 wastewater pricing decision continues the use of property based charges for the determination of wastewater rates, subject to a minimum charge. The 2005-06 Transparency Statement contained an extensive discussion on the link between average incomes and property values, a proxy for ability to pay.

Statement of Compliance 11

> The Government's 2006-07 wastewater pricing decision is compliant with the 1994 CoAG pricing principles as consumption-based pricing of wastewater services (other than trade waste services) is not cost-effective. The use of property-based charges remains an appropriate form of charging for wastewater services on equity grounds.

6.6 Basis of wastewater pricing structure — trade waste

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

Approximately 7000 dischargers contribute 25% of the pollutant load to SA Water treatment plants, however less than 50 of these account for over 90% of the load generated (ie around 22.5% of the total). This distribution of pollutant load demonstrates the appropriateness of volumetric charges on the highest 45 dischargers.

Dischargers face volumetric charges where they exceed any one of the following:

- flow — 20 ML per annum
- biochemical oxygen demand (BOD) — 20 tonnes per annum
- suspended solids — 20 tonnes per annum.

The 2005-06 Transparency Statement discussed the transitional discounts on volumetric charges available to trade waste customers until July 2006 and the payment of CSOs to SA Water in compensation for these transitional discounts.

In 2006-07, large dischargers, except one[ii], will face volumetric charges based on the recovery of avoidable costs and a 50% surcharge for high concentration flows.

The NCC has previously stated:

> South Australia's fully volumetric water and wastewater pricing regimes, which are being phased in over five years from 2002-03, will achieve, by 2006-07, the CoAG objective of removing cross-subsidies that are not consistent with efficient and effective service, use and provision. The Council endorsed this transitional movement to fully volumetric pricing in previous NCP assessments (NCC, 2003c, p 6.10).

The 2005-06 Transparency Statement outlined trade waste charges to apply to major dischargers in 3-year permits for the period July 2005 to June 2008. The charges applying in 2005-06 will be indexed to determine the level of charges to apply in 2006-07 and 2007-08.

A further review of trade waste charges is not required until 2008-09.

[ii] One discharger has an agreement with the Government until 2008, exempting it from trade waste charges. SA Water receives a CSO in respect of this agreement.

6.7 Cross-subsidies

The CoAG Strategic Framework requires that cross-subsidies ideally be removed in order to promote efficient pricing. Where cross-subsidies are retained, however, they should be made transparent.

6.7.1 Defining cross-subsidies

The 2005-06 Transparency Statement discussed the Baumol band, identified by the NCC as the theoretical definition of cross-subsidies (NCC, 2001, p 127).

To avoid cross-subsidies, 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 (eg access charges) that take account of the benefits received or the ability to pay. Further, total charges to each customer should not exceed the stand-alone cost.

6.7.2 Water and Wastewater

The Government's previous Transparency Statements discussed the pricing of water and wastewater services and noted that it is unlikely for any significant cross subsidies to arise. The 2006-07 pricing decisions retain this pricing structure.

ESCOSA's inquiry into the 2005-06 water and wastewater pricing process acknowledged CoAG compliance with respect to the treatment of cross subsidies (p 45).

6.7.3 Statewide 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 pricing policy.

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

The Government provides SA Water with a CSO to ensure SA Water's rates of return are similar between Adelaide metropolitan and country areas. This recognises the extra costs of providing water and wastewater services in country areas.

The Government's revised PNFC ownership framework has implications for the calculation of CSOs associated with SA Water's non-commercial country operations. The revised approach to the calculation of CSOs provides for a common costing methodology and, in particular, a common approach to the calculation of return on assets. This is discussed further in Section 7.6.

Statement of Compliance 12

> The Government's 2006-07 water and wastewater pricing decisions are compliant with 1994 CoAG pricing principles in that cross-subsidies which may arise as a result of Statewide pricing are addressed through transparently reported CSOs.

The value of CSO payments associated with the Government's Statewide pricing policy is reported in Chapter 8.

6.7.4 Trade waste

Following the removal of transitional discounts from June 2006, all significant trade waste dischargers will be paying charges sufficient to cover their avoidable costs. The only exception is a company that has an agreement with the Government exempting it from the full trade waste charge until 2008, for which SA Water receives a CSO.

Statement of Compliance 13

> The Government's 2006-07 trade waste charges are compliant with 1994 CoAG pricing principles, as the cross subsidy which results from the Government's transitional arrangements is addressed by a CSO.

7 Water and wastewater pricing decisions

7.1 Introduction

The Government made its decisions on 2006-07 water and wastewater prices by selecting the preferred forecast target revenue and a pricing structure that would achieve that target. The decisions involved consideration of the NCP/CoAG framework and the trade-offs between economic efficiency and other policy considerations, such as equity and social justice policy, environmental policy and regional policy.

These policy considerations continue to influence the Government's choice of forecast target revenue within the maximum and minimum revenue outcomes.

7.2 Price setting methodology

The Government followed a similar price setting methodology to set 2006-07 prices as it did to set 2005-06 prices.

The Water and Wastewater Price Setting Methodology for 2006-07 is attached as Appendix 2.

7.3 Environmental policy

The Government's environmental policy is focused on ensuring the ecologically and environmentally sustainable development of South Australia's water resources.

The Water Proofing Adelaide Strategy sets out principles for the management, conservation and development of Adelaide's water resources until 2025. It outlines key measures aimed at better managing existing water resources, reducing demand for water by 35,000 ML per year by 2025 and for securing additional water supplies.

The Government also collects the Save the River Murray Levy of approximately $19m per annum through a levy on SA Water's customers' bills. The levy funds improvements to the River's health and well being through various environmental projects, as well as through the purchase of environmental flows. SA Water does not retain any of these funds.

Environmental considerations are also reflected in the 2006-07 water pricing decision. Specifically, the Government's pricing decision on the water usage charge for consumption above 125kL per annum is consistent with the upper end of the range of preliminary estimates of the LRMC for SA Water's Northern Adelaide systems. The current LRMC estimate includes the scarcity value of water based on a CSIRO study of the value of water resources under optimal healthy conditions.

This approach results in efficient resource pricing and ensures that water and wastewater customers receive a pricing signal about the environmental costs of providing water and wastewater services.

The pricing methodology also provides for the recovery of payments made by SA Water to water catchment management boards. Accordingly, the cost of preparing and implementing catchment management plans is recovered through SA Water's charges.

With regard to wastewater, the pricing methodology provides for the recovery of funds expended on various environmental improvement programs for the major metropolitan and non-metropolitan wastewater treatment plants. These programs are required to meet environmental standards imposed on SA Water by the EPA.

7.4 Equity and social justice policy

The Government's 2006-07 water and wastewater pricing decisions are heavily influenced by equity and social justice considerations. At the forefront of the Government's equity and social justice policy is the policy of statewide pricing, ensuring that non-metropolitan customers do not face unreasonable prices by virtue of their location within the State.

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

The costs of other utilities have increased substantially and the Government does not want to unduly burden water customers with non-essential price increases.

7.5 The Government's 2006-07 water and wastewater pricing decisions

The Government considered pricing options from the Minister for Administrative Services, as the Minister responsible for SA Water.

The options were consistent with the methodology approved by Cabinet in March 2005 (Appendix 2), which was based on CoAG principles (Appendix 4).

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 – NCP Implementation Unit, Department of Families and Communities, Housing Executive Committee, and the Department of Trade and Economic Development.

In May 2005, the Government approved a 2.5% average increase in water charges and a 2.5% average increase in wastewater charges to apply to SA Water customers in 2006-07. These price increases are consistent with local consumer price index movements.

7.5.1 Impact on 2006-07 water prices

The impact of the increase on the water pricing structure is outlined in Table 7.

Table 7: Comparison of the pricing structure

Description	2005-06	2006-07
	Non-commercial	
Supply charge		
Residential	$145	$148
Business	$160	$164
Water usage charge		
First 125 kL	46 c/kL	47 c/kL
Above 125 kL	$1.06/kL	$1.09/kL
	Commercial	
Supply charge		
Property rating scale %	0.1130	To be determined*
Minimum	$160	$164
Allowance (kL) — discounted water	Supply charge x 1.28 / $1.06/kL	Not applicable (Phased out under the *Waterworks Act 1932)*
Water usage charge		
First 125 kL	36.8 c/kL (46 c/kL discounted by 20%)	47 c/ kL
Above 125 kL and less than the allowance	84.8 c/kL ($1.06/kL discounted by 20%)	$1.09 /kL
Consumption above the allowance	$1.06/kL	$1.09 /kL#

Allowance no longer applicable, phased out under the *Waterworks Act 1932*

* 2006-07 property rates will be determined and gazetted in June 2006, when the latest information on property values is available from the Valuer General

The increase for the average residential customer consuming 250 kL per annum will be approximately $8.00 per annum.

7.5.2 Impact on 2006-07 wastewater prices

The 2005-06 wastewater pricing structure and the impact of the Government's 2006-07 pricing decision on minimum supply charges is outlined in Table 8.

Table 8: Comparison of the wastewater pricing structure

Description	2005-06		2006-07	
	Property rating scale (%)	Min ($)	Property rating scale (%)	Min ($)
Metropolitan				
Residential	0.1509	$269	TBD*	$276
Non-residential	0.1804	$269	TBD*	$276
Country				
Residential	0.1876	$269	TBD*	$276
Non-residential	0.2295	$269	TBD*	$276

* Rating scales for 2006-07 are to be determined (TBD) and will be gazetted in June 2006, when information on property values is available from the Valuer General.

Country customers are charged at higher rating scales than Adelaide metropolitan customers in order to, at least partially, offset the lower average property values in country areas.

The increase in the minimum charge from $269 to $276 per annum will affect approximately 25% of metropolitan residential customers and 50% of country residential customers.

Table 9 illustrates the indicative wastewater charges for the average residential property in the metropolitan area and country regions.

Table 9: Indicative Wastewater charges for the average residential property

	Average property value (June 2004)	Charge (2005-06)	Charge (2006-07)	Change	Change
	$	$	$	$	%
Metropolitan	249,000	403	413	10	2.5
Country	149,000	311	319	7.75	2.5

Source: SA Water.

Based on June 2004 average property values the wastewater charge will increase by approximately $10 for metropolitan and $7.75 for country households.

7.5.3 Revenue outcomes

SA Water's total maximum and minimum revenue outcomes and forecast target revenue, as well as by water and wastewater business segments, are represented on the following page.

The forecast target revenue amounts contained in Figure 5, Figure 6 and Figure 7, reflect the Government's 2006-07 water and wastewater pricing decisions.

Figure 5
Comparison of total revenue outcomes for SA Water (in real 2004-05 dollars)

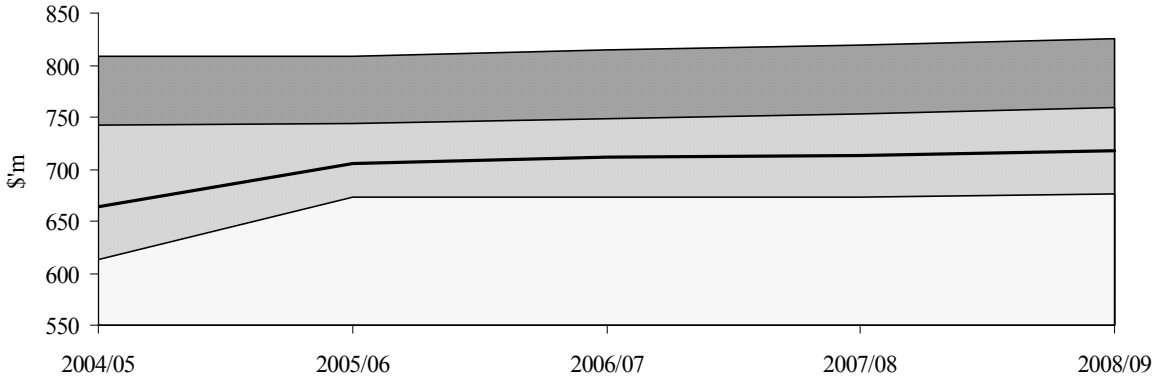


Figure 6
Comparison of total revenue outcomes for Water (in real 2004-05 dollars)

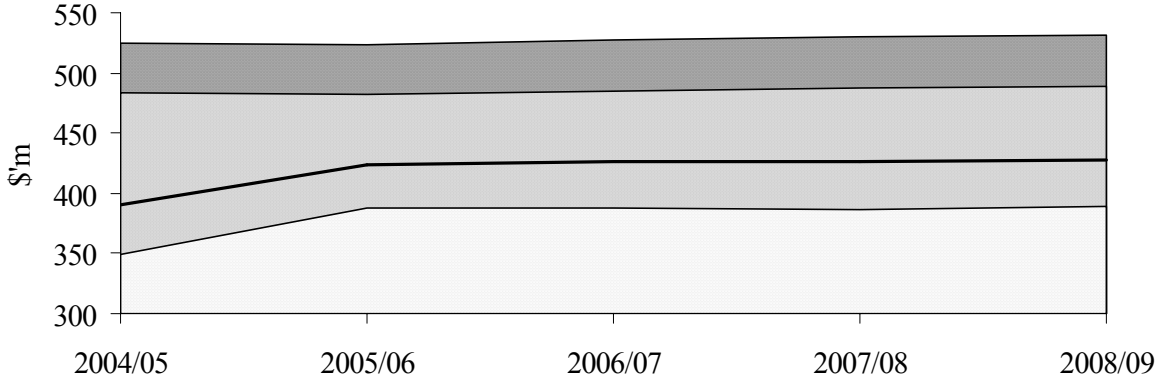
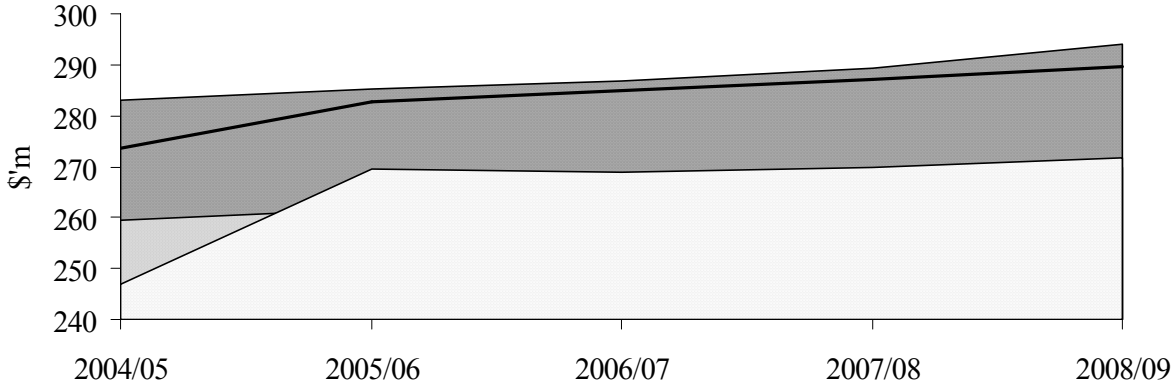
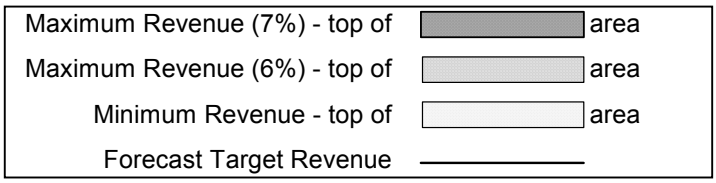


Figure 7
Comparison of total revenue outcomes for Wastewater (in real 2004-05 dollars)





As can be seen from the graphs, the 2006-07 pricing decisions maintain the Government's pricing policies and SA Water's resultant real revenue stream.

Figure 5, Figure 6 and Figure 7 illustrate that SA Water as a whole and SA Water's water and wastewater businesses will all operate within the maximum and minimum bounds in 2006-07, as required by 1994 CoAG pricing principles.

The components of the estimated maximum revenue and minimum revenue outcomes and the forecast target revenue are provided in Chapter 8.

Statement of Compliance 14

> The Government's 2006-07 water and wastewater pricing decisions are compliant with the 1994 CoAG pricing principles of avoiding monopoly profits and ensuring the ongoing financial viability of SA Water, being within the band of the maximum and minimum revenue outcomes.

7.6 Community service obligations

CoAG pricing principles require CSOs to be paid to the service provider where it is required to provide services to customers at less than full cost. CSOs are also required to be reported transparently.

7.6.1 Review of CSO policy

The 2005-06 Transparency Statement contained details of the Government's new CSO policy as part of its revised ownership structure for PNFCs. The Transparency Statement also contained an extensive discussion on the nature of CSOs funded in the following categories:

- administration of the Save the River Murray Levy
- service charge exemptions/concession
- administration of the pensioner concession scheme
- statewide pricing
- trade waste
- other subsidies.

The most significant change arising from the implementation of the PNFC ownership policy is the revised method for calculating the return on country investments.

Updated information on those categories of CSOs reported in the 2005-06 Transparency Statement is provided below. The CSO and subsidy payments for water and wastewater activities are reported in Section 8.3.

7.6.2 Administration of the Save the River Murray Levy

SA Water continues to administer the Save the River Murray Levy in 2006-07. The value of the CSO in 2006-07 will be $60,000.

7.6.3 Service charge exemptions/concessions

SA Water receives a CSO payment for providing service charge exemptions to certain customers, such as places of worship, charitable organisations and sporting clubs. The figure is an estimate of payments forgone. Service charge exemptions and concessions in 2006-07 will total $8.51 million for water and wastewater.

7.6.4 Administration of the pensioner concession scheme

SA Water administers pensioner entitlement applications and the distribution of concessions to local government. The actual pensioner concession payments are funded through a subsidy from the Department for Families and Communities based on the amount of the concessions paid. The staffing and associated costs of administering these schemes in 2006-07 total $520,000.

7.6.5 Statewide pricing and associated CSOs

As a result of the Government's statewide pricing policy, water and wastewater services are provided to some country locations at less than total economic cost. The resulting CSO payment contributes over 90% to the total CSO payment to SA Water. Estimates of this CSO payment have been updated to reflect the Government's revised PNFC ownership framework.

The previous method distinguished assets purchased before and after 30 June 1999 and used resultant return on asset (ROA) and return on investment (ROI) calculations, respectively, to determine the amount of the CSO. Under the previous policy, the ROA was determined on the basis of the actual rate of return achieved on metropolitan assets of approximately 3.8%. The ROI was determined on the basis of an 8% WACC.

The revised methodology is consistently applied across all water and wastewater infrastructure assets and all new capital investment. For significant new country investments (ie investments requiring approval by Cabinet under the relevant Treasurer's Instructions), the CSO is identified for each asset. A common costing and rate of return methodology will be applied to all country investments. Annual adjustments will be made to reflect asset revaluations, capital expenditure and price changes.

The CSO will be calculated as the shortfall between the revenue able to be charged from customers under the statewide pricing policy and the avoidable cost of providing regional services. The avoidable cost will consist of operating costs, depreciation and ROA. The ROA will be determined on the basis of the lower range of the WACC applied for pricing purposes (i.e. 6%).

7.6.6 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 2006-07. A separate CSO arises from a pre-existing agreement exempting one discharger from full trade waste charges until 2008.

7.6.7 Other subsidies

SA Water also receives direct payments from various state agencies in respect of services it provides for emergency services, free water to the Adelaide City Council and the Port Adelaide and Enfield Council and for the Government Radio Network (GRN) (SA Water was required to enter into a non-commercial agreement for use of the GRN for both operational and emergency communications within SA Water, as well as for use of GRN pagers). These payments are classified as CSO payments and are detailed in Section 8.3.

7.6.8 Total CSO payments to SA Water

SA Water's CSO obligations 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. Parliament is therefore advised of SA Water's CSO funding.

The relevant assets are incorporated into SA Water's asset base, which is adjusted as appropriate. CSO payments are included in the forecast target revenue for the 2006-07 water and wastewater pricing decisions.

The total CSO payments to SA Water for water and wastewater services for 2005-06, and 2006-07 are provided in Section 8.3.

Statement of Compliance 15

> The Government's 2006-07 water and wastewater pricing decisions are compliant with CoAG guidelines on CSOs as they are transparently reported and funded from consolidated revenue.

8 Financial details relevant to the 2006-07 pricing decisions

8.1 Introduction

This chapter outlines some of the financial details that the Government reviewed in making its 2006-07 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: Comparison of revenue outcomes for SA Water (real)
- Table 13: Estimated CSO payments to SA Water (nominal)
- Table 14: Summary of estimated SA Water capital expenditure (nominal)
- Table 15: Profits and distributions to the Government for SA Water (nominal)
- Table 16: Contribution to profits and distribution to the Government for water and wastewater business segments (nominal)
- Table 17: Summary of financial ratios for SA Water (nominal).

Table 10, Table 11 and Table 12 include forecasts provided by SA Water to the Government for the 2006-07 water and wastewater pricing decisions.

Table 13 and Table 14 are direct excerpts from the 2005-06 State Budget. Table 15, Table 16 and Table 17 are based on estimates provided by SA Water at the time of publication.

8.2 Maximum and minimum revenue outcomes

The Government's methodology and the 1994 CoAG principles for setting water and wastewater prices require that forecast target revenue lie below the estimated maximum revenue outcomes and above the estimated minimum revenue outcome (see Sections 4.3 and 4.4).

8.2.1 Asset base

As outlined in Section 4.3, the CoAG Strategic Framework requires water businesses to earn a real risk-adjusted return, calculated using a WACC, on the written down replacement cost of assets.

Table 10 illustrates the approach adopted to calculate the estimated asset base for total infrastructure assets. This same approach was adopted for the 2005-06 Transparency Statement. The 2005-06 opening balance and roll forward adjustments differ slightly from the numbers contained in the 2005-06 Transparency Statement as a result of updated forward estimates.

Table 10: Adjusted infrastructure asset base (nominal)

Year	Opening balance ($'000)	Additions ($'000)	Inflation# adjustment ($'000)	Depreciation ($'000)	Closing balance ($'000)
			Total assets		
2005-06	6,547,045	162,835	78,565	-116,101	6,672,343
2006-07	6,672,343	149,845	80,068	-120,884	6,781,371
			Water assets		
2005-06	4,188,590	144,375	50,263	-77,320	4,298,307
2006-07	4,298,307	109,251	51,580	-80,570	4,371,481
			Wastewater assets		
2005-06	2,358,455	35,262	28,301	-38,782	2,374,036
2006-07	2,374,036	56,249	28,488	-40,315	2,409,890

The opening asset values were indexed by an asset cost index of 1.2%. The index allows for optimisation efficiencies and is calculated by SA Water from the material and labour indices for the construction industry in South Australia as maintained by the Australian Bureau of Statistics.

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 maximum revenue outcome.

Table 11: Asset base (in 2004-05 dollars)

Year	Opening balance ($'000)	Closing balance ($'000)	Average real assets ($'000)
		Total assets	
2005-06	6,547,045	6,593,224	6,570,134
2006-07	6,593,224	6,621,502	6,607,363
		Water assets	
2005-06	4,188,590	4,247,339	4,217,964
2006-07	4,247,339	4,268,424	4,257,882
		Wastewater assets	
2005-06	2,358,455	2,345,885	2,352,170
2006-07	2,345,885	2,353,077	2,349,481

An asset cost index was used to convert the nominal figures in Table 10 to real figures in Table 11.

8.2.2 Revenue outcomes

Table 12 compares forecast target revenue with the estimated maximum revenue outcomes and the minimum revenue outcome. The components of the revenue outcomes are also identified. The forecast target revenue reflects the Government's

2006-07 water and wastewater pricing decisions, with one minor revision. Subsequent to the 2006-07 water and wastewater pricing decisions, the Government changed the treatment of the EPA levy, resulting in a minor amendment to the wastewater forecast target revenue in 2006-07 (refer Section 4.5.2).

Table 12: Comparison of revenue outcomes for SA Water (in 2004-05 dollars)

Outcome	Water		Wastewater		SA Water	
	2005-06 ($'000)	2006-07 ($'000)	2005-06 ($'000)	2006-07 ($'000)	2005-06 ($'000)	2006-07 ($'000)
			Minimum revenue outcome			
Operating expenditure	153,071	152,667	82,829	84,035	235,900	236,702
Annuity	30,000	30,000	10,000	10,000	40,000	40,000
Interest	61,878	61,771	29,534	29,665	91,412	91,437
Income tax allocation	44,465	44,605	45,718	45,095	90,183	89,700
Dividend allocation	98,647	98,921	101,426	100,006	200,074	198,927
Minimum revenue outcome	**388,062**	**387,965**	**269,508**	**268,801**	**657,570**	**656,766**
			Maximum revenue outcome			
Operating expenditure	153,071	152,667	82,829	84,035	235,900	236,702
Depreciation	75,434	76,687	37,836	38,372	113,269	115,059
Return on assets	253,078	255,473	141,130	140,969	394,208	396,442
Maximum revenue (6% WACC)	**481,583**	**484,828**	**261,795**	**263,376**	**743,378**	**748,203**
Operating expenditure	153,071	152,667	82,829	84,035	235,900	236,702
Depreciation	75,434	76,687	37,836	38,372	113,269	115,059
Return on assets	295,257	298,052	164,652	164,464	459,909	462,515
Maximum revenue (7% WACC)	**523,762**	**527,406**	**285,317**	**286,871**	**809,079**	**814,277**
			Forecast target revenue outcome			
Forecast target revenue: ie Government decision	**423,027**	**426,192**	**282,743**	**284,835**	**705,770**	**711,028**

The forecast target revenue in 2005-06, reported herein, is higher than that reported in the 2005-06 Transparency Statement as a result of the implementation of the revised

PNFC ownership policy and increased CSO payments. This is discussed further in Section 7.6.6.

8.3 Community service obligations

Table 13 provides a breakdown of SA Water's CSOs and subsidies as per the 2005-06 State Budget. A discussion on the categories of CSOs, including changes to CSO estimates arising from the Government's revised PNFC ownership policies, is contained in Section 7.6.

Table 13: Estimated CSO payments to SA Water (nominal)

CSO payments (in nominal terms)	**2005-06 $m**	**2006-07 $m**
Country Investment		
- Water Business	104.48	103.64
- Wastewater Business	23.40	23.21
Exemptions and Concessions		
- Commonwealth Government	0.47	0.47
- State Government	0.67	0.67
- Local Government	4.70	4.70
- Swimming Pools	0.12	0.12
- Place of Worship/Charitable	2.13	2.13
- Sporting Clubs	0.42	0.42
Trade Waste	2.16	1.84
River Murray Levy Administration	0.06	0.06
Government Radio Network	0.39	0.40
Administration of Pensioner Concessions	0.52	0.52
Total CSO payments	**139.50**	**138.18**

* CSO payments in 2005-06 do not correspond with the values reported in the 2005-06 Transparency Statement as result of the Government's revised PNFC ownership framework, discussed in Section 7.6.

8.4 Capital expenditure

SA Water's estimated capital expenditure for 2005-06, as per the State Budget, is presented in Table 14. The values in Table 14 are in nominal terms.

Table 14: Summary of SA Water's estimated capital expenditure (nominal)

SA Water	Proposed Expenditure 2005-06	Total
	$'000	**$'000**
Bolivar High Salinity		
Transfer of wastewater to new treatment facilities at the Bolivar Waste Water Treatment Plant to reduce discharge of nutrients to the marine environment.	1 327	97 550
Christies Beach Waste Water Treatment Plant (WWTP) Capacity Upgrade		
Project to upgrade WWTP to allow for population growth.	2 000	60 636
Eyre Peninsula Water Supply Upgrade		
Augmentation of source water supplies to the Eyre Peninsula Region.	31 000	48 500
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.	3 300	11 710
Millbrook Dam Safety		
Project to upgrade the dam to modern design safety standards.	1 520	8 728
Torrens System Upgrade		
Project to replace/upgrade the open channel aqueduct which transports water from the Torrens Gorge Weir to Hope Valley Reservoir.	6 550	22 000
Whyalla Environmental Improvement Program (EIP)		
New wastewater treatment plant to be built in Whyalla to satisfy EPA requirements with regard to nitrogen discharge into the Spencer Gulf, achieved through partial reuse of treated wastewater.	2 585	14 360
Environment Projects		
Projects aimed to meet changes in external environmental regulations, standards or internal targets.	8 800	n.a.

SA Water	Proposed Expenditure 2005-06	Total
	$'000	**$'000**
Improve Business Projects		
Projects aimed at improving the management and coordination of existing infrastructure and business services within current service standards.	6 125	n.a.
Information Technology Projects		
Projects aimed at improving information technology based customer and business systems.	10 900	n.a.
Maintain Business Projects		
Projects relating to the replacement or rehabilitation of components of the Corporation's existing infrastructure in order to maintain existing service levels and capacity.	44 700	n.a.
Safety Projects		
Projects relating to managing safety issues of the business, employees or the community.	12 600	n.a.
System Growth Projects		
Projects relating to expansion (extension and/or capacity increase) the Corporation's water and wastewater systems.	37 900	n.a.
Water Quality Projects		
Projects relating to meeting changes in external water quality standards or regulations, and/or internal water quality targets.	10 330	n.a.
Total	**179 637**	**n.a.**

n.a denotes ongoing programs and projects
Source: SA 2005-06 Budget – Capital Investment Statement, page 44-45.

8.5 Profit and its distribution

SA Water's estimated profits and its distribution for the period 2005-06 to 2006-07 are provided in Table 15. The values in Table 15 are in nominal terms and based on the latest estimates available at the time of publication.

Table 15: Profit and distributions to the Government for SA Water (nominal)

Item	SA Water 2005-06 ($'000)	SA Water 2006-07 ($'000)
EBITDA #	520,860	537,742
Profit after tax	215,490	219,998
Retained earnings	171,495	182,495
Dividend	205,075	208,998
Income tax expense	92,438	94,241

Earnings before interest, tax, depreciation and amortisation

Table 16 provides SA Water's estimates of the contribution of its water and wastewater business segments to profits, dividends and income tax payments. The values in Table 16 are in nominal terms.

Table 16: Water and wastewater business segments contribution to profits and distribution (nominal)

Item	Water*		Wastewater*	
	2005-06 ($'000)	2006-07 ($'000)	2005-06 ($'000)	2006-07 ($'000)
Contribution to:				
EBITDA	293,676	303,448	222,878	231,616
Profit after tax	105,171	109,559	105,909	110,760
Dividend	100,309	103,929	101,012	105,069
Income tax expense	105,171	46,864	105,909	47,377

* Based on SA Water allocation of revenue and expenditure by business segments. Excludes "other" business segments.

The estimated income tax expense is consistent with the Government's policy on competitive neutrality.

8.6 Profitability and ongoing financial viability

Financial indicators of SA Water's ongoing financial viability, such as indicators of profitability and financial management, are provided in Table 17. 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.

Table 17: Summary of financial ratios for SA Water

Financial ratios	2005-06 (estimate)	2006-07 (estimate)
Profitability		
Return on assets (target 6%)*	5.7%	5.7%
Return on equity	3.8%	3.8%
Financial management		
Interest cover (times)	4.3	4.2
Total debt / total assets (target 15-25%)	19%	20%
Dividend payout ratio (95% under the revised PNFC ownership framework)	95%	95%

*As per the definition used by the Productivity Commission.

These financial indicators demonstrate strong profitability and interest cover. The total debt to total assets ratio and dividend payout ratio are forecast to remain stable, consistent with the revised PNFC ownership framework policy.

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Appendices

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Appendix 1: Processes for setting 2006-07 water and wastewater prices and finalising the Transparency Statement

Date	**Actions / Milestone (Ministerial Responsibility)**
11 March 2005	ESCOSA's Draft Report on *2005-06* water and wastewater is available.
14 March 2005	Cabinet considers implementation of Public Non-Financial Corporations Ownership Policy (Treasurer)
21 March 2005	Cabinet considers Methodology Cabinet Submission for setting water and wastewater prices for 2006-07. (Minister)
21 March 2005	Cabinet considers Process Cabinet Submission for preparing a Transparency Statement. (Treasurer)
28 March 2005	Cabinet notes SA Water's Efficiency Analysis Report (Minister)
8 April 2005	ESCOSA's Final Report (Part B) on *2005-06* water and wastewater is available.

2, 9 and 17 May 2005	Cabinet considers final advice on:
	• 2006-07 water and wastewater prices incorporating consideration of:
	  o environmental externality costs to be integrated into prices; and
	  o the direction of pensioner concessions;
	• a draft response to ESCOSA's inquiry into *2005-06* water and wastewater price setting processes; and
	• a draft 2006-07 Transparency Statement (Part A chapters 1 - 5).

Late May 2005	Basis of 2006-07 prices to be announced with the 2005-06 budget announcement (Minister and/or Treasurer)
End July 2005	Settled Transparency Statement (Part A) referred to ESCOSA. (Treasurer)
Mid October 2005	ESCOSA's Draft Report (Part B) on 2006-07 water and wastewater is available.
Mid November 2005	ESCOSA's Final Report (Part B) on 2006-07 water and wastewater is available.
By 7 December 2005	Gazettal of 2006-07 water prices consistent with Cabinet pricing decision. (Minister)

Mid December 2005	Cabinet considers the Response to ESCOSA's report (Part C). (Treasurer)
Twelve sitting days from receipt of Part B	Transparency Statement (Part A, B, C) tabled. (Treasurer)
Late June 2006	Gazettal of sewerage rates consistent with Cabinet pricing decision. (Minister)

Appendix 2: Water and Wastewater price setting methodology for 2006-07

WATER AND SEWERAGE PRICE SETTING METHODOLOGY FOR 2006-07

The methodology for setting 2006-07 water and sewerage prices is aimed at demonstrating appropriate rigor in addressing NCP and NWI pricing principles. In this context, the 2006-07 pricing decision must consider the Target Revenue and the Price Structure.

Target Revenue

The 2006-07 water and sewerage prices will be set to generate a revenue stream which allows SA Water to be commercially viable whilst not taking advantage of its monopoly position (ie not charging monopoly rents for it services). These aspects will be assessed against the principles of Minimum Revenue, Maximum Revenue and Target Revenue.

Commercial viability will be assessed by determining the amount of revenue (***Minimum Revenue***) required to cover SA Water's:

- operational, maintenance and administrative costs;
- externalities (including attribution of water planning and management costs);
- taxes or tax equivalents;
- dividends[i];
- interest payments on debt; and
- a provision for asset refurbishment/replacement (annuity estimate).

Maximum Revenue indicates the upper bound of revenue which could be generated but would still avoid a monopoly profit. The maximum revenue will be determined as that level of revenue required to cover SA Water's:

- operational, maintenance and administrative costs;
- externalities (including attribution of water planning and management costs);
- taxes or tax equivalents[ii];
- a provision for asset consumption (depreciation); and
- a provision for the cost of capital based on weighted average cost of capital (return on assets).

In relation to externalities (including attribution of water planning and management costs), analysis of Maximum Revenue requirements will, subject to Cabinet's direction, have regard to the latest advice from the Department of Water, Land and

[i] Provision for dividends, capital structure and CSO's to be adopted in these analyses will have regard to the outcomes of the detailed implementation of the Public Non-Financial Corporations Ownership Policies currently being finalised.
[ii] Maximum Revenue will account for taxes and tax equivalents through use of pre-tax weighted average cost of capital.

Biodiversity Conservation on those costs which are feasible and practical to be integrated into water prices.

To meet NWI pricing principles, ***Target Revenue*** options for 2006-07 will be determined within the Minimum and Maximum Revenue limits and recognise as objectives:

- moving towards upper bound pricing for metropolitan systems by 2008, ie moving towards the Maximum Revenue;
- continuing to achieve lower bound pricing for non-metropolitan systems, ie achieve the Minimum Revenue; and
- moving towards upper bound pricing for all non-metropolitan systems, where practicable.

In applying the principles above:

- revenues and costs will be appropriately balanced between the business segments;
- the value of assets for price determination purposes will be assessed using a fair value methodology[iii];
- provision will be made to estimate and recognise the value of contributed assets;
- provision will be made for agreed Community Service Obligation (CSO) revenues; and
- the revenue estimates will represent efficient resource pricing and business costs having regard to appropriate benchmarks, financial ratios and other factors, as relevant.

Price Structure

The approved 2006-07 Target Revenue will be the base for setting 2006-07 prices.

The structure of pricing options for 2006-07 will have regard to the extent to which prices can provide economic signals to promote efficient resource allocation.

Water and sewerage pricing options for 2006-07 will:

- achieve the preferred Target Revenue option;
- minimise the scope for cross-subsidy and obviate any cross-subsidies that cannot be avoided through fully-funded CSO payments (that will be transparently reported) to ensure that they are not passed on to customers; and
- manage the impact of price changes for customers (including consideration of latest advice from the Department of Families and Communities on the direction of pensioner concessions).

[iii] The NCP guidelines, based on "Expert Group" 1998 guidelines, stipulate that the deprival value method should be adopted for asset valuation "*unless specific circumstances justify another method*". The South Australian Government Accounting Policy Statement, APS 3, requires the fair value basis to be applied to the measurement of non-current assets and considers there to be no practical difference between fair value and deprival value methodologies.

Specifically, in regard to water, pricing options will:

- comprise separate components to reflect access to water supply and water use;
- involve a usage component that is ideally based on long-run marginal costs including provision for environmental externalities where feasible and practical; and
- be applied Statewide.

In respect of sewerage pricing options, consideration should be given to:

- any need for separate components for "consumption" of sewerage services and access to the service;
- an objective of encouraging the most cost effective methods of treating industrial wastes, whether at source or at SA Water plants by 2006[iv]; and
- mechanisms to achieve the intent of the Government's Statewide pricing policies.

Pricing Decision

Cabinet to determine the preferred Target Revenue for 2006-07 and an appropriate pricing option for water and sewerage rates for 2006-07, taking into account the trade-offs between economic efficiency, social equity and environmental outcomes within the context of the CoAG water reform framework.

[iv] As dictated by agreements, trade waste charges were determined for a three year period commencing 2005-06. Further review of trade waste charges is not required until 2008-09.

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Appendix 3: Terms of reference for referral to ESCOSA

NOTICE OF REFERRAL FOR AN INQUIRY INTO WATER AND WASTEWATER PRICING IN METROPOLITAN AND REGIONAL SOUTH AUSTRALIA FOR 2006-07 PURSUANT TO PART 7 OF THE ESSENTIAL SERVICES COMMISSION ACT 2002

FROM: **The Hon Kevin Foley MP, Deputy Premier, Treasurer**

TO: **The Essential Services Commission of South Australia**

RE: **Water and Wastewater Prices in Metropolitan and Regional South Australia 1 July 2006 to 30 June 2007**

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 each year on SA Water's water and wastewater prices. The Government has prepared the attached Transparency Statement (Part A).

4. The Transparency Statement (Part A) links Cabinet's decision on water and wastewater prices to the 1994 CoAG pricing principles, 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. SA Water is to meet the reasonable costs of the Commission in undertaking the inquiry.

6. The Government is currently in the process of finalising its National Water Initiative Implementation Plan for consideration by the National Water Commission. Accordingly, this Transparency Statement process occurs pursuant to the 1994 CoAG pricing principles.

REFERRAL:

I, Kevin Foley, 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 the 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 for 2006-07, with respect to the adequacy of the application of 1994 CoAG pricing principles;

(b) In undertaking this inquiry, the Commission is to consider the *Transparency Statement Metropolitan and Regional Water and Wastewater Prices in South Australia 2006-07* (Part A) dated August 2005;

(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 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 both myself and the Minister for Administrative Services by no later than 31 October 2005;

(b) I require that the Commission submit a Final Report on the inquiry to both myself and the Minister for Administrative Services by no later than 30 November 2005;

(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 14 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 Section, 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".

Kevin Foley MP
DEPUTY PREMIER
TREASURER

6/9 /05

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Appendix 4: 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, page 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 (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, page 112–113, available at www.ncc.gov.au

Appendix 5: Relevant clauses of the National Water Initiative

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 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 separated 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 metropolitan 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 on 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 6: South Australian Centre for Economic Studies report *"A Review of the Efficiency of SA Water's Business Costs and Performance"*

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SOUTH AUSTRALIAN
CENTRE FOR ECONOMIC STUDIES
ADELAIDE & FLINDERS UNIVERSITIES

Review of the Efficiency of SA Water's Business Costs and Performance

Final Report

Prepared for:

Department of Treasury and Finance

Prepared by:

The SA Centre for Economic Studies

March 2005

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This report was prepared by the following researcher:

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Disclaimer: This study, while embodying the best efforts of the investigators is but an expression of the issues considered most relevant, and neither the Centre, the investigators, nor the Universities can be held responsible for any consequences that ensue from the use of the information in this report. Neither the Centre, the investigators, nor the Universities make any warranty or guarantee regarding the contents of the report, and any warranty or guarantee is disavowed except to the extent that statute makes it unavoidable.

Executive Summary

This report presents the findings of a review of SA Water's service performance and costs. Performance and cost benchmarks over time and across States have been considered.

In an exercise like this it must be recognised that while differences in the efficiency and effectiveness of utilities' operations can give rise to differences in benchmark indicators, there are also substantial interregional differences in the environments within which utilities must operate that also contribute to differences in benchmark indicators. For example, in South Australia the reliance on River Murray source water, which is of relatively low quality, will either lead to lower quality drinking water or create a requirement for costly filtration processes.

Region-specific factors which may affect water utility performance include:

- the size and population density of the area served;
- access to water resources;
- water quality;
- topography;
- soil conditions;
- effluent disposal opportunities; and
- environmental standards.

The potential influence of factors such as these needs to be kept in mind in a benchmarking exercise such as this. An effort to understand them is made by presenting some information regarding the contribution of variations in cost drivers to variations in benchmarks. However, our understanding of variations in cost drivers is still far from complete, especially across regions. For this reason there is a widely held view that trend analysis of providers is likely to be more robust than interstate comparisons of performance differences. Consistent with that view, most of the emphasis in this report is on how benchmarks change over time.

Benchmarking of metropolitan service performance

An analysis of metropolitan water supply and wastewater service performance is contained in Chapter 2. Table E.1 summarises the benchmarks used and the outcomes achieved.

Table E.1
SA Water metropolitan service performance - summary comparisons

	Change over time			Relative to other providers		
Category	**3 years to 03-04**	**5 years to 03-04**	**Trend**	**Average**	**Median**	**Rank[1] 03-04**
Water Supply:						
Customer Service						
Number of Water Quality Complaints per 1,000 Properties	-54%	-50%	Improving	Better	Better	2 (9)
Proportion of Customers Dissatisfied with Water Quality	-6 pts	-6 pts	Improving	Worse	Worse	8 (8)
Water Main Breaks per 100 km of Main	-4%	-24%	Not clear	Better	Better	3 (9)
Average Duration of an Unplanned Water Supply Interruption (hr)	+14%	+39%	Not clear	Worse	Worse	9 (9)
Proportion of Customers with No Water Supply Problems	n.a.	n.a.	n.a.	Better	Similar	4 (8)
Average Connect Time to a Telephone Operator (seconds)	+26	n.a.	Worsening	Similar	Similar	3 (7)
Environmental						
Infrastructure Leakage Index	n.a.	n.a.	n.a.	Better	Better	3 (8)
Wastewater:						
Customer Service						
Number of Property Connection Sewer Breaks & Chokes per 1,000 Properties	+12%	-10%	Not clear	Worse	Worse	7 (7)
Environmental						
Number of Wastewater Overflows per 100 km[2]	+19%	-18%	Not clear	Better	Usually Worse	6 (8)
Average Wastewater Break/Choke Repair Time (hr)	-29%	n.a.	Not clear	Better	Better	2 (8)
Odour Complaints per 1,000 Properties	-13%	-13%	Not clear	Similar	Similar	5 (9)
Proportion of Wastewater Treated to a Tertiary Level	+74 pts	+91 pts	Improving	Better	Better	3 (9)
Proportion of Water Recycled	+6 pts	+17 pts	Improving	Better	Better	1 (8)
Proportion of Bio-solids Reused	+14 pts	+101 pts	Flat	Better	Better	1 (8)
System Performance						
Number of Wastewater Reticulation Main Breaks and Chokes per 1,000 Properties[2]	+19%	-14%	Not clear	Similar	Worse	7 (9)

(1) Ranked from best to worst. Parentheses contain number in comparison group.
(2) "Average" affected by an extreme value in comparison group. Median is better indicator.

Water supply

The key conclusions to emerge regarding the customer service performance of SA Water's metropolitan water supply operations are:

- Over the five years to 2003-04, SA Water had a declining trend in water quality complaints and a reduction in the proportion of people who were dissatisfied with water quality. Water quality was improving. But while current complaint rates are below the average for Australian metropolitan water suppliers, the dissatisfaction level is significantly higher. SA Water's reliance on the River Murray as a source obviously raises particular challenges in respect of water quality.
- The average duration of water supply interruptions has increased and is high by Australian standards, but the number of breaks per 100 km of main has fallen and is relatively low. South Australians have a lower level of dissatisfaction with supply reliability than their interstate counterparts.
- Connect times to a telephone operator have increased because of increased enquiries as a result of water restrictions, but the average remains below 30 seconds.

Water quality has probably been the most significant area of customer concern over recent years and therefore the key conclusion regarding customer service is that there has been a trend improvement over recent years although customers are still less satisfied with water quality here than interstate.

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 there is less leakage in Adelaide than in other States.

Wastewater

The key customer service indicator for the metropolitan wastewater service, the rate of breaks and chokes in property connections, does not show a clear trend. In fact, although SA metropolitan customers have a relatively high rate of breaks and chokes in their property connection, complaint rates are not high. SA Water's approach is to minimise customer problems by responding rapidly when problems do arise, rather than by carrying out extensive pipe replacement programs.

Perhaps the more topical dimension of the wastewater service is its environmental impacts. There have been substantial improvements in performance against a number of environmental indicators over recent years. Overflow rates have fallen, the prevalence of tertiary treatment has risen very rapidly to reach a high 91 per cent, there has been a substantial increase in the reuse of treated effluent, and reuse of biosolids now exceeds annual biosolid production.

In the interstate comparison, SA Water performs worse than average in terms of overflows, but is a better than average performer in terms of tertiary treatment, water reuse and biosolid reuse. It is about average for odour complaints.

Benchmarking of metropolitan service costs

An analysis of metropolitan water supply and wastewater cost performance is contained in Chapter 3. Table E.2 summarises the benchmarks used and the outcomes achieved.

Table E.2
SA Water metropolitan service costs (in 2003-04 dollars) – summary comparisons

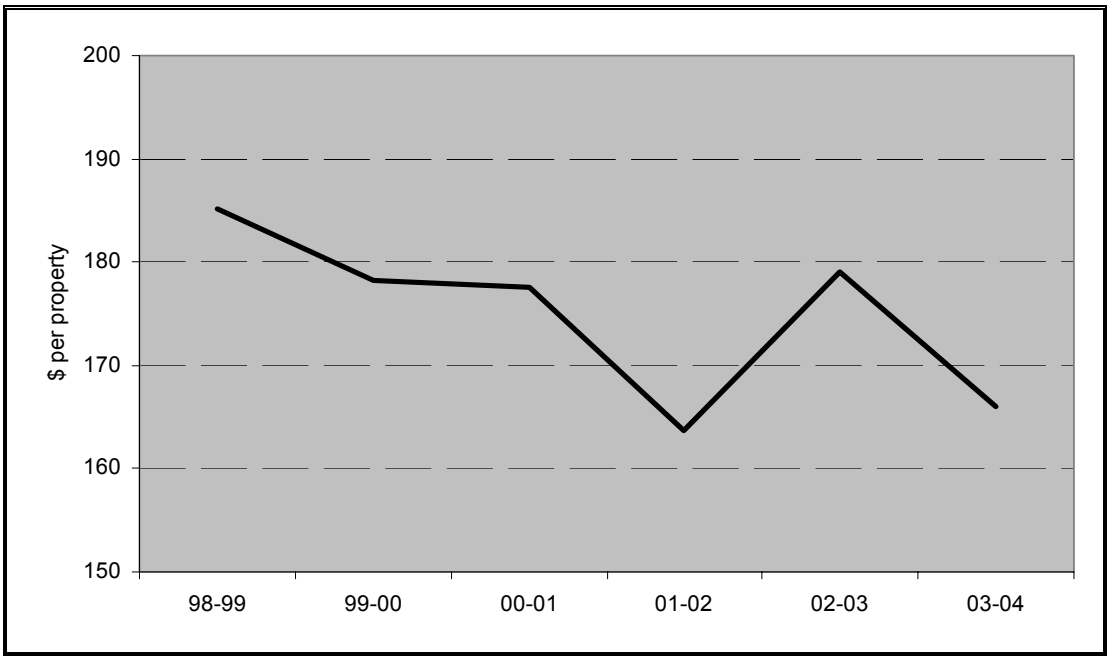
	Change over time			Relative to other providers		
Category	**3 years to 03-04**	**5 years to 03-04**	**Trend**	**Average**	**Median**	**2003-04 Rank[(1)]**
Water Supply						
Operating Cost Per Property	-6%	-10%	Improving	Better	Better	3
Wastewater						
Operating Cost Per Property	+12%	20%	Worsening	Better	Better	2

(1) Ranked from best to worst out of 7.

Water supply

SA Water's metropolitan water supply costs per property declined in real terms over the five years to 2003-04 (Table E.2 and Figure E.1). This is suggestive of favourable efficiency trends, especially when one takes into account that there has been an increasing level of customer satisfaction with water quality over the period (see section on metropolitan service standards).

Figure E.1
South Australian Metropolitan Water Supply Operating Cost (in 2003-04 dollars)



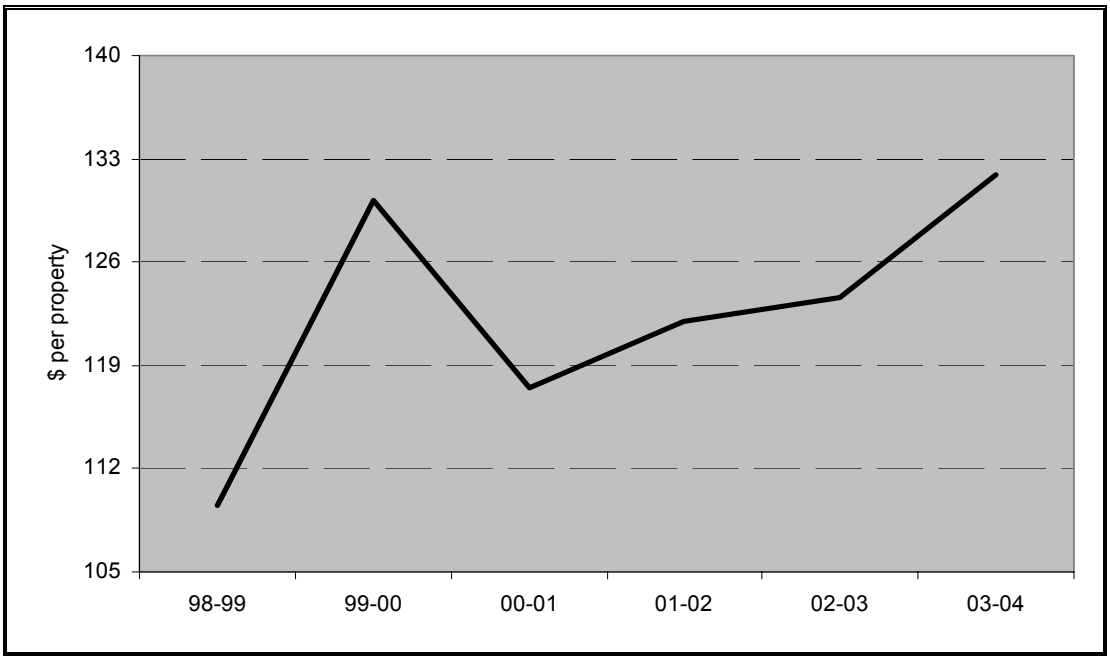
SA Water's metropolitan water supply operating costs are close to the median value. This is in spite of some manifest cost disadvantages for Adelaide metropolitan water supply, most obviously the need to pump water long distances and the need for relatively extensive treatment of that water to achieve drinking water standards. As one might expect, these disadvantages appear to some extent to be borne through a lower level of consumer satisfaction with the water product, but they could also be expected to push costs above average. Seen in this light, the fact that the SA metropolitan water supply system has total costs at the median and operating costs below the median is suggestive of good cost performance.

Wastewater

SA Water's metropolitan wastewater costs per property have increased in real terms over the reporting period (Table E.2 and Figure E.2). It appears that this is largely attributable to an Environment Improvement Program, introduced at the instigation of the Environment Protection Authority, which has diminished the impact of metropolitan wastewater operations on the physical environment.

Metropolitan wastewater costs remain low in comparison with costs in other metropolitan systems. The fact that SA Water operates wastewater plants at above average scale probably significantly contributes to this cost effectiveness.

Figure E.2
South Australian Metropolitan Wastewater Operating Cost (in 2003-04 dollars)



Benchmarking of regional service performance

An analysis of regional water supply and wastewater service performance is contained in Chapter 4. Table E.3 summarises the benchmarks used and the outcomes achieved.

Table E.3

SA Water regional service performance - summary comparisons

	Change over time			Relative to other providers	
Category	**3 years to 03-04**	**5 years to 03-04**	**Trend**	**Median**	**Rank(1) 02-03**
Water Supply:					
Customer Service					
Water Main Breaks per 100 km of Main	-23%	-17%	Flat	Better	2 (5)
Wastewater:					
Customer Service					
Number of Property Connection Sewer Breaks & Chokes per 1,000 Properties	+5%	+38%	Flat	Better	1 (3)

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

Water supply

The regional water supply system in South Australia shows an essentially flat trend on breaks per 100 km of main. There are other dimensions of the water supply service that matter to customers, but for which we do not have much data, such as the quality of the water product and the ease of liaison with SA Water. SA Water *E. coli* testing results show a steady water quality performance in the regional system.

The South Australian regional water supply system's breakage rate is relatively low when compared with estimates for the other States. However, those estimates for other States are sensitive to the inclusion or exclusion of particular regional providers.

Wastewater

The regional sewage system in South Australia shows an essentially flat trend on breaks per 100 km of main. There are other dimensions of the wastewater service that are important, but for which we do not have data, such as environmental performance.

The South Australian regional wastewater system's breakage rate is relatively low when compared with estimates for the other States. However, those estimates are sensitive to the inclusion or exclusion of particular regional providers.

Benchmarking of regional costs

An analysis of regional water supply and wastewater costs is contained in Chapter 5. Table E.4 summarises the benchmarks used and the outcomes achieved.

Table E.4

SA Water regional service costs (in 2003-04 dollars) - summary comparisons

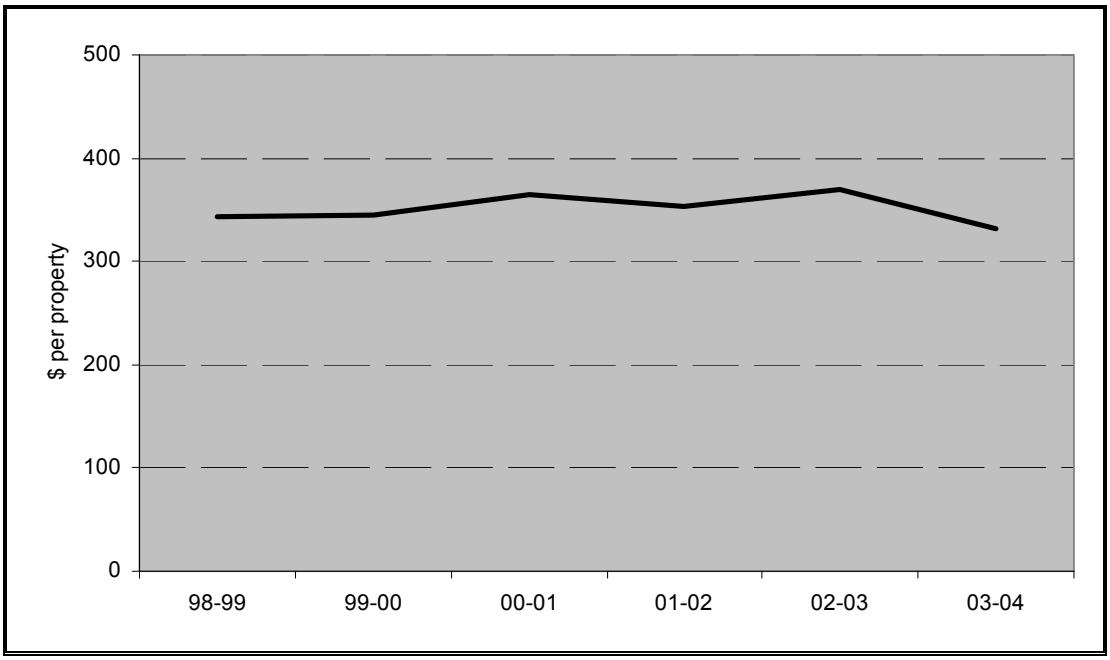
	Change over time		
Category	**3 years to 03-04**	**5 years to 03-04**	**Trend**
Water Supply			
Operating Cost Per Property	-9%	-3%	Flat
Wastewater			
Operating Cost Per Property	+18%	+16%	Flat

Water supply

In 2003-04 there was a decline in real operating costs per property for regional water supply in South Australia. However, the decline appears to be mainly seasonal and no upward or downward trend is apparent (Table E.4 and Figure E.3). There is no evidence of any trend change in service standards although the indicators are limited in scope. This is suggestive that efficiency is being maintained but is not conclusive. There are significant extraneous influences on SA Water, over and above any internal operating efficiencies, which can affect cost measures.

Operating costs for regional water supply are generally higher in South Australia than interstate. However, poor water accessibility and quality are factors that would lend to a higher cost structure in South Australia. It is not realistic to draw any conclusions about the relative efficiency of the South Australian regional water supply system versus those interstate.

Figure E.3
South Australian Regional Water Supply Operating Costs per Property
(in 2003-04 dollars)

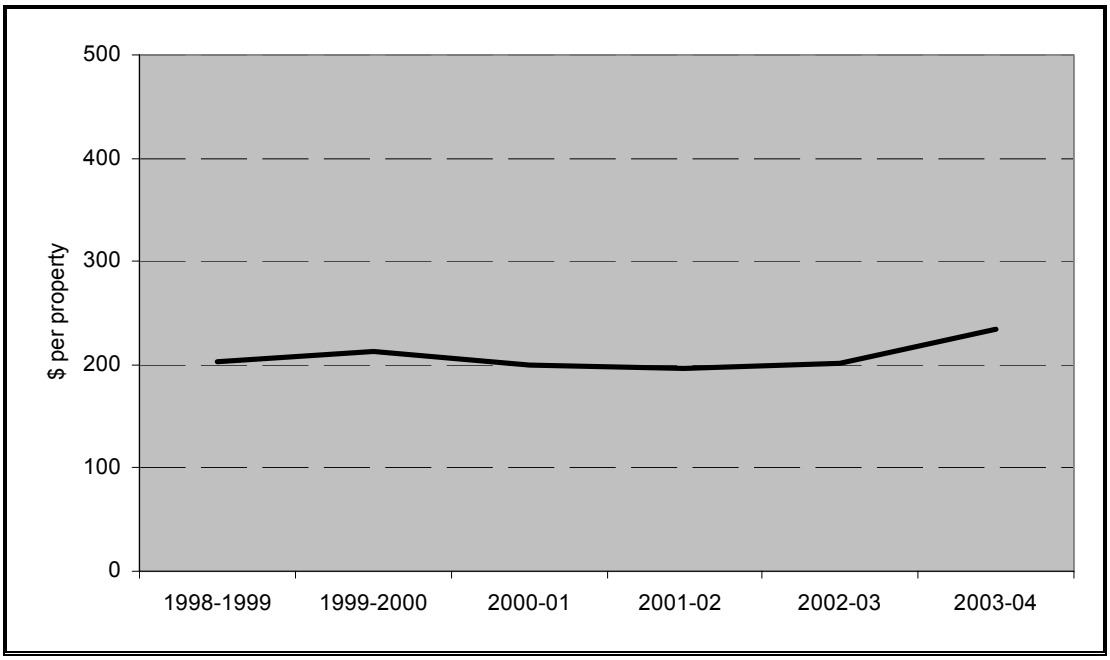


Wastewater

Operating costs per property for the South Australian regional wastewater system as a whole have shown a generally flat trend in real terms over recent years although there was an increase in 2003-04 (Table E.4 and Figure E.4). SA Water has advised that the 2003-04 rise is largely attributable to a change in change in the way indirect costs are allocated between regional water supply and wastewater (which has correspondingly had a downward effect on regional water supply cost estimates). The essentially flat trend has been achieved in spite of upward pressures from higher treatment standards required.

There is insufficient evidence to make strong statements about the efficiency of SA Water's regional operations. However, it seems reasonable to conclude, on the basis of the time series, that costs have been reasonably well contained over time, and that this has been achieved without adverse performance consequences. Interstate comparisons suggest that South Australia's regional water supply is relatively costly and its regional wastewater is relatively cheap, but given the importance of location-specific cost drivers it is not realistic to draw any inferences about relative efficiency levels.

Figure E.4
South Australian Regional Wastewater Operating Costs per Property
(in 2003-04 dollars)



1. Introduction

This report presents the findings of a review of SA Water's service performance and costs. The review has been carried out for the Department of Treasury and Finance.

The Department of Treasury and Finance must provide advice to the Government on SA Water's efficiency as an input to the Government's decision about SA Water pricing. The Government will also provide ESCOSA with information regarding the decision that it makes, and ESCOSA will consider the consistency of the Government's decision with National Competition Policy agreements.

The CoAG Strategic Framework has identified a need to develop comparisons of the performance of service providers in order to promote international best practice. This report presents benchmark information, and analysis of it, in pursuit of that objective.

It must be recognised that although benchmarking of service providers is useful for broad indicative purposes, there are substantial interregional differences that affect the standards of services provided and the costs of providing those services. These include:

- the size and density of the area served;
- access to water resources;
- water quality;
- topography;
- soil conditions;
- effluent disposal opportunities; and
- environmental standards.

In this report an attempt is made to identify how some of these cost drivers differ across States. However, this work is still in its early stages and the results should be regarded as indicative rather than conclusive.

It is also possible to identify trends in various performance and cost indicators for particular providers. Because many drivers of costs can be regarded as relatively stable through time, the identification of factors which cause year-by-year variation in performance is a more tractable task.

Given these considerations, trend analysis of providers is likely to be more robust than cross-section analysis of performance differences. But, as the Water Supply Association of Australia has stated, while this approach minimises the confounding effects of variations in cost drivers it cannot be presumed to eliminate them.

In carrying out this review we have sought to identify and employ authoritative, reliable data sources. The work of the Water Supply Association of Australia takes us a substantial way in this direction for metropolitan service providers. However, the data for regional service providers is patchy and somewhat inconsistent.

In this report chapters 2 to 5 deal sequentially with: metropolitan service performance, metropolitan cost performance, regional service performance and regional cost performance.

2. Benchmarking of metropolitan service standards

This section presents benchmark data for metropolitan service standards for SA Water and, where possible, 8 other Australian metropolitan water and wastewater providers. These providers are:

- ActewAGL – a public corporation providing water, wastewater and electricity services for Canberra.
- Brisbane Water – a public corporation providing water and wastewater services for Brisbane and bulk water for five neighbouring regional councils.
- City West – a Victorian Government owned water business providing 290,000 customers with water and wastewater services in Melbourne's CBD, inner and western suburbs.
- Power and Water – a public corporation providing water, wastewater and electricity for the greater Darwin region and in centres throughout the Northern Territory including Katherine, Tennant Creek, Alice Springs and Yulara.
- South East Water – one of Melbourne's 3 metropolitan retail water businesses which provides water and sewerage services to over 586,00 customers.
- Sydney Water – the largest public water corporation in Australia providing water and wastewater services for Sydney, Illawarra and the Blue Mountains
- Water Corporation – a public corporation providing water and wastewater services for the whole of Western Australia. Only its metropolitan Perth operations are reported in *WSAAfacts*.
- Yarra Valley Water – the largest of Melbourne's three retail water companies. It provides water and sewerage services to more than 1.5 million people in Melbourne's northern and eastern suburbs.

Table 2.1 below lists the water and wastewater services provided by each service provider included in the benchmarking exercise.

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.

The three Melbourne-based providers chosen — City Water, South East Water, and Yarra Valley Water — provide a limited range of water and wastewater services. For instance, they purchase water in bulk from Melbourne Water and pay Melbourne Water to process sewage, which means that their operating costs do not include reservoir or sewage treatment costs. Where appropriate, an agglomerated entity, "Melbourne consolidated", which comprises of these three retailers and Melbourne Water, has been considered to maximise comparability. However, where it is meaningful to do so, the three have been considered separately to expand the sample size and obtain a more comprehensive comparison of performance standards.

As the Essential Services Commission of Victoria stated in its report *Draft Performance Reporting Framework: Metropolitan And Regional Businesses* (May 2004), in assessing the extent to which indicators are appropriate for comparison purposes the following principles should be observed:

- Performance indicators need to be relevant to the nature of the services provided by each business;
- Performance indicators need to be meaningful and relate to key issues of concern to both businesses and their customers;
- Performance indicators need to be defined and collected on a consistent basis across businesses to provide a valid measure of actual performance and to aid reasonable comparisons; and
- The accuracy and reliability of information provided by businesses must be verifiable.

For some years now there has been in progress an initiative of the Water Services Association of Australia to produce a standardised set of benchmark data across major Australian metropolitan water services providers. The initiative, *WSAAfacts,* involves the water service providers reporting data using common definitions. Moreover, 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 accepted by the National Competition Council as a standard data set for analyses of this type and has been recognised in the National Water Initiative as part of a new nationally consistent framework.

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

We have allocated each service performance indicator to one of three categories: "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. We have chosen this organising theme because we think it is useful, when thinking about achievements against a particular benchmark, to have some idea of who the beneficiary is of better benchmark performance.

Even where benchmark measurements are consistent across providers, there will still be unavoidable differences in benchmark outcomes arising from the physical operating environments of each company. Topography, soil, network age, population densities, wastewater treatment and water quality are some examples of the differences that are relevant to water and wastewater services providers. Differences in operational effectiveness and efficiency may also play a role, but cannot automatically be inferred from cross-company differences in benchmark performance. Some data has been presented from *WSAAfacts* and other sources to illustrate how cost drivers vary across providers.

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 1998-99 to 2003-04 where data permits. Total and operating cost data for both water and wastewater services have also been presented.

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 median[i] values have been considered. In some cases, due to the small sample size, outlier data values have had large impacts on the summary comparative statistics. To correct for these outliers, calculations have been presented wherein all-company averages have been recalculated removing first the highest and then the lowest (with replacement of the highest) data value in each year.

2.1 Metropolitan water — service standards

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

Customer service

- Number of Water Quality Complaints per 1,000 Properties;
- Proportion of Customers Dissatisfied with Water Quality for Drinking (Australian Bureau of Statistics measure);
- Number of Water Main Breaks per 100km of Main;
- Average Duration of an Unplanned Water Supply Interruption;
- Proportion of Customers Having Problems with Supply (Australian Bureau of Statistics measure); and
- Average Connect Time to a Telephone Operator.

Environmental performance

- Infrastructure Leakage Index.

[i] 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.

The two ABS items, which are produced only triennially, were not presented in the *Transparency Statement 2005-06.* They give an interstate comparison of customer satisfaction in terms of water quality and supply reliability and an indication of trends over time.

Customer Service

Number of Water Quality Complaints per 1,000 Properties

Table 2.2 outlines the Number of Water Quality Complaints per 1,000 Properties.

Table 2.2
Number of Water Quality Complaints per 1,000 properties

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	% Change 3 years to 2003-04	% Change 5 years to 2003-04
ActewAGL	3.1	2	2.3	2.8	1.8	1.9	-17	-39
Brisbane Water	9.7	12.1	8.1	4.4	3.3	4.8	-41	-51
City West Water	2.5	2	1.9	1.8	1.1	0.8	-58	-68
Power & Water	4.7	3.5	5.4	4.6	1.7	2.7	-50	-43
SA Water	2.2	2.3	2.4	1.7	1.6	1.1	-54	-50
South East Water	3.8	3.8	3.4	3.4	2.8	2.2	-35	-42
Sydney Water	136.2	4.8	3.2	2.4	2	1.4	-56	-99
Water Corporation	n.a.	n.a.	18.8	16.5	18.6	20.1	7	n.a.
Yarra Valley Water	4.5	4.1	5.4	5.5	5.1	5.6	4	24
Average WSAA companies	**20.8**	**4.3**	**5.7**	**4.8**	**4.2**	**4.5**	**-20**	**-78**
Highest Removed	**4.4**	**3.2**	**4.0**	**3.3**	**2.4**	**2.6**	**-36**	**-41**
Lowest Removed	**23.5**	**4.7**	**6.1**	**5.2**	**4.6**	**5.0**	**-19**	**-79**
Median WSAA companies	**4.2**	**3.7**	**3.4**	**3.4**	**2.0**	**2.2**	**-35**	**-47**

SA Water's results indicate a 50 per cent decline in the Number of Water Quality Complaints per 1000 Properties over five years to 2003-04. It should be noted that the decline was from a complaint rate that was already, in absolute terms, low – just 2.2 complaints per 1,000 properties in 1998-99.

Most other providers have also exhibited declining complaint rates and SA Water had the 4th largest decline amongst the 9 companies. Because of the influence of the large number of water quality complaints for Sydney Water in 1998-99, a year in which it was compelled to issue "boil water" warnings in connection with a widespread contamination episode, it may be better to use the median value as a comparator. For all years the number of water quality complaints against SA Water is lower than the median value, placing it in the best 50 per cent of performers.

Proportion of Customers Dissatisfied with Water Quality for Drinking (ABS measure)

Survey data from the Australian Bureau of Statistics shows that among persons with mains or town water, South Australians had the highest Proportion of Customers Dissatisfied with Water Quality for Drinking among all Australians. In March 2004, 36 per cent of South Australians were not satisfied, compared with 24 per cent Australia-wide. A probable explanation is South Australia's reliance on water from the River Murray.

However, the dissatisfaction level has improved markedly over recent years, falling from 42 per cent in 2001 and 1998, and 51 per cent in 1994.[ii]

This indicator applies to the whole of South Australia, but metropolitan respondents represent the majority of that population.

Number of Water Main Breaks per 100km of Main

The Number of Water Main Breaks per 100 km of Main was included as an indicator of frequency of unavailability episodes (Table 2.3).

Table 2.3
Number of Water Main Breaks per 100 km of Main

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	% Change 3 years to 2003-04	% Change 5 years to 2003-04
ActewAGL	11.2	11.7	18.4	18.8	26.3	26.3	43	135
Brisbane Water	33.4	35.9	37.6	36.5	36.7	34.5	-8	3
City West Water	77	70.1	58.3	56	102.9	91.6	57	19
Power & Water	8.4	9.1	20.3	24.5	20.7	18.1	-11	115
SA Water	30.9	24.6	24.5	22.1	24.2	23.4	-4	-24
South East Water	24.1	26.4	26	21.1	29	26.6	2	10
Sydney Water	43.7	42.3	37.7	37.5	50.7	38	1	-13
Water Corporation	11.2	12.3	12.6	12.9	13.2	13.6	8	21
Yarra Valley Water	42	42.1	55.9	40.7	56.2	51.5	-8	23
Average WSAA companies	**31.3**	**30.5**	**32.4**	**30.0**	**40.0**	**36.0**	**11**	**15**
Highest Removed	**25.6**	**25.6**	**29.1**	**26.8**	**32.1**	**29.0**	**0**	**13**
Lowest Removed	**34.2**	**33.2**	**34.8**	**32.2**	**43.3**	**38.8**	**11**	**13**
Median WSAA companies	**30.9**	**26.4**	**26.0**	**24.5**	**29.0**	**26.6**	**2**	**-14**

For SA Water, the Number of Water Main Breaks per 100km of Main declined by 24 per cent over the five years to 2003-04. The only other company to experience a decline over this period was Sydney Water. In all years performance by SA Water has been better than all measures of the average and below the median value.

Average Duration of an Unplanned Water Supply Interruption

Table 2.4 shows the Average Duration of an Unplanned Water Supply Interruption.

[ii] See Cat. No. 4602.0, *Environmental Issues: People's Practices and Views, March 2004,* Table 3.30. The data combine metropolitan and regional customers.

Table 2.4
Average Duration of an Unplanned Water Supply Interruption (hr)

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	% Change 3 years to 2003-04	% Change 5 years to 2003-04
ActewAGL	2	1.9	1.9	1.7	1.6	2	5	0
Brisbane Water	2.9	2.7	2.6	2.7	2.6	2.5	-4	-14
City West Water	1.8	2	2	1.8	1.8	1.9	-5	6
Power & Water	n.a.	1.5	1	1	1	0.9	-10	n.a.
SA Water	2.3	2.2	2.8	4.3	3.8	3.2	14	39
South East Water	2	2.2	2	2	1.8	1.6	-20	-20
Sydney Water	2	2.1	2.2	2.4	2.3	1.7	-23	-15
Water Corporation	n.a.	2.1	2	2	2.3	2.2	10	n.a.
Yarra Valley Water	1.6	1.5	1.4	1.3	1.5	1.6	14	0
Average WSAA companies	**2.1**	**2.0**	**2.0**	**2.1**	**2.1**	**2.0**	**-2**	**-6**
Highest Removed	**2.0**	**1.9**	**1.9**	**1.9**	**1.9**	**1.8**	**-5**	**-8**
Lowest Removed	**2.2**	**2.1**	**2.1**	**2.3**	**2.2**	**2.1**	**-1**	**-4**
Median WSAA companies	**2.0**	**2.1**	**2.0**	**2.0**	**1.8**	**1.9**	**-5**	**-5**

For SA Water, the Average Duration of an Unplanned Water Supply Interruption increased by 39 per cent over the five years to 2003-04. This compares to a decline in the average across all responding companies of 6 per cent over the same period. In all years the performance by SA Water has been worse than all measures of the average.

Proportion of Customers Having Problems with Supply (ABS measure)

The ABS survey referred to above shows that in South Australia the Proportion of Customers Having Problems with Supply (of the group that had mains or town water) had less water supply problems than the national average. In March 2004, 61 per cent of South Australians said that they had no supply problems, compared with 57 per cent of all Australians.

This indicator applies to the whole of South Australia, but metropolitan respondents represent the majority of that population.

Average Connect Time to a Telephone Operator

Table 2.5 reports the Average Connect Time to a Telephone Operator (in seconds) before a customer is connected to a company representative. Complete data for the full reporting period is only available for 3 of the 9 companies.

Table 2.5
Average Connect Time to a Telephone Operator (seconds)

	2000-01	2001-02	2002-03	2003-04	% Change 3 years to 2003-04
ActewAGL	n.a.	n.a.	n.a.	n.a.	n.a.
Brisbane Water	n.a.	n.a.	21	24.3	n.a.
City West Water	183	76.2	49.8	31	-83
Power and Water	n.a.	n.a.	n.a.	n.a.	n.a.
SA Water	19.2	18	27	26	35
South East Water	n.a.	30	25.8	26.1	n.a.
Sydney Water	n.a.	12.8	15.8	18.8	n.a.
Water Corporation	13.8	15.6	18.4	19.9	44
Yarra Valley Water	n.a.	30.6	28.8	28.6	n.a.
Average WSAA companies	**72**	**33.0**	**26.7**	**25.0**	**-65**
Highest Removed	**16.5**	**21.4**	**21.96**	**23.54**	**43**
Lowest Removed	**101.1**	**34.1**	**28.5**	**26.0**	**-74**
Median WSAA companies	**19.2**	**24**	**25.8**	**26**	**35**

The Average Connect Time to a Telephone Operator for SA Water increased by 35 per cent over the period 2000-01 to 2003-04. SA Water advises that customer enquiries were sharply boosted in 2002-03 and 2003-04 as a consequence of the imposition of water restrictions, and that the increase in connect times was a result of the unusually high enquiry load.

Seven of the nine providers reported this item for 2003-04 and the SA Water performance was in the middle of the pack.

Environmental Performance

Infrastructure Leakage Index

Table 2.6 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 has been 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 SA Water's marginal cost of raw water is reflective of environmental costs, reduced leakage rates could of themselves lead to lower operating costs.

Table 2.6
Infrastructure Leakage Index

	2001-02	2002-03	2003-04	% Change 2 years to 2003-04
ActewAGL	1.2	1.3	0.9	-25
Brisbane Water	2	2.3	2.4	20
City West Water	1.7	2.0	1.4	-18
Power and Water	4.6	5.5	4.9	7
SA Water	1.2	1.2	1.2	0
South East Water	1.5	1.4	1.3	-13
Sydney Water	2.8	2.9	2.1	-25
Water Corporation	1.3	1.5	n.a.	n.a.
Yarra Valley Water	1.3	1.3	1	-23
Average WSAA companies	**2.0**	**2.2**	**1.9**	**-3**
Highest Removed	**1.6**	**1.7**	**1.5**	**-9**
Lowest Removed	**2.0**	**2.3**	**2.0**	**0**
Median WSAA companies	**1.5**	**1.5**	**1.4**	**-10**

The Infrastructure Leakage Index did not change for SA Water over the period 2001-02 to 2003-04. For the remaining companies five of the eight saw a decline in their Infrastructure Leakage Index and three saw an increase. Over the reporting period SA Water's index level was unambiguously better than average.

2.2 Metropolitan wastewater — service standards

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

Customer service

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

Environmental performance

- Number of Wastewater Overflows per 100 km;
- Average Wastewater Break/Choke Repair Time (hr);
- Number of Odour Complaints per 1,000 Properties;
- 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.

Only one of the indicators, the Number of Property Connection Sewer Breaks & Chokes per 1,000 Properties, has been classified as a customer service indicator. This a reflection of the fact that the customer service dimension of the sewage service is quite limited if the term "customer" is given its natural interpretation as the property owner who receives and pays for the sewage disposal service. And even if the customer's connection to the sewage network performs poorly, the adverse impacts may fall as much on third parties as the customer itself.

Most of the indicators have been classified as environmental. "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 Number of Odour Complaints per 1,000 Properties is treated as environmental as it relates more to an adverse impact on third parties than on the customer.

The Proportion of Wastewater Treated to a Tertiary Level, Proportion of Water Recycled and Proportion 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.[iii]

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.[iv]

Customer service

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

Table 2.7 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.

For SA Water, this measure declined by 10 per cent over the five years to 2003-04. However, there was not a distinct trend through the period.

Over the last six years, SA Water's performance on this indicator is a multiple worse than all measures of the average and it has the worst reported result in every year. SA Water believes that the difference is a consequence of the age of the South Australian infrastructure and a relatively high proportion of earthenware pipes (which are prone to cracks and root intrusions) are common. In support of this SA Water has pointed out that it is the practice in South Australia and elsewhere to deal reactively with property connection problems, which implies that differences in breakage rates are a consequence of physical factors rather than operational factors.

[iii] 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.

[iv] *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.

Moreover, SA Water has also advised that while it does little to minimise property connection breaks, it makes efforts to deal with any consequent problems rapidly and receives very few complaints in this area. Perhaps property connection breaks is not a very meaningful indicator.

Table 2.7
Number of Property Connection Sewer Breaks & Chokes per 1,000 Properties

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	% Change 3 years to 2003-04	% Change 5 years to 2003-04
ActewAGL Corporation	11.3	11.1	9.7	10	11.7	12.1	25	7
Brisbane Water	3.1	2.2	2.9	2.9	3.7	2.6	-10	-16
City West Water	16.5	9.8	9.5	8.6	12.6	11.2	18	-32
Power and Water	n.a	n.a	5.4	4.1	3.5	4.9	-9	n.a.
SA Water	39.8	35.1	32.1	31.5	35.1	36	12	-10
South East Water	7.1	6.3	5.5	4.7	6.4	6.4	16	-10
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	n.a.	n.a.
Yarra Valley Water	13.6	11.9	11.9	11	14.8	12.6	6	-7
Average WSAA companies	**15.2**	**12.7**	**11.0**	**10.4**	**12.5**	**12.3**	**11**	**-20**
Highest Removed	**10.3**	**8.3**	**7.5**	**6.9**	**8.8**	**8.3**	**11**	**-20**
Lowest Removed	**17.7**	**14.8**	**12.4**	**11.7**	**14.1**	**13.9**	**12**	**-21**
Median WSAA companies	**12.5**	**10.5**	**9.5**	**8.6**	**11.7**	**11.2**	**18**	**-10**

Environmental performance

Number of Wastewater Overflows per 100 km

Table 2.8 reports the Number of Wastewater Overflows per 100 km, which are 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 blockages in the property connection sewer or spills, discharges or overflows that escape to designed storages.[v]

SA Water's results show an 18 per cent decline in the Number of Wastewater Overflows per 100 km over the five years to 2003-04. This appears to be due mainly to an unusually bad outcome in 1998-99; since then, there has been little sign of any trend improvement.

While SA Water's rate of overflows per 100km was typically below the average across providers, that average was boosted by very high overflow rates for ActewAGL and Sydney Water. In recent years SA Water's performance has been worse than the median.

[v] The number of wastewater reticulation main breaks and chokes per 1,000 properties will have a bearing on the number of overflows, but does not appear to expand our knowledge of environmental impact beyond what is encapsulated in the overflow measure.

Table 2.8
Number of Wastewater Overflows per 100 km

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	% Change 3 years to 2003-04	% Change 5 years to 2003-04
ActewAGL	n.a.	n.a.	46	93.5	102.8	96.6	110	n.a.
Brisbane Water	23.8	11.7	29	16	19.5	20.3	-30	-15
City West Water	8.7	8.3	10.9	7.4	10.1	8.2	-25	-6
Power and Water	n.a.	n.a.	0.3	0.6	1.1	0.6	100	n.a.
SA Water	16.7	12.3	11.5	12.2	14.2	13.7	19	-18
South East Water	6.8	5.5	3.5	1.8	1.4	1.6	-54	-76
Sydney Water*	83.3	63.4	72.3	69.1	85.7	n.a.	n.a.	n.a.
Water Corporation	n.a.	9.3	9.1	9.7	10.4	8.6	-5	n.a.
Yarra Valley Water	23.5	21.1	17.4	9	7.5	5	-71	-79
Average WSAA companies	**27.1**	**18.8**	**22.2**	**24.4**	**28.1**	**19.3**	**-13**	**-29**
Highest Removed	**15.9**	**11.4**	**16.0**	**15.7**	**18.7**	**8.3**	**-48**	**-48**
Lowest Removed	**31.2**	**21.0**	**25.0**	**27.3**	**31.5**	**22.0**	**-12**	**-29**
Median WSAA companies	**20.1**	**11.7**	**11.5**	**9.7**	**10.4**	**8.4**	**-27**	**-58**

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 2.9 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 2.9
Average Wastewater Break/Choke Repair Time (hr)

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	% Change 3 years to 2003-04	% Change 5 years to 2003-04
ActewAGL	n.a.	n.a.	n.a.	0.6	0.5	0.5	n.a.	n.a.
Brisbane Water	2.5	2.6	2.6	2.8	2.7	1.6	-38	-36
City West Water	4.2	4	4.2	2	3	3	-29	-29
Power & Water	n.a.	1.6	1.9	2	1.5	1.8	-5	n.a.
SA Water	n.a.	1	1.2	0.9	1	0.9	-25	n.a.
South East Water	2.8	2.4	2.1	2.1	2.2	2.2	5	-21
Sydney Water	2	1.5	1.6	1.2	1.2	1.3	-19	-35
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.	n.a.	1.3	1.7	1.8	n.a.	n.a.
Average WSAA companies	**2.9**	**2.2**	**2.3**	**1.6**	**1.7**	**1.6**	**-28**	**-43**
Highest Removed	**2.4**	**1.8**	**1.9**	**1.4**	**1.5**	**1.4**	**-23**	**-41**
Lowest Removed	**3.2**	**2.4**	**2.5**	**1.8**	**1.9**	**1.8**	**-27**	**-43**
Median WSAA companies	**2.7**	**2.0**	**2.0**	**1.7**	**1.6**	**1.7**	**-15**	**-36**

Over the period 1999-2000 to 2003-04 there was no clear trend in SA Water's metropolitan Average Wastewater Break/Choke Repair Time. There were improvements in several other jurisdictions, but much of this may be related to "catch-up" as the average repair time for SA Water is considerably below the average and median 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 2003-04.

Number of Odour Complaints per 1,000 Properties

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

Table 2.10
Odour Complaints per 1,000 Properties

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	% Change 3 years to 2003-04	% Change 5 years to 2003-04
ActewAGL	n.a.	n.a.	n.a.	0	0.1	0	n.a.	n.a.
Brisbane Water	1	1	0.4	1.2	1.1	1.3	225	30
City West Water	0.3	0.3	0.3	0.3	0.3	0.4	33	33
Power and Water	2.7	1.5	1.6	1.9	1.8	1	-38	-63
SA Water	0.8	0.3	0.8	0.7	0.8	0.7	-13	-13
South East Water	n.a.	n.a.	n.a.	n.a.	0.2	0.3	n.a.	n.a.
Sydney Water	0.6	0.5	0.7	0.9	1.1	1	43	67
Water Corporation	n.a.	n.a.	1.4	1.6	1.6	1.1	-21	n.a.
Yarra Valley Water	0.4	0.3	0.2	0.2	0.2	0.2	0	-50
Average WSAA companies	**1.0**	**0.7**	**0.8**	**0.9**	**0.8**	**0.7**	**-14**	**-31**
Highest Removed	**0.6**	**0.5**	**0.6**	**0.7**	**0.7**	**0.6**	**-7**	**-5**
Lowest Removed	**1.1**	**0.7**	**0.9**	**1.0**	**0.9**	**0.8**	**-13**	**-32**
Median WSAA companies	**0.7**	**0.4**	**0.7**	**0.8**	**0.8**	**0.7**	**0**	**0**

SA Water's results show little change in Odour Complaints per 1,000 Properties over the reporting period. SA Water's performance is in the mid range of the selected companies and is close to the median value.

Proportion of Wastewater Treated to a Tertiary Level

Table 2.11 shows the Proportion of Wastewater Treated to a Tertiary Level.[vi]

Table 2.11
Proportion of Wastewater Treated to a Tertiary Level (per cent)

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	Percentage Point Change 3 years to 2003-04	Percentage Point Change 5 years to 2003-04
ActewAGL	100	100	100	100	100	100	0	0
Brisbane Water	37	37	53	67	76	66.5	14	30
City West Water	0	0	0	0	0	0	0	0
Power & Water	0	2	2	2	2	1.4	-1	1
SA Water	0	0	17	55	82	91	74	91
South East Water	7	13	12	6	8	7.3	-5	0
Sydney Water	11	19	12	17	22	17	5	6
Water Corporation	0	0	0	14	40	40.4	40	40
Yarra Valley Water	100	100	100	100	100	100	0	0
Average WSAA companies	**28.3**	**30.1**	**32.9**	**40.1**	**47.8**	**47.1**	**14**	**19**
Highest Removed	**19.4**	**21.4**	**24.5**	**32.6**	**41.3**	**40.5**	**16**	**21**
Lowest Removed	**31.9**	**33.9**	**37.0**	**45.1**	**53.8**	**53.0**	**16**	**21**
Median WSAA companies	**7.0**	**13.0**	**12.0**	**17.0**	**40.0**	**40.4**	**28**	**33**

There has been a rapid increase in the extent of tertiary treatment for the SA Water metropolitan system. As recently as 1999-2000 there was no tertiary treatment but, by 2003-04, 91 per cent of wastewater received tertiary treatment.

This meant that in 2003-04 SA Water had the third highest Proportion of Wastewater Treated to a Tertiary Level. While there have also been some significant increases in the degree of tertiary treatment interstate, none have been as pronounced as SA Water's increase.

Proportion of Wastewater Recycled

Table 2.12 shows the Proportion of Wastewater Recycled (i.e. the proportion of wastewater collected that is treated and then reused by either the water business itself or another business supplied by the water business).

SA Water's results indicate a 17 percentage point increase in the Proportion of Wastewater Recycled over the five years to 2003-04. In 2003-04 SA Water had the highest reuse proportion among these providers, more than double the average.

[vi] SA Water has stated that the degree to which wastewater is required to be treated is an important cost driver as there are significant cost differences in meeting primary, secondary and tertiary levels of treatment with respect to both operating and capital expenditure. In those parts of the metro system where tertiary treatment is not undertaken, treatment is to the secondary level.

Table 2.12
Proportion of Wastewater Recycled (per cent)

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	Percentage Point Change 3 years to 2003-04	Percentage Point Change 5 years to 2003-04
ActewAGL	5	4.6	4.6	5.5	7.3	8.1	4	3
Brisbane Water	0.4	0.7	2.6	4.0	3.5	3.2	1	3
City West Water	3.2	3.2	2.9	3.8	4.1	na	n.a.	n.a.
Power and Water	2.4	2.2	4.5	3.9	3.5	2.6	-2	0
SA Water	4.4	11.4	15.9	15.1	19.2	21.4	6	17
South East Water	8.8	12.7	12.5	11.3	22.8	18.9	6	10
Sydney Water	2.4	2	1.9	2.2	2.6	3.2	1	1
Water Corporation	3.2	3.2	2.9	3.8	4.1	3.6	1	0
Yarra Valley Water	2.2	1.9	1.7	1.5	3.1	3.2	2	1
Average WSAA companies	**3.6**	**4.7**	**5.5**	**5.7**	**7.8**	**8.0**	**3**	**4**
Highest Removed	**2.9**	**3.7**	**4.2**	**4.5**	**5.9**	**6.1**	**2**	**3**
Lowest Removed	**4.0**	**5.2**	**6.0**	**6.2**	**8.5**	**8.8**	**3**	**5**
Median WSAA companies	**3.2**	**3.2**	**2.9**	**3.9**	**4.1**	**3.4**	**1**	**0**

Proportion of Bio-solids Reused

Table 2.13 shows the Proportion of Bio-solids Reused. Bio-solids are the stabilised organic solids derived from wastewater treatment processes and are a major by-product of wastewater treatment.

Table 2.13
Proportion of Bio-solids Reused (per cent)

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	Percentage Point Change 3 years to 2003-04	Percentage Point Change 5 years to 2003-04
ActewAGL Corporation	100	100	100	100	100	100	0	0
Brisbane Water	0	0	0	0	0	0	0	0
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
SA Water	67	168	154	158	144	168	14	101
South East Water	49	53	17	58	177	122	105	73
Sydney Water	99	97	99	99	100	100	1	1
Water Corporation	91	71	70	86	98	93	23	2
Yarra Valley Water**	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Average WSAA companies	**58.0**	**69.9**	**62.9**	**71.6**	**88.4**	**83.3**	**20**	**25**
Highest Removed	**51.0**	**53.5**	**47.7**	**57.2**	**73.7**	**69.2**	**22**	**18**
Lowest Removed	**67.7**	**81.5**	**73.3**	**83.5**	**103.2**	**97.2**	**24**	**30**
Median WSAA companies	**67.0**	**71.0**	**70.0**	**86.0**	**100.0**	**99.9**	**30**	**33**

SA Water increased the Proportion Of Bio-Solids Reused by 101 percentage points over the period 1998-99 to 2003-04. Between 1999-2000 and 2003-04 SA Water's reuse of bio-solids was greater than 100 per cent because it was drawing down stockpiles accumulated in previous years. The implication would seem to be that, once the existing stockpiles have been disposed, SA Water is on track to achieve 100 per cent disposal rates. This would put it in the top rank among these providers.

System performance

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

Table 2.14 provides the Number of Wastewater Reticulation Main Breaks and Chokes per 1,000 Properties serviced by the company. Reticulation mains take wastewater from the property connection and transport it to the wastewater treatment plant.

Table 2.14
Number of Wastewater Reticulation Main Breaks and Chokes per 1,000 Properties

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	% Change 3 years to 2003-04	% Change 5 years to 2003-04
ActewAGL Corporation	24.2	24.2	25.1	22.8	26.5	23.3	-7	-4
Brisbane Water	5.1	3.8	6.2	5.8	5.3	3.8	-39	-25
City West Water	4.2	3.5	3.6	3.3	4.1	3.7	3	-12
Power & Water	n.a.	n.a.	3	1.6	2	1.5	-50	n.a.
SA Water	8.1	6.5	5.9	5.8	7.1	7	19	-14
South East Water	2	1.7	1.8	1.6	2.3	2.5	39	25
Sydney Water	12	9.2	10.2	9.8	11.9	10.4	2	-13
Water Corporation	3.7	4.1	3.8	3.5	3.8	3.4	-11	-8
Yarra Valley Water	5.9	4.8	4.8	4.2	6	6.3	31	7
Average WSAA companies	**8.2**	**7.2**	**7.2**	**6.5**	**7.7**	**6.9**	**-4**	**-16**
Highest Removed	**5.9**	**4.8**	**4.9**	**4.5**	**5.3**	**4.8**	**-2**	**-18**
Lowest Removed	**9.0**	**8.0**	**7.8**	**7.1**	**8.4**	**7.6**	**-4**	**-16**
Median WSAA companies	**5.5**	**4.5**	**4.8**	**4.2**	**5.3**	**3.8**	**-21**	**-31**

For SA Water, the Number of Wastewater Reticulation Main Breaks and Chokes per 1,000 Properties declined by 14 per cent over the five years to 2003-04. This was similar to the decline of 16 per cent in the average for all reporting companies.

For this indicator, the performance of the SA metropolitan system was worse than the median which is consistent with its "worse than average" performance in terms of the overflows indicator.

Adelaide has reactive clay soils which are prone to movement. This creates problems for the metropolitan sewage system, within which there is widespread use of earthenware pipes. There is some evidence in *WSAAfacts* that the South Australian metropolitan system is very prone to tree root damage.

2.3 Summary - Metropolitan water and wastewater service standards

Table 2.15 below is a summary comparison with other providers of SA Water's metropolitan service performance. In the discussion that follows, emphasis is placed on the median as a preferred measure for comparisons across providers.

Table 2.15

SA Water metropolitan service performance - summary comparisons

	Change over time			Relative to other providers		
Category	**3 years to 03-04**	**5 years to 03-04**	**Trend**	**Average**	**Median**	**Rank[1] 03-04**
Water Supply:						
Customer Service						
Number of Water Quality Complaints per 1,000 Properties	-54%	-50%	Improving	Better	Better	2 (9)
Proportion of Customers Dissatisfied with Water Quality	-6 pts	-6 pts	Improving	Worse	Worse	8 (8)
Water Main Breaks per 100 km of Main	-4%	-24%	Not clear	Better	Better	3 (9)
Average Duration of an Unplanned Water Supply Interruption (hr)	+14%	+39%	Not clear	Worse	Worse	9 (9)
Proportion of Customers with No Water Supply Problems	n.a.	n.a.	n.a.	Better	Similar	4 (8)
Average Connect Time to a Telephone Operator (seconds)	+26	n.a.	Worsening	Similar	Similar	3 (7)
Environmental						
Infrastructure Leakage Index	n.a.	n.a.	n.a.	Better	Better	3 (8)
Wastewater:						
Customer Service						
Number of Property Connection Sewer Breaks & Chokes per 1,000 Properties	+12%	-10%	Not clear	Worse	Worse	7 (7)
Environmental						
Number of Wastewater Overflows per 100 km[2]	+19%	-18%	Not clear	Better	Usually Worse	6 (8)
Average Wastewater Break/Choke Repair Time (hr)	-29%	n.a.	Not clear	Better	Better	2 (8)
Odour Complaints per 1,000 Properties	-13%	-13%	Not clear	Similar	Similar	5 (9)
Proportion of Wastewater Treated to a Tertiary Level	+74 pts	+91 pts	Improving	Better	Better	3 (9)
Proportion of Water Recycled	+6 pts	+17 pts	Improving	Better	Better	1 (8)
Proportion of Bio-solids Reused	+14 pts	+101 pts	Flat	Better	Better	1 (7)
System Performance						
Number of Wastewater Reticulation Main Breaks and Chokes per 1,000 Properties[2]	+19%	-14%	Not clear	Similar	Worse	7 (9)

(1) Ranked from best to worst. Parentheses contain number in comparison group.
(2) "Average" affected by an extreme value in comparison group. Median is better indicator.

Water Supply

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

- Over the five years to 2003-04, SA Water had a declining trend in water quality complaints and a reduction in the proportion of people who were dissatisfied with water quality. Water quality was improving. But while current complaint rates are below the average for Australian metropolitan water suppliers, the dissatisfaction level is significantly higher. SA Water's reliance on the River Murray as a source obviously raises particular challenges in respect of water quality.
- The average duration of water supply interruptions has increased and is high by Australian standards, but the number of breaks per 100 km of main has fallen and is relatively low. South Australians have a lower level of dissatisfaction with supply reliability than their interstate counterparts.
- Connect times to a telephone operator have increased because of increased enquiries as a result of water restrictions, but the average remains below 30 seconds.

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 although customers are still less satisfied with water quality here than interstate.

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 there is less leakage in Adelaide than in other States.

Wastewater

The key customer service attribute for the metropolitan wastewater service, the rate of breaks and chokes in property connections, shows that performance has deteriorated and that SA metropolitan customers have a relatively high rate of breaks and chokes in their property connection. The deterioration may be connected to the impact of drought on tree root intrusions.

Perhaps the more topical dimension of the wastewater service is its environmental impacts. There have been substantial improvements in performance against a number of environmental indicators over recent years. Overflow rates have fallen, the prevalence of tertiary treatment has risen very rapidly to reach a high 91 per cent, there has been a substantial increase in the reuse of treated effluent, and reuse of biosolids now exceeds annual biosolid production.

In the interstate comparison, SA Water performs worse than average in terms of overflows, but is a better than average performer in terms of tertiary treatment, water reuse and biosolid reuse. It is about average for odour complaints.

3. Benchmarking of Metropolitan Service Costs

This section presents information regarding the costs of SA Water's 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, 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, which is 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.

There are choices to be made about which costs to consider in an exercise such as this. The regulatory objective of providing companies with incentives to minimise the overall cost of any particular service level means that the main cost measure should, in theory, be a comprehensive measure which includes operating costs, capital consumption and return on capital components. But 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.[vii] 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 and total cost data is not. Operating costs account for about 40 per cent of total costs for SA metropolitan water supply and about 35 per cent of total metropolitan wastewater costs. *WSAAfacts* presents the operating cost data in 2003-04 dollars so as to abstract from the effects of general price inflation and this inflation adjusted data is used herein.[viii]

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.

Costs are clearly dependent on the size of operations. We standardise for size using the number of properties serviced. There are of course other cost drivers, some of which have in other contexts been used for standardisation, such as water volumes and the length of mains. In this study these are treated and analysed as cost drivers.

[vii] 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.

[viii] WSAAfacts uses the 8-Capitals Consumer Price Index to make the inflation adjustments.

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

3.1 Metropolitan water supply costs

Operating cost per property

Table 3.1 shows the real Operating Cost per Property in real terms for metropolitan water suppliers for the period 1997-98 to 2002-03.

Table 3.1
Operating Cost per Property for Water Supply Services (in 2003-04 dollars)

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	% Change 3 years to 2003-04	% Change 5 years to 2003-04
ActewAGL	236.8	203.3	225.3	260.9	264.4	284.5	26	20
Brisbane Water	201.1	200.3	203.4	215.9	193	191.2	-6	-5
Melbourne Consol	119.04	109.17	106.09	108.27	121.73	116.8	10	-2
Power and Water	378.1	536	390.6	283.6	362.5	385.3	-1	2
SA Water	185.1	178.2	177.5	163.7	179	166	-6	-10
Sydney Water	228.2	288.4	270.8	234.1	244.5	215.8	-20	-5
Water Corporation	167.6	156.4	151.9	152.6	147.8	156.1	3	-7
Average WSAA companies	**216.6**	**238.8**	**217.9**	**202.7**	**216.1**	**216.5**	**-1**	**0**
Highest removed	**189.6**	**189.3**	**189.2**	**189.2**	**191.7**	**188.4**	**0**	**-1**
Lowest removed	**232.8**	**260.4**	**236.6**	**218.5**	**231.9**	**233.1**	**-1**	**0**
Median WSAA companies	**201.1**	**200.3**	**203.4**	**215.9**	**193.0**	**191.2**	**-6**	**-5**

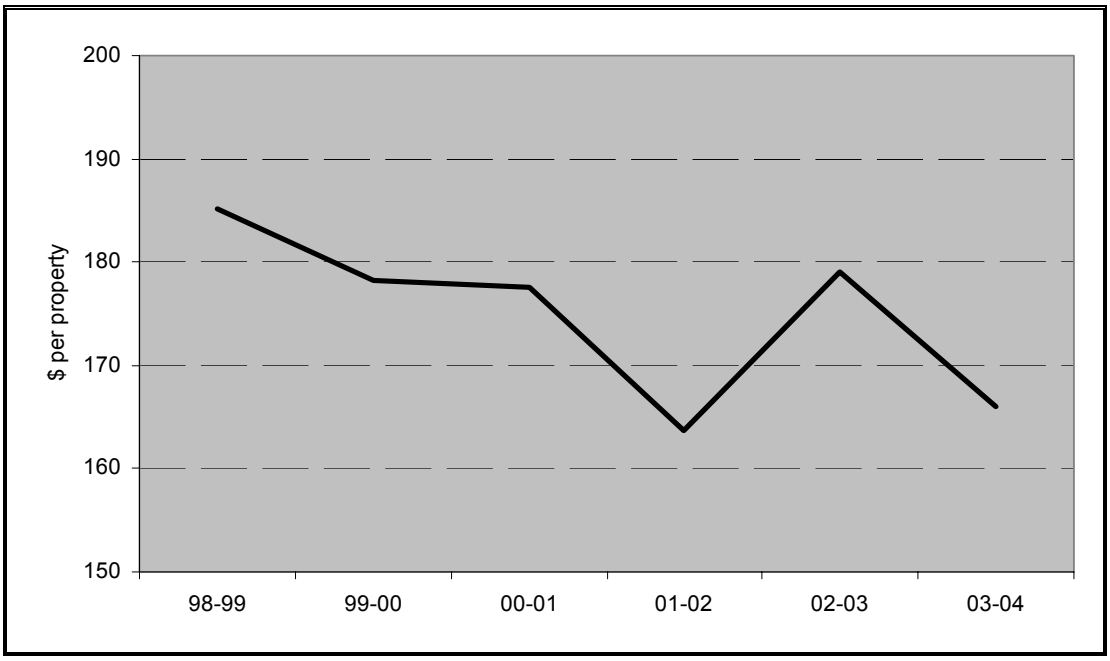
SA Water's Operating Costs per Property for Water Supply Services fell by 10 per cent in real terms over the five years to 2003-04 (Figure 3.1). This compares with no change in the average of all the WSAA companies included in this study. The median declined by 5 per cent.

SA Water advises that about 30 per cent of operating costs are "variable", with the key drivers of the variable element being the electricity cost of pumping water from the Murray River and the chemicals used in the treatment of this water, both of which are highly dependent on climatic conditions. For instance, water volumes pumped in 2002-03 were high as a result of drought, and the consequent spike in operating costs is visible in Figure 3.1.

Supplementary information provided to us by SA Water indicates that there was a gradual decline in the fixed element of operating costs per property between 1998-99 and 2003-04. Variable costs per property are understandably more volatile from year to year, and show no apparent long-term trend. However, we are advised that there has been a significant upward movement in electricity costs and a downward movement in the cost of treatment chemicals.

The operating cost per property of SA Water is lower than the all company average in each of the years and in 2003-04 SA Water ranked 3rd cheapest of 7 for operating cost per property.

Figure 3.1
South Australian Metropolitan Water Supply Operating Cost (in 2003-04 dollars)



There is a range of factors independent of SA Water'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.

Table 3.2 shows how water consumption per property and the length of mains per property vary across the different systems. Water consumption per property in the South Australian metropolitan system is a little below the average and similar to the median. The length of main per property is about 15 per cent above the median, which is consistent with the need to pump water relatively long distances.

SA Water has argued that the costs of transporting water long distances (from the River Murray to Adelaide), and the low quality of that water, impose significant costs on it.

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 3.3.[ix] The data strongly support the idea that there is a cost disadvantage for SA metropolitan water supply arising from very poor availability and poor quality.

Table 3.2
Variations in Water Consumption and Mains Length

	Kl per property[1]	Km of mains per 1,000 properties[1]
ActewAGL	443	21.7
Brisbane Water	419	15.8
City West Water	448	13.5
Power & Water*	841	30.8
SA Water	382	18.3
South East Water	307	14.4
Sydney Water	382	12.7
Water Corporation**	384	19.3
Yarra Valley Water	316	14.3
Average	436	17.9
Median	384	15.8

Note: [1] average for period 1998-99 to 2003-04
Source: Based on data from *WSAAfacts 2004.*

Table 3.3
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

Note: [1] Calculated by the Grants Commission as 0.4*Availability + 0.1*Quality
Source: Commonwealth Grants Commission.

SA Water has argued that soil conditions for the Adelaide metropolitan system are relatively unfavourable. Reactive clay soils are prevalent in Adelaide and are prone to movement which can cause breakages.

In its assessment of depreciation costs across the States, the Grants Commission gives some consideration to the influence of climatic and soil conditions on asset lives. A CSIRO report was commissioned to identify some of the key factors at play, and a summary table from it is reproduced as Table 3.4.[x] The implication to be drawn from this table is that the South Australian climate and environment are relatively kind to fixed assets. However, the CSIRO analysis appears not to deal with the specific issue of soil movement and its consequences, and the conclusions in it may have limited applicability to water services.

[ix] Commonwealth Grants Commission (2004), 'Concessions and other payments – water, sanitation and protection of the environment', *2004 Review Working Papers.* See especially pp 80-81.
[x] CSIRO (2002), *Assessment of information relevant to impact of climate on Assets in the States of Australia.* BCE DOC 02/110.

Table 3.4
Index of Disadvantage in Water Accessibility and Quality by Drainage Division

	In ground	Above ground decay	Embedded corrosion	Atmospheric corrosion	Termites
ActewAGL (Wagga Wagga data)	B	C	C	A	B
Brisbane Water (Brisbane data)	D	D	C	C	C
City West Water (Melbourne data)	B	C	C	C-D	B
Power & Water* (Darwin data)	D	C	C	B	D
SA Water (Adelaide data)	B	B	B	C	B
South East Water (Melbourne data)	B	C	C	C-D	B
Sydney Water (Sydney data)	C	B	C	C	B
Water Corporation (Perth data)	B	C	B	D-E	C
Yarra Valley Water (Melbourne data)	B	C	C	C-D	B

Note: A = lowest disadvantage, E = highest disadvantage.

3.2 Metropolitan wastewater costs

Operating cost per property

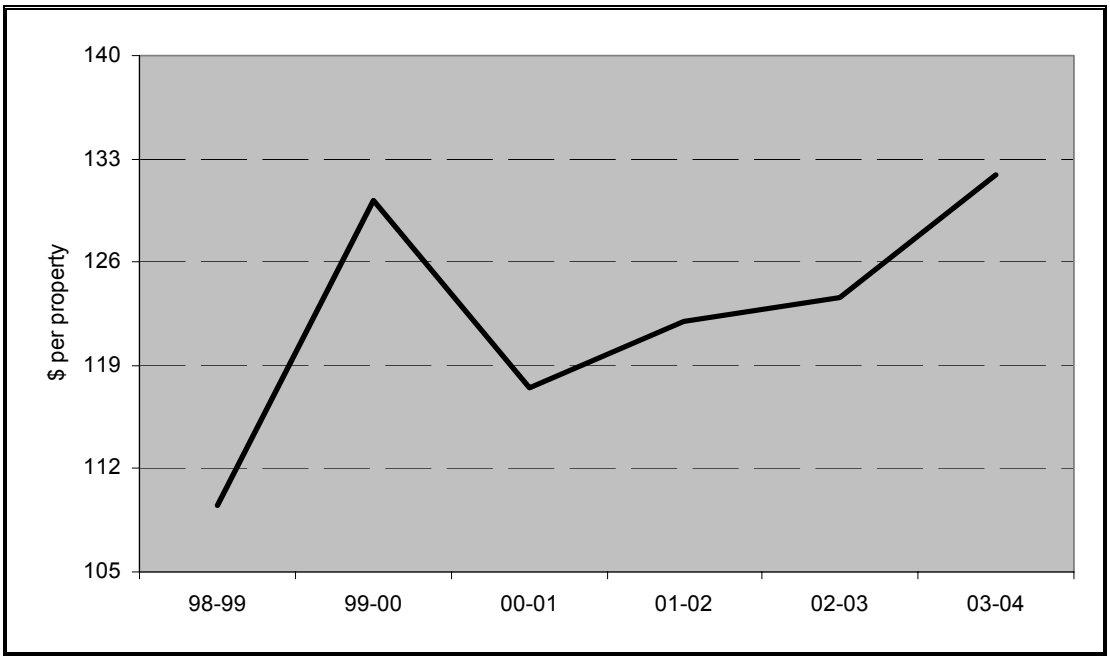
Table 3.5 shows the real Operating Cost per Property in real terms for the provision of wastewater services.

Table 3.5
Operating Cost per Property for Wastewater Services (in 2003-04 dollars)

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	% Change 3 years to 2003-04	% Change 5 years to 2003-04
ActewAGL	291.4	238.7	242.3	256.3	261.5	271.2	12	-7
Brisbane Water	144.8	153.6	136.3	181.8	191.7	165	21	14
Melbourne Consol	130.88	112.8	107.19	105.26	97.63	115.07	7	-12
Power and Water	345.7	549.8	315.9	274.7	339.8	298.9	-5	-14
SA Water	109.5	130.2	117.5	122	123.6	131.9	12	20
Sydney Water	277.7	269	238.3	276.8	266.23	194.1	-19	-30
Water Corporation	153	156.3	144.1	142.8	146.2	161.5	12	6
Average WSAA companies	**207.6**	**230.1**	**185.9**	**194.2**	**203.8**	**191.1**	**3**	**-8**
Highest removed	**184.5**	**176.8**	**164.3**	**180.5**	**181.1**	**173.1**	**5**	**-6**
Lowest removed	**223.9**	**249.6**	**199.1**	**209.1**	**221.5**	**203.8**	**2**	**-9**
Median WSAA companies	**153.0**	**156.3**	**144.1**	**181.8**	**191.7**	**165.0**	**15**	**8**

SA Water's Operating Cost per Property for wastewater services rose 20 per cent in real terms over the five years to 2003-04 (Figure 3.2). Unpublished information from SA Water indicates that the increase is largely attributable to additional costs incurred as a result of its 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.

Figure 3.2
South Australian Metropolitan Wastewater Operating Cost (in 2003-04 dollars)



SA metropolitan wastewater costs per property remains below average. In fact in 2003-04 SA Water had the second lowest operating costs per property for metropolitan wastewater services.

The Adelaide wastewater treatment plants handle a relatively large number of properties on average, due mainly to the large scale of Bolivar Wastewater Treatment Plant. On average, for the period 1998-99 to 2003-04, the Adelaide metropolitan wastewater system had just 11.2 plants per 1 million properties, which was significantly less than the median of 18.2 plants (Table 3.6). It seems likely that scale economies flowing from this contribute to the relatively low operating costs per property of the Adelaide system. This configuration of treatment plants may in turn be partly a product of Adelaide's terrain.

Table 3.6
Treatment Plants per 1 million Properties

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	Average
ActewAGL	16.9	16.7	16.5	15.3	15.0	14.7	15.8
Brisbane Water	27.8	30.6	29.8	28.3	28.1	27.3	28.6
City West	8.3	3.9	3.8	3.7	3.5	3.4	4.4
Power and Water	200.0	225.8	218.8	179.5	179.5	175.0	194.3
SA Water	11.5	11.4	11.3	11.2	11.1	10.9	11.2
South East Water	22.9	22.3	19.7	19.2	18.7	16.3	19.7
Sydney Water	21.1	20.6	19.6	19.2	19.5	19.2	19.8
Water Corporation	22.1	19.1	18.3	17.5	16.9	16.4	18.2
Yarra Valley	18.8	18.6	18.3	16.1	15.8	15.6	17.2
Average WSAA companies	**38.8**	**41.0**	**39.6**	**34.4**	**34.2**	**33.2**	**36.6**
Median WSAA companies	**21.1**	**19.1**	**18.3**	**17.5**	**16.9**	**16.3**	**18.2**

3.3 Summary - Metropolitan water and wastewater business costs

Table 3.9 below is a summary comparison of SA Water's cost performance against the average and median values of the eight other urban water and wastewater service providers used in this study.

Table 3.9

SA Water metropolitan service costs (in 2003-04 dollars) – summary comparisons

	Change over time			Relative to other providers		
Category	**3 years to 03-04**	**5 years to 03-04**	**Trend**	**Average**	**Median**	**2003-04 Rank(1)**
Water Supply						
Operating Cost Per Property	-6%	-10%	Improving	Better	Better	3
Wastewater						
Operating Cost Per Property	+12%	20%	Worsening	Better	Better	2

(1) Ranking is from cheapest to most costly out of 7 providers.

Water supply

As Table 3.9 shows, SA Water's metropolitan water supply costs have declined in real terms over the reporting period. This is suggestive of favourable efficiency trends, especially when one takes into account that there has been an increasing level of customer satisfaction with water quality over the period (see section on metropolitan service standards).

SA Water's metropolitan water supply operating costs are close to the median value. 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 one might expect, these disadvantages appear to some extent to be borne through a lower level of consumer satisfaction with the water product, but they could also be expected to push costs above average. Seen in this light, the fact that the SA metropolitan water supply system has total costs at the median and operating costs below the median is suggestive of good cost performance.

Wastewater

For metropolitan wastewater, SA Water's costs have increased in real terms over the reporting period. It appears that this is largely attributable to an Environment Improvement Program, introduced at the instigation of the Environment Protection Authority, which has diminished the impact of metropolitan wastewater operations on the physical environment.

Metropolitan wastewater costs remain low in comparison with costs in other metropolitan systems. The fact that SA Water operates wastewater plants at above average scale probably significantly contributes to this cost effectiveness.

4. Benchmarking of regional service standards

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:

- *SA Water Annual Efficiency Analysis*, plus additional unpublished data, March 2005;
- *NSW Water Supply and Sewerage Performance Monitoring Report* produced by the NSW Ministry of Energy & Utilities (New South Wales Government, 2003, covering 126 local water utilities in NSW);
- *Victorian Water Review,* 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 2002/03*, produced by the Queensland Ministry of Local Government, Planning, Recreation and Sport (covering 125 Local Governments in Qld); and
- *Water Performance Information on 32 Major Western Australian Towns 1999/2003,* produced by the Economic Regulation Authority of WA.

The range of sources brings into question whether the indicators provided by each State are consistent in terms of in what is being measured. 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 this review. 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 2002-03, which gives some degree of continuity from previous comparison studies, only Victoria has published comprehensive data for 2003-04. Moreover, while Victoria and Western Australia publish some regional averages, New South Wales and Queensland do not, but publish some incomplete data for individual water service providers.

Reference benchmarks were constructed for New South Wales and Queensland with sets of regional providers from each State.

For New South Wales the average Number of Water Main Breaks per 100 km of Main and Operating Costs per Property were calculated for 86 regional water suppliers, and the average Number of Sewer Chokes per 100 km of Main and Operating Costs per Property were calculated for 73 wastewater suppliers. Providers with missing data were generally excluded but in a few cases a missing value was set equal to the preceding or following year's value. The averages were equal-weighted, meaning that small providers have a much larger influence than they would in a size-weighted average.

For the Queensland reference benchmark a group of 30 Queensland providers which had complete data for the period 1998-99 to 2002-03 was chosen. A subset of 30 providers operating in urban regional and rural communities was selected, but Cairns City, Gold Coast City and Maroochy Shire were excluded on the grounds that there were no comparable regional areas in South Australia. Attempts were made to exclude small councils which reported extreme values, but the implementation of this was inevitably judgmental. Again, the averages were equal-weighted.

It became apparent during this exercise that the inclusion or exclusion of even one provider could have a material impact on the related State average. For this reason users are advised against placing significant weight on interstate comparisons of the levels of these benchmarks.

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. Moreover, we are primarily interested in the performance of the regional system as a whole, and undue attention to one component can distort the perspective. For this review SA Water furnished us with more up to date unpublished benchmark data for the SA regional system as a whole.[xi]

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 we have de-emphasised benchmarks for Mt Gambier, Outer Adelaide and Whyalla in this review, and have focused on the South Australian regional system as a whole.

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 through time and as such trend analysis will be more robust than interstate comparisons of levels.

4.1 Regional water supply

The primary performance indicator chosen to assess trends in the quality of country water supplies is the Number of Water Main Breaks per 100 km of Main.

Limited information for some secondary indicators is also presented:

- Average Duration of an Unplanned Water Supply Interruption (hr);
- Average Customer Outage Time (Unplanned) per Property; and
- Customer Interruptions (Unplanned) per 1,000 Properties.

[xi] Readers who wish to refer to the historic data for Mt Gambier, Outer Adelaide and Whyalla can find it in the *Transparency Statement 2005-06.*

Number of Water Main Breaks per 100 km of Main

Table 4.1 shows the Number of Water Main Breaks per 100 km of Main in each regional system.

Table 4.1
Number of Water Main Breaks per 100 km of Main

	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04	% Change 3 years to 2003-04	% Change 5 years to 2003-04
SA Regional	12	11	13	11	13	10	-23	-17
NSW Regional Subset	n.a.	n.a.	19	24	21	n.a.	n.a.	n.a.
Vic Regional Average(1)	n.a.	22	30	26	24	26	-13	n.a.
QLD Regional Subset	16	16	18	19	20	n.a.	n.a.	n.a.
WA Regional	n.a.	16	14	13	10	n.a.	n.a.	n.a.

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

The breakage rate for the South Australian regional system as a whole in 2003-04 was the lowest over the six year period for which data were presented. However, no consistent trend is apparent over the six year period shown.

Interstate data suggests that performance has been deteriorating in Queensland and improving in Western Australia. There is no clear trend in New South Wales or Victoria, and certainly there is no consistent trend to be seen Australia-wide.

As in the case of metropolitan providers, differences across providers will be partly reflective of differences in cost drivers. In addition, differences in statistical construction of the indicators — the averages for New South Wales and Queensland are equal-weighted in contrast to the (de facto) size-weighted structure of the South Australian average — are a potential source of further differences.

Water quality

SA Water has provided unpublished data on the proportion of water samples free from E. coli in the regional water supply system (Table 4.2).

Table 4.2
E coli in the SA regional water supply system

	2001-02 (Per cent)	2002-03 (Per cent)	2003-04 (Per cent)
Per cent of samples free from *E. coli*	99.9	99.9	99.9

Over the period 2001-02 to 2003-04 99.9 per cent of samples have been found free of E. coli. In this respect water quality appears to be stable.

Secondary benchmarks

Table 4.3 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.

Table 4.3
Secondary Benchmarks

Region	Average duration of interruption (hrs)	Average main breaks per 100 km	Average unplanned outage time per customer (mins)	Average unplanned outages per 1,000 customers
Mt Gambier[1]	1.3	9	n.a.	<10
Outer Adelaide[1]	3.7	12	3	<10
Whyalla[1]	3.3	17	11	49
SA Regional[2]	n.a.	12	n.a.	n.a.
NSW State[3]	3.3	13	11	n.a.
Vic Regional[2, 4]	1.4	27	16	179
QLD Regional Subset[3]	n.a.	19	n.a.	n.a.
WA Regional[3]	n.a.	n.a.	n.a.	76

(1) 1999-00 to 2000-01.
(2) 1999-00 to 2003-04.
(3) 1999-00 to 2002-03.
(4) For regional bodies with less than 35,000 customer connections.

The sub-systems of the South Australian regional system displayed the following characteristics:

- mixed in terms of the duration of interruptions;
- at the low end of the range for main breakages;
- relatively short outage durations; and
- low outage numbers.

However, the data is patchy and out of date, and these conclusions would not necessarily be descriptive of system performance today.

4.2 Regional wastewater

The primary performance indicator chosen to assess trends in the quality of regional wastewater services is the Number of Sewer Chokes per 100 km of Main.

Limited information for some secondary indicators is also presented:

- Average duration of interruption (hr);
- Number of sewage overflows per 1,000 properties;
- Average customer outage time (unplanned) per property (hours); and
- Odour complaints.

Number of sewer chokes per 100 km of main

Table 4.4 reports the Number of Sewer Chokes per 100 km of Main for each entity.

Table 4.4
Number of Sewer Chokes per 100 km of Main

	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04	% Change 3 years to 2003-04	% Change 5 years to 2003-04
SA Regional	16	19	21	22	21	22	+5	+38
NSW Regional Subset(1)	n.a.	n.a.	63	58	62	n.a	n.a.	n.a.
Vic Regional(2)	n.a.	n.a.	n.a.	n.a.	n.a	n.a.	n.a.	n.a.
QLD Regional	n.a.	32	28	33	29	n.a	n.a.	n.a.
WA Regional	n.a.	n.a.	n.a.	n.a.	n.a.	n.a	n.a.	n.a.

(1) Chokes and collapses.
(2) For regional bodies with less than 35,000 customer connections.

In 2003-04 the rate Number of Sewer Chokes per 100 km of Main for the South Australian regional system was at the equal highest level in the six years shown. There appears to be a However, there is no consistent trend in the last four years.

New South Wales and Queensland also show year to year variability but no apparent underlying trends.

Secondary indicators

Table 4.5 presents an interstate comparison of States 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 4.5
Secondary Benchmarks

Region	Average duration of interruptions (hrs)	Average chokes per 100 km of main	Average sewage overflows per 1,000 properties	Average unplanned outage time per property (mins)	Average odour complaints per property
Mt Gambier[1]	1.8	9.5	2.5	2.5	n.a.
Outer Adelaide[1]	2.4	8.0	2.7	5.2	0.2
Whyalla[1]	1.7	19.0	1.2	5.1	0.2
SA Regional[2]	n.a.	20.8	n.a.	n.a.	n.a.
NSW State[3]	2.8	35.0	n.a.	2.8	0.7
Vic Regional[2]	1.3	n.a.	8.1	n.a.	n.a.
QLD Regional Subset[3]	n.a.	30.1	n.a.	n.a.	n.a.
WA Regional[3]	n.a.	n.a.	n.a.	n.a.	n.a.

(1) 1999-00 to 2000-01.
(2) 1999-00 to 2003-04.
(3) 1999-00 to 2002-03.
(4) For regional bodies with less than 35,000 customer connections.

The sub-systems of the South Australian regional system displayed the following characteristics:

- mixed in terms of the duration of interruptions;
- at the low end of the range for chokes;

- less overflows than Victorian regional;
- outage durations longer then New South Wales; and
- less odour complaints than New South Wales.

However, the data is patchy and out of date, and these conclusions would not necessarily be descriptive of system performance today.

4.3 Summary – regional water and wastewater service standards

The benchmark data for regional water operations has a somewhat limited scope. Although there is a considerable amount of data produced, much of it is not compiled into whole-of-State averages and there are some inconsistencies in what is presented. This limits the range of feasible comparisons.

Table 4.6 below is a summary comparison between SA Water and other providers for the two primary indicators of regional service performance.

Table 4.6

SA Water regional service performance - summary comparisons

	Change over time			Relative to other providers	
Category	**3 years to 03-04**	**5 years to 03-04**	**Trend**	**Median**	**Rank(1) 02-03**
Water Supply:					
Customer Service					
Water Main Breaks per 100 km of Main	-23%	-17%	Flat	Better	2 (5)
Wastewater:					
Customer Service					
Number of Property Connection Sewer Breaks & Chokes per 1,000 Properties	+5%	+38%	Flat	Better	1 (3)

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

Water supply

The regional water supply system in South Australia shows an essentially flat trend on breaks per 100 km of main. There are other dimensions of the water supply service that matter to customers, but for which we do not have data, such as the quality of the water product and the ease of liaison with SA Water.

The South Australian regional water supply system's breakage rate is relatively low when compared with estimates for the other States. However, those estimates are sensitive to the inclusion or exclusion of particular regional providers.

Wastewater

The regional sewage system in South Australia shows an essentially flat trend on breaks per 100 km of main. There are other dimensions of the wastewater service that are important, but for which we do not have data, such as environmental performance.

The South Australian regional wastewater system's breakage rate is relatively low when compared with estimates for the other States. However, those estimates are sensitive to the inclusion or exclusion of particular regional providers.

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 three specific parts of the SA water regional system, the South Australian, New South Welsh, Victorian and Queensland regional systems.

Table 5.1
Water Operating Costs per Property (in 2003-04 dollars)

	1998-1999	1999-2000	2000-01	2001-02	2002-03	2003-04	% Change 3 years to 2003-04	% Change 5 years to 2003-04
Mt Gambier	117	117	83	72	68	61	-27	-48
Outer Adelaide	181	180	250	222	246	247	-1	36
Whyalla	466	498	466	443	506	463	-1	-1
SA Regional	343	345	365	353	370	331	-9	-3
NSW Regional Subset	n.a.	280	285	298	324	n.a.	n.a.	n.a.
Vic Regional*	258	269	282	288	306	330	n.a.	n.a.
QLD Regional Subset	311	294	281	306	310	n.a.	n.a.	n.a.

Note: * For regional bodies with less than 35,000 customer connections
** In the years were aggregate data has not been provided the NSW Regional average is calculated using a sample of 20 water utilities.

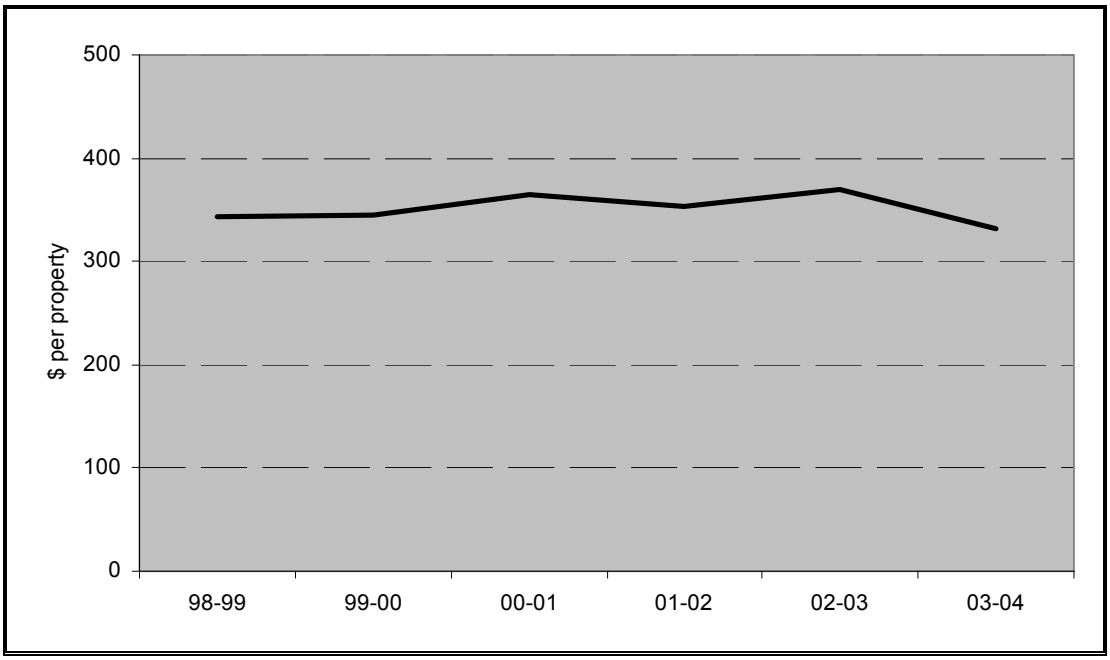
Operating costs are consistently low for Mt Gambier, somewhat higher for Outer Adelaide, and markedly higher for Whyalla. Mt Gambier's costs are in some years a factor of 3 below the various regional and state averages while Whyalla's costs are greater by a average factor of close to 2.

These results illustrate the diversity of costs across sub-systems of the South Australian regional water supply system. They cannot automatically be equated with efficiency variations, because local conditions have a large part to play. In Mount Gambier, for instance, water is sourced easily from the Blue Lake, whereas Whyalla's water must be treated and pumped 350km from the River Murray.

An important implication of this 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. Moreover, the New South Wales and Queensland averages are an equal-weighted composite of regional water suppliers, whereas the South Australian regional average is (de facto) a size-weighted aggregate; this further diminishes the validity of an interstate comparison of levels.

South Australia's operating costs per property for regional water supply fell in real terms in 2003-04 but this followed a rise over the previous three years (Figure 5.1). The fall in South Australian costs in 2003-04 is partly attributable to a fall in volumes in that year associated with the breaking of the drought, and should therefore be regarded as to some extent a seasonal effect. A change in the way indirect costs are allocated between regional water supply and regional wastewater also acted to push down the 2003-04 result.

Figure 5.1
South Australian Regional Water Supply Operating Costs per Property
(in 2003-04 dollars)



These data suggest that real operating costs in the SA regional water supply system have shown a quite restrained performance. In spite of unavoidable electricity price increases there is a flat trend in real operating costs. Moreover, the material presented in Section 4 indicates that service standards are being maintained.

There is a range of factors independent of SA Water'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.

Some information regarding interstate differences in these factors was presented in the discussion of metropolitan water supply performance. In summary, attention was drawn to poor water accessibility and poor source water quality as key sources of additional cost imposts for SA Water.

This report offers some advances to the state of knowledge regarding interstate performance differences. However, there is still much that is not known about differences in performance and underlying cost drivers, and this means that it is not realistic at this stage to draw any

conclusions about the relative efficiency of the South Australian regional water supply system.

5.2 Regional wastewater costs

Table 5.2 outlines the operating cost per property for the provision of wastewater services for three specific parts of the SA Water regional system, the South Australian, New South Welsh, Victorian and Queensland regional systems.

Table 5.2
Wastewater Operating Cost per Property (in 2003-04 dollars)

	1998-1999	1999-2000	2000-01	2001-02	2002-03	2003-04	% Change 3 years to 2003-04	% Change 5 years to 2003-04
Mt Gambier	122	115	77	77	68	66	-14	-46
Outer Adelaide	162	161	154	157	158	191	24	18
Whyalla	38	38	35	38	34	43	23	13
SA Regional	203	213	200	197	201	235	18	16
NSW Regional Subset	n.a.	226	225	231	236	n.a.	n.a.	n.a.
Vic Regional*	n.a.	227	213	224	232	n.a.	n.a.	n.a.
QLD Regional Subset	236	219	245	209	210	n.a.	n.a.	n.a.
WA Regional	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

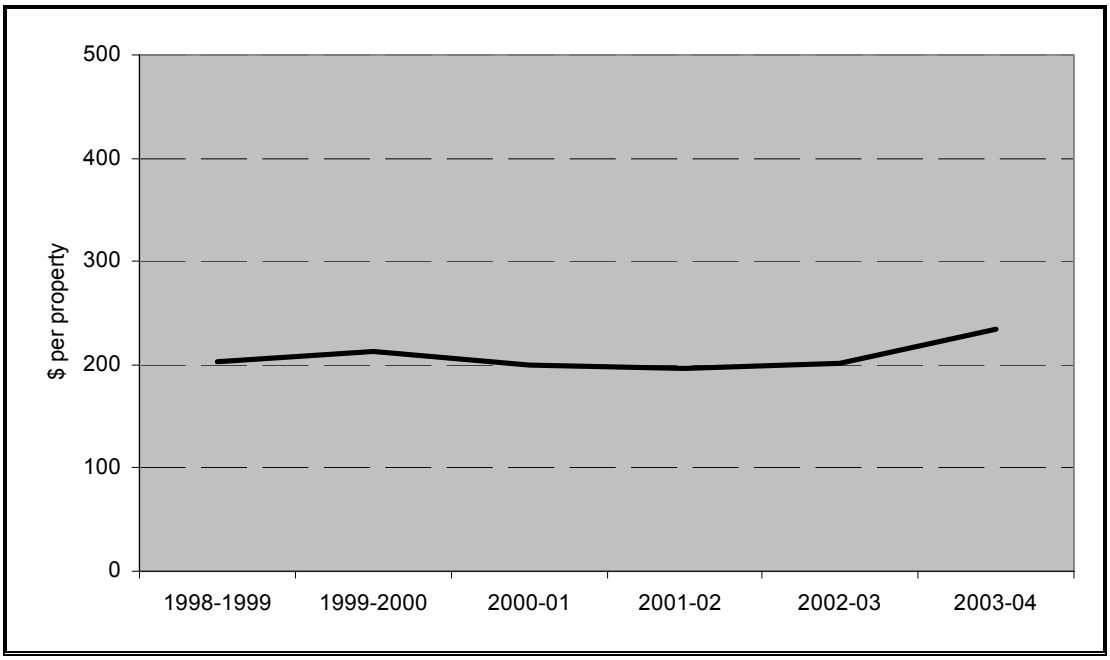
Note: * For regional bodies with less than 35,000 customer connections.

For each of the years between 1998-99 and 2003-04 both Mt Gambier and Whyalla had wastewater operating costs per property considerably lower than the various state and regional averages. There are location-specific factors which affect the cost of wastewater services in different localities. For instance in the Outer Adelaide system factors such as the terrain, low population density, and the need to avoid contamination of drinking water supplies which are collected in the footprint of the sewage system, all tend to impose additional costs.

Operating costs for the South Australian regional wastewater system as a whole have shown a generally flat trend in real terms over recent years although there was an increase in 2003-04 (Figure 5.2). SA Water has advised that the 2003-04 increase is largely attributable to a change in the way indirect costs are allocated between regional water supply and wastewater (which has correspondingly had a downward effect on regional water supply cost estimates).

The data in Table 5.2 do not indicate any strongly apparent trends in regional wastewater costs interstate.

Figure 5.2
South Australian Regional Wastewater Operating Costs per Property
(in 2003-04 dollars)



5.3 Summary - Regional water and wastewater business costs

A comparison of operating costs for the Mt Gambier, Outer Adelaide and Whyalla systems shows that there can be substantial variations across locations in the costs of water supply and wastewater services. The variations which are observed within South Australia are considerably more pronounced than the variations that occur across Australian States.

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

Table 5.3

SA Water regional service costs (in 2003-04 dollars) – summary comparisons

	Change over time		
Category	**3 years to 03-04**	**5 years to 03-04**	**Trend**
Water Supply			
Operating Cost Per Property	-9%	-3%	Flat
Wastewater			
Operating Cost Per Property	+18%	+16%	Flat

Water supply

In 2003-04 there was a decline in real operating costs per property for regional water supply in South Australia. However, the decline appears to be mainly seasonal and no upward or downward trend is apparent. There is no evidence of any trend change in service standards although the indicators are limited in scope. This is suggestive that efficiency is being

maintained but is not conclusive. There are significant extraneous influences on SA Water, over and above any internal operating efficiencies, which can affect cost measures.

Operating costs for regional water supply are generally higher in South Australia than interstate. However, poor water accessibility and quality are factors that would lend to a higher cost structure in South Australia. It is not realistic to draw any conclusions about the relative efficiency of the South Australian regional water supply system versus those interstate.

Wastewater

Operating costs for the South Australian regional wastewater system as a whole have shown a generally flat trend in real terms over recent years although there was an increase in 2003-04. SA Water has advised that the 2003-04 increase is largely attributable to a change in accounting policy (which has correspondingly had a downward effect on regional water supply cost estimates). The essentially flat trend has been achieved in spite of upward pressures from higher treatment standards required in regional areas.

There is insufficient evidence to make strong statements about the efficiency of SA Water's regional operations. However, it seems reasonable to conclude, on the basis of the time series, that costs have been reasonably well contained over time, and that this has been achieved without adverse performance consequences. Interstate comparisons suggest that South Australia's regional water supply is relatively costly and its regional wastewater is relatively cheap, but given the importance of location-specific cost drivers it is not realistic to draw any inferences about relative efficiency levels.