

**TRANSPARENCY STATEMENT  
WATER AND WASTEWATER PRICES IN  
METROPOLITAN AND REGIONAL  
SOUTH AUSTRALIA  
2008-09**



**Government  
of South Australia**

South Australian Government  
February 2008

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**TRANSPARENCY STATEMENT – PART A**  
**WATER AND WASTEWATER PRICES IN**  
**METROPOLITAN AND REGIONAL**  
**SOUTH AUSTRALIA**  
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## OVERVIEW OF THE TRANSPARENCY STATEMENT

This Transparency Statement *on Water and Wastewater Pricing in Metropolitan and Regional South Australia 2008-09* continues to provide transparency in the setting of SA Water potable water and wastewater prices and to document and report on the matters considered by the Government in its water and wastewater pricing decisions.

In the face of the current unprecedented drought and the increasing risk of climate change, the Government announced a comprehensive, multi-faceted approach to guarantee urban water security over the long term.

Over the next five years to 2012-13, substantial investment by SA Water in critical new water supply infrastructure is planned. A new \$1.1b desalination plant is proposed at Port Stanvac, subject to full testing and approvals. This builds on existing *Water Proofing Adelaide* demand management strategies and associated capital expenditure to 2025.

Further initiatives being considered are the \$304m north south water pipeline interconnector across the metropolitan area, \$1.1b for increased water storage in the Mt Lofty Ranges and the purchase of water from a privately-owned and operated desalination plant located in the Upper Spencer Gulf.

These major infrastructure investments eventually need to be funded through increased water charges and, hence, were a major influence on the Government's 2008-09 water pricing decision.

Taking into account economic efficiency, equity, social justice and regional policies, customer impacts, CoAG and NWI water reform and pricing obligations, the Government announced a new water charging structure that will see water charges rise on average in real terms by 12.7% in 2008-09.

The Government also determined that metropolitan wastewater charges will remain constant in real terms in 2008-09. Regional wastewater charges will increase by 0.5% in real terms in 2008-09, to redress over time lower average wastewater bills in country regions in comparison to the metropolitan area.

The Government will refer this 2008-09 Transparency Statement (Part A) to the Essential Services Commission of South Australia to assist it in undertaking an independent inquiry into the Government's pricing processes.

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

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## TABLE OF CONTENTS

<b>Overview of the Transparency Statement</b>	<b>i</b>
<b>Abbreviations</b>	<b>v</b>
<b>1 Water security and sustainable water management initiatives</b>	<b>1</b>
1.1 Introduction .....	1
1.2 Urban water security challenges .....	1
1.3 Water demand management strategy responses .....	3
1.4 Water supply strategy responses .....	4
<b>2 Institutional framework and pricing processes</b>	<b>7</b>
2.1 Introduction .....	7
2.2 Institutional framework – South Australia .....	7
2.3 Institutional framework – national .....	8
2.4 Previous independent assessments .....	9
2.5 Price setting processes 2008-09 .....	9
2.6 Transparency Statement processes 2008-09 .....	10
2.7 Conclusion .....	10
<b>3 Upper revenue bound — avoiding monopoly rents</b>	<b>11</b>
3.1 Introduction .....	11
3.2 Operating, maintenance and administrative costs .....	11
3.3 Return on assets .....	18
3.4 Return of assets - depreciation .....	21
3.5 Externalities .....	23
3.6 Water planning and management costs .....	25
3.7 Tax equivalent regime .....	27
<b>4 Lower revenue bound — maintaining commercial viability</b>	<b>28</b>
4.1 Introduction .....	28
4.2 Operating, maintenance and administrative costs .....	28
4.3 Provision for future asset refurbishment/replacement .....	28
4.4 Dividends .....	29
4.5 Interest cost on debt .....	30
4.6 Externalities .....	30
4.7 Tax equivalent regime .....	30
<b>5 Revenue requirements and revenue estimates</b>	<b>31</b>
5.1 Introduction .....	31
5.2 Full cost recovery obligation .....	31
5.3 Revenue requirements .....	32
5.4 Influences on water revenue estimates .....	33
<b>6 Efficient resource pricing</b>	<b>35</b>
6.1 Introduction .....	35
6.2 Efficient resource pricing .....	35
6.3 Water charges .....	35
6.4 Wastewater charges .....	38
6.5 Trade waste .....	40
6.6 Community service obligations .....	40
6.7 Cross-subsidies .....	42
<b>7 Water and wastewater pricing decisions 2008-09</b>	<b>44</b>

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

7.1	Introduction.....	44
7.2	Issues considered.....	44
7.3	Water charges 2008-09 .....	44
7.4	Wastewater charges 2008-09.....	47
7.5	In principle revenue directions.....	48
7.6	Customer impacts: water .....	48
7.7	Customer impacts: wastewater .....	50
7.8	Regional policies .....	50
7.9	Community service obligations.....	51
7.10	Consultation.....	53
<b>8</b>	<b>Financial details relevant to the 2008-09 pricing decisions</b>	<b>54</b>
8.1	Introduction.....	54
8.2	Revenue bounds and revenue estimates .....	55
8.3	Capital expenditure.....	63
8.4	Government budget impacts .....	64
8.5	Profitability and ongoing financial viability .....	65
	<b>References</b>	<b>66</b>
	<b>Appendices</b>	<b>68</b>
	Appendix 1: Terms of Reference .....	69
	Appendix 2: Water Proofing Adelaide Wastewater Recycling Projects.....	70
	Appendix 3: CoAG Strategic Framework .....	72
	Appendix 4: National Water Initiative Clauses .....	74
	Appendix 5: 2005-06 Annual Efficiency Report.....	77
	Appendix 6: WACC Methodology.....	137



## ABBREVIATIONS

CoAG	Council of Australian Governments
CPI	consumer price index
CSO	community service obligation
DAFF	dissolved air flotation and flocculation
DWLBC	Department of Water, Land and Biodiversity Conservation
EEL	Environmental Enhancement Levy
EIP	environmental improvement program
EPA	Environment Protection Authority
ESC	Essential Services Commission (of Victoria)
ESCOSA	Essential Services Commission of South Australia
FTR	forecast target revenue
GFFCR	go forward full cost recovery
IPART	Independent Pricing and Regulatory Tribunal of New South Wales
kL	kilolitre (1000 litres)
LRB	lower revenue bound
LRMC	long run marginal cost
MYBR	mid year budget review
n.a.	not available
NRM	Natural Resources Management
NCC	National Competition Council
NCP	National Competition Policy
NWC	National Water Commission
NWI	National Water Initiative
OMA	operating, maintenance and administrative
pa	per annum
RAB	Regulatory asset base
RMIP	River Murray Improvement Program
ROA	return on assets
TBA	to be determined
TER	tax equivalent regime
SA Water	South Australian Water Corporation
SGWC	Steering Group on Water Charges
URB	upper revenue bound
WELS	Water Efficiency Labelling Scheme
WACC	weighted average cost of capital
WPA	Water Proofing Adelaide
WWTP	wastewater treatment plant

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# **1 Water security and sustainable water management initiatives**

## **1.1 Introduction**

On 5 December 2007 the Government announced its comprehensive, multi-faceted strategy to guarantee urban water security for the long term.

As part of this announcement the Government announced that it was intending to proceed with a number of water security initiatives, including the construction of a desalination plant at Port Stanvac and that water charges would increase by 12.7% (real) in 2008-09 as a first step towards recovering the substantial increase in costs expected over the coming years.

## **1.2 Urban water security challenges**

Until recently it was reasonable to conclude that, in conjunction with sustainable water management, South Australia and Adelaide had a reliable urban water supply.

South Australian extractions from the River Murray for urban purposes are relatively small. In a normal year, total South Australian urban extractions account for around 1.5% of total extractions from the Murray-Darling Basin, of which Adelaide accounts for around 1%. However, 90% of South Australians depend to some extent on the River Murray for their urban water supply.

Adelaide has been able to draw on two diversified water sources for urban purposes, viz, Adelaide Hills reservoirs supplemented by pumping from the River Murray.

In years of abundant rain, Adelaide has drawn 90% of its water from reservoirs in the Mt Lofty Ranges. In years of average rainfall, 60% of Adelaide's water has come from Mt Lofty Ranges reservoirs with the remainder pumped from the River Murray. In previous drought years Adelaide has sourced up to 90% of its water from the River Murray.

Complementary sustainable water management strategies were established and provided through *Water Proofing Adelaide: A thirst for change 2005-2025*.

The current drought is, however, unprecedented. In September 2007 River Murray inflows across the border were the lowest they have ever been, at less than 30% of the normal flows at that time of the year. The capacity of Murray-Darling Basin storages was extremely low at the time of the Government's pricing decisions in November 2007 requiring significant above average rainfall over a long period for storages to recover.

It is clear that inflows into Mt Lofty Ranges catchments and the Murray-Darling Basin have reduced over the last seven years and are likely to continue to remain at reduced levels for the immediate future.

Climate change represents an increasing risk that the historically low levels of rainfall and inflows into the Murray-Darling Basin may re-occur and indeed the apparent high level of rainfall and inflows enjoyed through the 1960s to the turn of century may not be repeated. The likelihood of increased variability of water in-flows is also a significant challenge for Adelaide. It is clear that the risk to urban potable water

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

supply over the long term has increased significantly. In response the Government developed a comprehensive, multi-faceted approach to address these urban water security challenges, as summarised in Table 1 below.

**Table 1: Summary of significant initiatives**

Challenge	Response
Increases in demand	Demand management strategies, including <i>Water Proofing Adelaide</i> – Rebates (\$8m per annum)  Recycling projects including Glenelg to Parklands \$60m
Reduced in-flows	Adelaide desalination plant – 50GL per annum  Approximate completion: 2012 Estimated cost \$1,100m (in 2007-08 dollars)
Balance security across the distribution system	North-South water pipeline interconnector  Approximate completion: 2014 Estimated cost \$304m (in 2007-08 dollars)
Increased variability	Increase storage Mt Lofty Ranges – double storage to 2 years' supply  Approximate completion: 2017 Estimated cost \$1,110m (in 2007-08 dollars)
Upper Spencer Gulf	Purchase desalinated water from a proposed BHP Billiton owned and operated plant and connection to water pipeline infrastructure  Approximate completion: 2014
Various supporting initiatives	Carbon Strategy: constraining greenhouse gas emissions consistent with Kyoto targets  Country Water Quality Improvement Program: Stage 4  Quarterly Metering  Program Contingency

Various aspects of significant water security initiatives, including aspects of the proposed Adelaide desalination plant, have been independently reviewed by specialist consultants.

Provisions for these water security projects and initiatives have been included in the current 5 year planning period up to 2012-13 when costs are expected to be incurred (eg, proposed Adelaide desalination plant and part costs of the proposed north-south water pipeline interconnector). Some major project costs would occur beyond the current planning period and are relevant to longer term, 10 year, planning purposes (eg, remaining costs of the north-south water pipeline interconnector, increased storage in the Mt Lofty Ranges and purchase of desalinated water from a proposed BHP Billiton plant).

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

However, all new water security projects (and indeed all major capital expenditure projects including *Water Proofing Adelaide* projects) will be subject to full evaluation and testing at the relevant time. Final decisions on major investments will be taken with the best available information. Approvals will be sought in accordance with relevant public sector planning and expenditure guidelines.

By reducing Adelaide's reliance on the River Murray for Adelaide urban water purposes, security of water supply will also improve for regional communities reliant on River Murray water.

The extent of price increases over the current five year planning period to 2012-13 are related, to a great degree, to the proposed 50GL per annum Adelaide desalination plant which is subject to environmental and engineering studies, pilot plant testing, independent verification of costs, review of procurement and funding arrangements and potential Commonwealth Government funding.

SA Water financial modelling will be reviewed by an independent consultant prior to the 2009-10 pricing process.

For planning purposes in the meantime, a longer term in principle revenue direction to 2012-13, the estimated first full financial year of operation of the desalination plant, has been based on annual water and wastewater price increases of similar magnitude as in 2008-09.

As revised information becomes available, appropriate adjustments will be made in subsequent annual water price setting processes.

Details are provided below on the strategy responses and initiatives that address the water security challenges.

### **1.3 Water demand management strategy responses**

The demand for water is driven by a number of factors, including the weather, economic activity, population growth and the price elasticity of demand.

#### **1.3.1 Water restrictions**

To meet the immediate challenge of the current unprecedented drought, the Government tightened water restrictions from 1 October 2007 to domestic consumers connected to the River Murray system.

#### **1.3.2 Water Proofing Adelaide: A thirst for change 2005-2025**

The *Water Proofing Adelaide* strategy is an integrated water resources management framework encompassing a diverse range of demand management initiatives and new water supply infrastructure projects based on wastewater recycling. *Water Proofing Adelaide* seeks to reduce demand by improving efficiency of use and substitution of alternative water sources for potable supplies.

A total of 47GL per annum of potable water savings are targeted when compared to the projected 'business as usual' 2025 water demand. This includes a target of saving more than 11GL per annum of indoor household water by 2025. To facilitate household water savings, the Government established a range of water saving rebates, costing \$25.5m over 3 years, viz:

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

- **Showerheads:** Rebates of up to \$30 are available for installing a low-flow showerhead. There are 300,000 rebates available over three years.
- **Home Water Audits:** From January 1, 2008 householders can have a water assessment of their properties with recommendations to reduce water and energy consumption. As part of the audit, two low-flow showerheads can be installed. Rebates are \$100 for metropolitan Adelaide and \$110 for regional areas.
- **Garden Smart Products:** Rebates of \$50 are available for expenditure of \$150 on eligible water efficient gardening goods.
- **Washing machine rebates:** Householders can receive a rebate of up to \$200 on the purchase of a minimum 4-star washing machine.
- **Dual-flush toilet rebates:** Rebates of up to \$150 are available to replace older inefficient toilets with dual-flush systems.
- **Rain water tanks:** Between \$200 and \$1000 towards the cost of purchasing and plumbing a rainwater tank to retrofit into your home.

These rebates are available from SA Water.

While there needs to be complementary strategies to address water security issues, *Water Proofing Adelaide* remains important and is a key element of the Government's comprehensive, multi-faceted strategy for long term water security.

### 1.4 Water supply strategy responses

#### 1.4.1 *Ongoing water recycling initiatives*

A major element of the *Water Proofing Adelaide* strategy is the substitution of non-potable water for potable water for agricultural and public open space irrigation (e.g. local stormwater schemes and wastewater recycling).

As discussed in SA Water's *2005/06 Annual Efficiency Report*, Adelaide recycled 18% of its water through wastewater treatment plants (WWTPs) in 2005-06. This is significantly higher than the 8% average of the seven entities compared in the *Annual Efficiency Report* and the second highest level in 2005-06.

When the proposed recycled water schemes are completed at Glenelg, Christies Beach, Bolivar and for Water Proofing the South, South Australia will be capable of recycling more than 40% of Adelaide's wastewater.

These projects will also have significant positive environmental impacts by reducing the flow of nutrients into the sea.

Summary details of the Glenelg, Christies Beach, Bolivar and Water Proofing the South recycled water initiatives are provided at Appendix 2.

#### 1.4.2 *Adelaide desalination plant*

A desalination plant is independent of climate and would address the challenge of reduced water in-flows.

A 50GL per annum desalination plant would supply about 25% of Adelaide's fresh water requirements.

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

Port Stanvac has been identified as the preferred site for a new desalination plant, based on the recommendations of the Desalination Working Group.

Building a desalination plant is an extremely complex and expensive undertaking. The first step is to set-up a \$10m desalination pilot plant in 2008 to test filtration and pre-treatment technology. A \$3m baseline environmental study is already under way in Gulf St Vincent. Full environmental and planning approvals will be sought as work continues.

The final cost of the desalination plant will be influenced by the costs of:

- land purchases
- connection to the water distribution system
- storage
- power requirements
- dispersing the plant's waste brine by a pipeline into the Gulf.

There will also be ongoing operational and maintenance costs. Provision has been made for offsetting the greenhouse gas emissions created by plant construction and operation.

Once all necessary works have been identified, estimated costs will be independently verified. A long lead time is unavoidable, given the necessity to undertake environmental and engineering studies, finalise and obtain relevant approvals.

Work is also proceeding on identifying the most suitable procurement and funding model for the desalination plant, including the potential for private sector participation and Commonwealth Government funding.

### **1.4.3      *North south interconnector***

The northern and southern parts of the Adelaide metropolitan water system would be more fully integrated with a north south water pipeline interconnection between the Happy Valley Reservoir, the Hope Valley Reservoir and the Barossa trunk main. This would create operating flexibility and reinforce supply security across the metropolitan area. It would also reduce the need for significant augmentation of the major pipelines from the River Murray to Adelaide.

### **1.4.4      *Expanded storage in the Mt Lofty Ranges***

An increase in Mt Lofty Ranges storage capacity would address the challenge of increased rainfall variability by storing water in normal years for use during dry years. An option is to increase Mt Lofty Ranges water storage capacity from one year to two years' supply. For longer term, 10 year, planning purposes it was assumed that water storage capacity of the Mt Bold Reservoir would be increased from 190GL to 384GL.

This is also a complex and expensive project that will require careful consideration of the environmental impact, geotechnical and engineering matters.

This project is scheduled to be completed by 2017-18, with the majority of costs and construction occurring after 2012-13.

**1.4.5 Upper Spencer Gulf desalinated water**

Investigations are continuing on the potential to purchase water from a proposed BHP Billiton desalination plant located in the Upper Spencer Gulf, and to connect to the water distribution network in the Upper Spencer Gulf, Eyre Peninsula and the west coast.

For planning purposes, it is assumed that initially 17GL increasing to 22GL per annum would be purchased.

**1.4.6 Various supporting initiatives**

***Carbon strategy***

The proposed Adelaide desalination plant, north-south interconnector and expansion of Mt Lofty Ranges water storage capacity include provision for green power and / or offsetting any emissions created by those investments.

Additionally, across the total SA Water business (Statewide water and wastewater), greenhouse gas emissions would be constrained to 108% of 1990 levels consistent with Kyoto targets. This is intended as a first step towards stabilising greenhouse gas emissions and moving on a transition pathway towards 60% reductions by mid century.

***Country water quality: stage 4***

The Country Water Quality Improvement Program identified regional communities to receive filtered water. Stage four of this program includes increasing and bringing forward expenditure to improve water quality by supplying filtered water to:

- Moorook Country Lands from a new water treatment plant
- Cooltong via a pipeline from the Renmark water treatment plant
- various improvements in Port Lincoln, Morgan, Whyalla, Orroroo and Naracoorte.

These works would enhance management of the impact of toxic algal blooms arising from low River Murray flows and improve the quality and appearance of water delivered to customers in the River Murray regions.

***Quarterly metering***

It is proposed that SA Water move from biannual to quarterly meter reading from 1 July 2008. Quarterly meter readings would facilitate a subsequent move to more timely and relevant billings that more closely reflect consumption patterns. SA Water is currently working on changes to the relevant legislation to allow this to occur.

***Program contingency***

Given the substantial breadth of the water security program and that it is in its early development (and, hence, the significant uncertainties involved), it has been considered appropriate to include a program contingency within the funding provisions to reflect this uncertainty.



## **2 Institutional framework and pricing processes**

### **2.1 Introduction**

This *Transparency Statement on Water and Wastewater Pricing in Metropolitan and Regional South Australia 2008-09* continues, for the purposes of public scrutiny, to:

- provide transparency in the setting of potable water and wastewater prices
- document and report on the matters considered by the Government in its water and wastewater pricing decisions
- document the extent to which the Government's water and wastewater pricing processes have complied with the Council of Australian Governments' (CoAG) 1994 agreements
- document the Government's progress in meeting its urban pricing obligations under the National Water Initiative (NWI) and in applying general principles for nationally consistent approaches to pricing to the extent possible, pending finalisation of national principles.

### **2.2 Institutional framework – South Australia**

The Minister for Water Security, who is responsible for SA Water, brings to Cabinet water and wastewater price setting matters. In her capacity as the Minister for the River Murray, the Minister is also responsible for matters relating specifically to the River Murray.

The Minister for Environment and Conservation is responsible for Statewide water resource management policy.

The Treasurer is responsible for budget deliberations and financial performance monitoring related to SA Water's functions. The Treasurer brings to Cabinet matters relating to the budget and relevant intergovernmental agreements (discussed in the next section). The Treasurer, as the Minister responsible for the Essential Services Commission of South Australia (ESCOSA), also refers water and wastewater pricing decisions to ESCOSA to review price setting processes. ESCOSA is an independent statutory authority.

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

SA Water provides water and wastewater services to residential, commercial and industrial customers throughout metropolitan and regional South Australia. Some rural customers receive water through the urban water system and pay urban water charges. Most of its wastewater services are in the Adelaide metropolitan area, but they are also provided to: Stirling-Aldgate-Bridgewater-Heathfield, Gumeracha, Hahndorf, Lobethal, Myponga, the Iron Triangle cities, Murray Bridge, Mannum, Mount Gambier, Naracoorte, Millicent, Port Lincoln, Victor Harbor, Angaston, Mount Burr and Nangwarry.

SA Water operates in accordance with its Charter prepared by the Treasurer and the Minister for Water Security following consultation with SA Water.

SA Water also has developed a Customer Service Charter (available at [www.sawater.com.au/SAWater/AboutUs/CustomerSupport/Service+Charter.htm](http://www.sawater.com.au/SAWater/AboutUs/CustomerSupport/Service+Charter.htm)), which outlines the standards of service that customers might expect from SA Water.

### 2.3 Institutional framework – national

In February 1994, CoAG endorsed the CoAG Strategic Framework for the efficient and sustainable reform of the Australian water and wastewater industry, including pricing principles. The relevant clauses of the CoAG Strategic Framework are at Appendix 3.

In June 2004, the South Australian Government signed the NWI, a 10-year reform agenda to improve the management of Australia's water resources. The NWI builds on the 1994 CoAG Strategic Framework. The NWI clauses relevant to urban potable water and wastewater pricing are at Appendix 4.

The National Water Commission (NWC) was established under the NWI in March 2005. The NWC's responsibilities include reporting to CoAG on the accreditation and biennial assessment of jurisdictions' implementation plans.

The *South Australian NWI Implementation Plan 2005* provides details of the implementation of South Australia's NWI obligations and associated milestones. It was accredited by the NWC in August 2006.

On 22 October 2007, the NWC published its *NWI First Biennial Assessment of Progress in Implementation*. The NWC reported on the work of the Steering Group on Water Charges (SGWC). The SGWC reports to the NRM Ministers' NWI Committee, is chaired by the NWC and consists of representatives of the NWI parties (State Governments and the Australian Government) and economic regulators. (NWC, 2007, p 52) South Australia participates in the inter-jurisdictional SGWC.

The SGWC was progressing implementation of various parts of the best practice pricing element of the NWI, including the development of nationally consistent approaches to pricing. (NWC, 2007a, p 52).

Through this group, two major stocktakes were completed and released in March 2007, viz, *Stocktake of approaches to charging for water storage and delivery in the urban water sector in Australia* and *Stocktake of approaches to cost recovery for water planning and management in Australia*.

This work was the basis for the development of draft principles for nationally consistent approaches to pricing. It had been expected that the draft principles would be provided to the November 2007 NRM Ministers' meeting. (NWC, 2007a, p 52) This timeframe was, however, disrupted due to the Federal election. The NRM Ministers' meeting is now expected to consider the draft principles in early 2008.

A stocktake of approaches to the treatment of externalities was not progressed by the SGWC during 2007. It is unclear whether this work will proceed in 2008.

South Australia also participates in the inter-jurisdictional Roundtable Group to develop the national performance reporting framework. In May 2007 the Roundtable produced two reports: the *National Performance Report 2005-06 Major Urban Water Utilities* and the *National Performance Report 2005-06 Non-Major Urban Water Utilities*.

## 2.4 Previous independent assessments

### 2.4.1 NWC

In its *NWI First Biennial Assessment of Progress in Implementation* the NWC reported its assessment of South Australia's progress with regard to urban water pricing. The main conclusions were:

- South Australia has completed the implementation of the 1994 CoAG Water Reform Framework (NWC, 2007a, p 95)
- all NWI obligations related to urban pricing have been assessed as either 'completed', 'substantially completed' or 'started' (NWC, 2007a, p 96 – p 105)
- implementation of nationally consistent approaches to pricing was
  - dependent on timing for development of principles through the SGWC. Expected to go to NRMMC November 2007. Consistent pricing requirements have been met to date. (NWC, 2007a, p 101.) (Consideration by the NRMMC is now expected in early 2008)

The findings of the *NWI First Biennial Assessment of Progress in Implementation* are also discussed in the relevant sections of this Transparency Statement.

### 2.4.2 ESCOSA

In June 2007, ESCOSA released its independent *Inquiry into the 2007-08 Metropolitan and Regional Water and Wastewater Pricing Process Final Report* (2007-08 Final Report). The issues raised by ESCOSA are discussed in the relevant sections of this Transparency Statement.

## 2.5 Price setting processes 2008-09

In November 2007, the Government, through Cabinet, approved 2008-09 metropolitan and regional water and wastewater charges. For planning purposes, a longer term in principle revenue direction to 2012-13 has been based on water and wastewater price increases of similar magnitude as in 2008-09.

The Minister for Water Security's Cabinet Submission outlined the methodology for setting 2008-09 water and wastewater prices. The methodology was consistent with previous Cabinet approvals, updated for relevant NWI obligations and other matters, particularly:

- the 1994 CoAG Strategic Framework for water reform including the 1994 CoAG pricing principles
- relevant clauses of the NWI
- the matters raised by ESCOSA in its 2007-08 Final Report, completed in June 2007
- the *NWI First Biennial Assessment of Progress in Implementation*
- general principles for nationally consistent approaches to pricing, to the extent possible, pending finalisation of national principles
- water security and sustainable water management initiatives discussed in Chapter 1.

The Government also considered the public benefit and equity issues (e.g. affordability, social justice and regional policies and customer impacts).

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

In accordance with the *Waterworks Act 1932*, water charges to apply to most SA Water customers in 2008-09 were gazetted in the South Australian Government Gazette on 6 December 2007 (p 4711). The commercial water property rate will be gazetted in June 2008.

Wastewater rates to apply to SA Water's wastewater customers in 2008-09 will be gazetted by June 2008, in accordance with the *Sewerage Act 1929*.

### 2.6 Transparency Statement processes 2008-09

The Department of Treasury and Finance prepared this *Transparency Statement Water and Wastewater Prices in Metropolitan and Regional South Australia 2008-09* (2008-09 Transparency Statement) (Part A) on behalf of the Treasurer. The Department of Water, Land and Biodiversity Conservation (DWLBC) and the Department of the Premier and Cabinet were consulted during the preparation of this 2008-09 Transparency Statement (Part A). SA Water was consulted on the factual accuracy and completeness of information contained herein.

In accordance with Section 35 of the *Essential Services Commission Act 2002*, the Treasurer will refer an inquiry to ESCOSA on the 2008-09 metropolitan and regional water and wastewater price setting processes. This 2008-09 Transparency Statement (Part A) will be provided to ESCOSA for its independent inquiry. The Notice of Referral, including the terms of reference, to ESCOSA are provided at Appendix 1.

ESCOSA's 2008-09 Final Report will form Part B of this 2008-09 Transparency Statement.

The 2008-09 Transparency Statement will be published on the Government website <http://www.treasury.sa.gov.au/>.

### 2.7 Conclusion

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

### Statement of Compliance 1

The Government's institutional framework, price setting and independent review of price setting processes are compliant with the 1994 CoAG Strategic Framework, NWI obligations and are consistent with general principles for nationally consistent approaches to pricing to the extent possible, pending finalisation of national principles.

## **3 Upper revenue bound — avoiding monopoly rents**

### **3.1 Introduction**

The upper revenue bound (URB) is defined as the sum of:

- operating, maintenance and administrative (OMA) costs
- return on assets
- return of assets (depreciation)
- externalities
- taxation.

Each component of the URB is discussed below. The pricing principles and guidelines are applied to SA Water's water and wastewater segments and to the metropolitan and regional areas. Estimates of the URB for 2006-07 to 2012-13 are reported in Chapter 8.

### **3.2 Operating, maintenance and administrative costs**

CoAG guidelines require OMA costs to be based on efficient business costs.

In its 2007-08 Final Report, ESCOSA stated that the Transparency Statement should include:

reasonable evidence for the proposition that the costs are efficient (ESCOSA, 2007a, p 25).

The substantial proportion of SA Water's services and supplies subject to competitive tender indicates efficient business costs. Performance reporting for SA Water's service standards and business costs are summarised below. SA Water's *2005-06 Annual Efficiency Report* is at Appendix 5.

#### **3.2.1 Competitive tendering**

SA Water's most significant contract is the United Water International contract to manage Adelaide's water and wastewater systems. This 15-year competitively tendered contract, which commenced on 1 January 1996, has provision for reviews to facilitate major price resets every five years.

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

To meet its contractual responsibilities United Water is tasked with meeting 180 performance standards. These standards relate to water quality, quality of wastewater discharged, response times to network events, restoration of interrupted service and new connections. United Water has achieved 99 per cent compliance with these standards although they are at a higher level than previously set for SA Water prior to the commencement of the contract... Compliance with these standards has resulted in a consistently high level of customer service (Department of the Prime Minister and Cabinet, 2006, p12).

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

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

The link between delivering a level of service at the most efficient business cost is demonstrated by the competitively tendered outsourcing arrangement and by the extent of contracting for future services and supplies.

### **3.2.2      *Performance reporting***

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

In May 2007, the NWC published the 2005-06 National Performance Reports for major and non-major urban water utilities (available at <http://www.nwc.gov.au/>).

The NWC will publish the 2006-07 National Performance Report in early 2008. This report is expected to include, for the first time, a comparative analysis of key drivers and trends of performance of utilities in the Australian water industry.

In its 2007-08 Final Report, ESCOSA noted that:

The free availability of the National Performance report data will be a major step forward in increasing the general public's awareness of the performance, cost and pricing issues facing the Australian water industry (ESCOSA, 2007a, p 23).

The Government continues to work with the NWC and other jurisdictions to satisfy its obligations for performance reporting under the NWI.

#### ***Key cost drivers: water***

The key cost drivers underlying the metropolitan and regional water supply systems are:

- asset, customer service and environmental performance standards (outlined in Table 2 below)
- access to water resources
- water quality
- topography
- climatic conditions
- soil conditions
- age and condition of the system
- population density.

Access to water resources, and the quality of those resources, affects the network of pipes required to transport water and the treatment facilities necessary to achieve the desired quality of water. Limited water resources in South Australia means a high dependence on the River Murray, particularly for country supplies, resulting in an extensive network of pipelines. The quality of raw water in South Australia is also generally poor resulting in the need for significant water treatment infrastructure.

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

Topography also affects operating costs by affecting the ability to utilise gravity to transport water to reticulation systems. South Australian systems are all subject to extensive pumping and associated electricity costs because they cannot always use gravity. Typically, pumping of River Murray water to the metropolitan area increases in dry years.

### ***Key cost drivers: wastewater***

The key cost drivers underlying the level of costs of providing metropolitan and regional wastewater systems are:

- asset, customer service and environmental performance standards (outlined in Table 2 below)
- effluent disposal opportunities
- topography
- soil conditions and groundwater levels
- age and condition of the system
- population density

Topography and effluent disposal opportunities vary considerably from system to system and affect the pumping and treatment costs required. Soil conditions and the age and condition of the system significantly affect maintenance or augmentation costs. For example, most regions of South Australia, including Adelaide, are characterised by reactive clay soils, which are subject to considerable movement depending on weather conditions resulting in a high rate of breaks to mains manufactured from vitrified clay. This type of pipe still represents the majority of wastewater mains in South Australia. Maintenance costs of these mains are accordingly high.

### ***Metropolitan service performance***

SA Water's asset, customer service and environmental performance are summarised in Table 2. The table contrasts SA Water's performance in 2005-06 with the average of the main metropolitan water utilities and provides a ranking.

**Table 2: SA Water metropolitan service performance - 2005-06**

<b>Performance indicator</b>	<b>Average</b>	<b>Rank* 05-06</b>
<b>Asset performance</b>		
Water main breaks (per 100 km)	Better	2 (7)
Sewer main breaks and chokes (per 1000 properties)	Worse**	7 (9)
Infrastructure leakage index	Better	2 (8)
Water losses (litres/connection/day)	Better	2 (7)
<b>Customer Service</b>		
Percent of population where microbiological compliance was achieved	Same	Equal 1 (9)
Water quality complaints (per 1000 properties)	Better	2 (8)
Average connect time to a telephone operator (seconds)	Better	2 (7)
Number of sewage odour complaints (per 1000 properties)	Same	Equal 6 (8)
<b>Environmental performance</b>		
Percent of sewage treated to a tertiary level	Better	Equal 1 (9)
Recycled water (% effluent recycled)	Better	2 (8)
Percent of bio-solids reused	Worse**	6 (7)
Sewer overflows to the environment (per 100 km)	Better***	7 (9)

\*Ranked from best to worst of average of interstate metropolitan service providers. Parentheses contain number in comparison group. The number of entities varies depending on the data supplied.

\*\*The "average" is affected by an extreme value for one entity in the comparison group. When this data is removed SA Water's results are better than the average.

\*\*\*The "average" is affected by an extreme value for one entity in the comparison group. When this data is removed SA Water's results are worse than the average.

Source: SA Water's 2005-06 Annual Efficiency Report

SA Water's performance was better than, or the same as the average for 10 of the 12 performance indicators. The exceptions appear to be the number of sewer main breaks and chokes per 1000 properties and proportion of bio-solids reused. However, for both indicators SA Water's results are better than the average when the extreme value for one service provider is removed from the comparison group.

SA Water's results for sewer overflows to the environment are worse than average when the extreme value for one service provider is removed. Sewer overflows often occur following a choke in the main or other pipe. The majority of chokes in Adelaide are caused by tree root intrusion, which is more prevalent where old earthenware pipes are in use, or in times of drought.



# TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

## **Metropolitan costs**

Table 3 compares SA Water's real operating costs in 2005-06 with the weighted average of eight metropolitan water utilities.

**Table 3: SA Water metropolitan operating costs (in 2005-06 dollars)**

<b>Performance indicator</b>	<b>3 years to 2005-06</b>	<b>5 years to 2005-06</b>	<b>Trend</b>	<b>Compared with weighted average</b>	<b>Rank*</b>
Real operating cost - water (\$/property)	-7.7%	-3.2%	Decreasing	Better	3 (9)
Real operating cost - wastewater (\$/property)	10.4%	21.3%	Increasing	Better	2 (9)

\*Ranking is from cheapest to most costly out of 9 providers.

Source: SA Water's 2005-06 Annual Efficiency Report

Table 3 indicates that SA Water's metropolitan water supply operating costs have decreased in real terms from 2000-01 to 2005-06.

SA Water's metropolitan water supply operating costs are well below the weighted average of the other water utilities. This is despite cost disadvantages such as the need to pump water long distances and extensively treat that water to achieve drinking water standards.

Table 3 also indicates that SA Water's metropolitan wastewater operating costs have increased by approximately 21% in real terms over the five year period to 2005-06. This increase is largely attributed to requirements of the environmental regulator and the actions taken have improved the quality of discharges into the environment. SA Water treated 100% of wastewater to a tertiary level in 2005-06.

SA Water's metropolitan wastewater operating costs per property are also well below the weighted average.

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

### **Regional service performance**

Table 4 compares SA Water's service performance in six South Australian regional centres with interstate regional service providers in 2005-06.

SA Water's performance is better than average in:

- Mount Gambier for each of the five performance measures
- Pt Augusta and Whyalla for four of the measures
- Pt Lincoln and Pt Pirie for three of the measures
- Murray Bridge for two of the five measures.

**Table 4: SA Water regional service performance - 2005-06\***

<b>Performance indicator</b>	<b>Mt Gambier</b>	<b>Murray Bridge</b>	<b>Pt Augusta</b>	<b>Pt Lincoln</b>	<b>Pt Pirie</b>	<b>Whyalla</b>
<b>Asset performance</b>						
Water main breaks (per 100km)	Better (3 of 15)	Worse (10 of 15)	Worse (11 of 15)	Better (4 of 15)	Better (6 of 15)	Better (9 of 15)
Sewer main breaks and chokes (per 1000 properties)	Better (1 of 17)	Better (7 of 17)	Better (6 of 17)	Worse (15 of 17)	Better (10 of 17)	Better (9 of 17)
<b>Customer service</b>						
Water quality complaints (per 1000 properties)	Better (9 of 16)	Better (11 of 16)	Better (1 of 16)	Better (4 of 16)	Better (3 of 16)	Better (6 of 16)
Number of sewage odour complaints (per 1000 properties)	Better (6 of 17)	Worse (12 of 17)	Better (6 of 17)	Better (2 of 17)	Worse (12 of 17)	Better (1 of 17)
<b>Environmental performance</b>						
Sewer overflows to the environment (per 100km)	Better (10 of 17)	Worse (16 of 17)	Better (8 of 17)	Worse (15 of 17)	Worse (14 of 17)	Worse (13 of 17)
<b>Number of 'Better' results from the five measures</b>	<b>5</b>	<b>2</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>4</b>

\* Average – the result is either better or worse than the average of interstate regional service providers. The rank is the result as ranked from best to worst of the number of compared companies that provided data. The changes in the denominator reflect the number of companies that provided data for the measure in the *NPR*.

Source: SA Water's 2005-06 Annual Efficiency Report

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

### **Regional costs**

Table 5 compares SA Water's real operating cost of regional services in 2005-06 with interstate regional service providers.

**Table 5: SA Water regional service costs (in 2005-06 dollars)**

<b>Performance indicator</b>	<b>3 years to 2005-06</b>	<b>5 years to 2005-06</b>	<b>Trend</b>	<b>Rank*</b>
Real operating cost – water (\$/property)	-0.3%	0.8%	Increasing	10 (12)
Real operating cost - wastewater (\$/property)	32.3%	32.7%	Increasing	8 (13)

\*Ranking is from cheapest to most costly.

Source: SA Water's 2005-06 Annual Efficiency Report

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

Operating costs for regional wastewater services have increased over the period. This is attributable to the need to upgrade facilities to meet environmental standards, and the consequent higher treatment standards and an increase in preventative maintenance.

### **3.2.3 Value for money**

SA Water's 2005-06 Annual Efficiency Report indicates that SA Water's customers are generally satisfied with the range and quality of services and value for money provided by SA Water.

### **3.2.4 New operating expenditures**

Over the period to 2012-13, most of the expected real increase in operating expenditure arises from water security initiatives, the most prominent of which is the proposed 50GL per annum Adelaide desalination plant.

With regard to water security, *Water Proofing Adelaide* and other initiatives, best estimates of future operating expenditures have been included in the regulatory model when they are expected to be incurred.

## Statement of Compliance 2

The Government's 2008-09 pricing decisions are compliant with 1994 CoAG pricing principles that OMA costs should be based on efficient business costs.

The Government is compliant with the NWI obligation to report independently, publicly and annually, benchmarking of pricing and service quality for metropolitan and non-metropolitan delivery agencies in National Performance Reports.

### 3.3 Return on assets

The return on assets is calculated by applying a pre-tax real weighted average cost of capital (WACC) to the estimated current cost valuation of the regulatory asset base (RAB), as rolled forward, after the removal of estimated contributed assets value.

#### 3.3.1 WACC

The CoAG guidelines require that the URB includes the opportunity cost of capital based on a WACC.

The Government adopted a 6% pre-tax real WACC as appropriate for SA Water cost recovery in 2007-08. Appendix I of the NWC's Urban Water Charging Stocktake provides a summary of WACC parameters used in other jurisdictions.

In its 2007-08 Final Report, ESCOSA observed that:

Transparency Statement - Part A presents a WACC, including information about its derivation. This has been considered adequate in the past and remains so now. However, Transparency Statement – Part A would be improved were more detailed information presented to explain the derivation of each WACC parameter (ESCOSA, 2007a, p 41).

The Government continued to adopt a pre-tax real WACC of 6% for its 2008-09 pricing decision.

Current WACC input parameters are detailed in Table 6 below. The risk free rate of interest is based on the 20-day average of the yield on 10-year Government Bonds as at 24 October 2007.

Detailed information on the derivation of the WACC is included in Appendix 6.

**Table 6: Values of WACC input parameters\***

<b>Assumptions</b>	<b>Low</b>	<b>High</b>	<b>Average</b>
Market risk premium	6%	6%	6%
Risk free rate of interest (real)	2.54%	2.54%	2.54%
Risk free rate of interest (nominal)	6.17%	6.17%	6.17%
Corporate tax rate	30%	30%	30%
Gamma	0.5	0.5	0.5
Inflation forecast	3.54%	3.54%	3.54%
Debt margin	1.00%	1.2%	1.1%
Cost of debt (pre tax nominal)	7.17%	7.37%	7.27%
Debt to entity value	50%	60%	55%
Equity beta	0.6	1.0	0.8
Cost of equity (post-tax nominal)	9.77%	12.17%	10.97%
<b>WACC Results</b>			
Nominal post tax WACC	6.53%	7.10%	6.86%
Real pre tax WACC	5.59%	6.38%	6.05%

\* Estimated as at 24 October 2007

### **3.3.2 Valuation of assets**

The CoAG guidelines state:

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

Deprival value is measured as the value of economic benefits forgone if an entity is deprived of the asset's service potential.

In its 2007-08 Final Report, ESCOSA noted that the fair value method of asset valuation, based on depreciated replacement cost applied by SA Water, is consistent with deprival value, but requested an explanation of the link between deprival value and fair value for SA Water (ESCOSA, 2007a, p 30).

The Productivity Commission recently stated that an asset's value would be measured at depreciated replacement cost if the asset's service potential would be replaced (Productivity Commission, 2007, p 36). SA Water's infrastructure assets are to be replaced and are maintained for their service potential. Hence, it is appropriate that the deprival value of those assets is measured at depreciated replacement cost.

### **3.3.3 Rolling forward asset values**

SA Water's RAB in respect of the 2008-09 decision is established by rolling forward the asset values as at 30 June 2006. The RAB is rolled forward in nominal terms including new capital expenditure and deducting depreciation and asset disposals.

Existing asset values have been escalated at 3.5% per annum to reflect financial market expectations of inflation. This is consistent with the inflation forecast assumption in the real WACC calculation.

### **3.3.4      *New capital expenditures***

Over the period to 2012-13, most new capital expenditure arises from water security initiatives, the most prominent of which is the proposed 50GL per annum Adelaide desalination plant.

Estimates of future new capital assets are based on current costs, escalated at 6% per annum until they are expected to be incurred, at which time the estimates are included in the regulatory asset base and the regulatory model. The escalation reflects current construction market conditions and is consistent with an independent review by consultants, KPMG. Once proposed new capital assets are included in the regulatory asset base, an estimated return on the asset value is included in the regulatory model, using 6% pre-tax real WACC.

The best estimates currently available of capital expenditures on water security and *Water Proofing Adelaide* initiatives are provided at Table 1, Chapter 1. Appropriate contingency allowances have been made.

For the proposed Adelaide desalination plant, firmer estimates of future operating and capital expenditures will become available upon completion of all environmental and engineering studies and pilot plant testing.

As firmer estimates become available, revisions will be made to the regulatory model and will be considered in subsequent annual price setting processes, as appropriate.

Major capital expenditures on other proposed water security initiatives (viz, remaining costs of the north-south interconnector, expanded storage in the Mt Lofty Ranges and connection to the Upper Spencer Gulf desalination plant) would occur outside the period to 2012-13 and, hence, are not expected to be a major influence on charges to 2012-13.

### **3.3.5      *Contributed assets***

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

In its 2007-08 Final Report ESCOSA concluded that:

The treatment of contributed assets described in Transparency Statement – Part A is inadequate, in so far as no reasonable estimate of pre-1995 contributed assets has been generated, nor is information presented to reasonably explain the position on contributed assets (ESCOSA, 2007a, p 33).

It is generally accepted nationally that contributed assets should be deducted from the RAB if adequate information is available to identify those contributed assets.

As noted in previous Transparency Statements, adequate information is not available to identify contributed assets prior to 1995. The Government has continued to adopt the treatment of contributed assets outlined in previous pricing decisions and removed post corporatisation contributed assets from the RAB.

The post corporatisation estimate of contributed assets is considered to be robust, defensible and consistent with general national principles.

Essentially, the contributed asset issue has been overtaken by general principles for consistent approaches to pricing, pending finalisation of those principles.

### Statement of Compliance 3

The Government's 2008-09 pricing decisions are compliant with the 1994 CoAG pricing principles in its estimate of the WACC, the valuation of assets and transparent treatment of contributed assets (ie, where adequate information is available to identify contributed assets).

These regulatory treatments are also consistent with general principles for nationally consistent approaches to pricing, to the extent possible, pending finalisation of national principles.

### 3.4 Return of assets - depreciation

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

In its 2007-08 Final Report, ESCOSA found that:

Transparency Statement – Part A shows a straight line depreciation methodology to calculate depreciation. This has been considered adequate in the past and remains adequate now.

Transparency Statement – Part A would be improved were information provided on the asset lives adopted for depreciation purposes. (ESCOSA, 2007a, p 34)

In its 2008-09 pricing decision the Government has continued to estimate depreciation in the URB using the straight-line method over the estimated useful lives of the assets.

The useful life estimates of assets adopted for the 2008-09 pricing decision are based on knowledge of the performance of those assets having regard to the specific materials and operating conditions. Given the wide range of assets and asset classes, a wide range of asset lives are applied according to the different classes.

Table 7 illustrates the assets lives adopted for the more common material types / operating conditions for SA Water's largest asset group, viz, water mains:

**Table 7: Water mains: useful lives**

<b>Description of material pipe type</b>	<b>Useful life (years)</b>
Asbestos cement, pre 1965	60
Asbestos cement, post 1965	100
Cast iron	120
Copper	100
Ductile iron concrete lined	100
Galvanised iron	25
High/medium density polyethylene	100
Mild steel concrete lined, above ground pre 1950	80
Mild steel concrete lined, above ground post 1950	150
Mild steel concrete lined, below ground no cathodic protection	110
Mild steel concrete lined, below ground with cathodic protection	150
Polyethylene	100
Prestressed concrete rubber ring joint	50
Poly-vinyl chloride (unplasticised) pre 1988	50
Poly-vinyl chloride (unplasticised) post 1988	80
Poly-vinyl chloride – oriented/ modified	100
Reinforced concrete/RC rubber ring joint	60

Source: SA Water

Table 8 indicates the useful lives used to estimate depreciation for water security assets.

**Table 8: Water security assets: useful lives**

<b>Asset</b>	<b>Useful life (years)</b>
Civil - pipelines / intake / outfall	100
Dam construction	100
ETSA supply	100
Contingency	80
Pipelines / pumps	80
Major valves (mechanical only)	50
Civil – storage / desalination plant / pumping stations	50
Mini hydro plants	40
Mechanical and electrical	25
Water licences to fill dam	0

Source: SA Water



## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

Depreciation estimates are consistent with the escalation of the RAB at 3.5% per annum. Asset depreciation is included in the regulatory model when new assets are expected to be commissioned. Work-in-progress is not depreciated.

### Statement of Compliance 4

The Government's 2008-09 pricing decisions are compliant with the 1994 CoAG pricing principles by including estimated straight-line depreciation in the upper revenue bound.

### 3.5 Externalities

The CoAG guidelines require that the URB and lower revenue bound include provision for externalities which are defined as the *environmental and natural resource management costs attributable to and incurred by the water business*.

The NWI requires:

Full cost recovery for water services to ensure business viability and avoid monopoly rents, including recovery of environmental externalities, where feasible and practical. (Clause 65(ii)).

In its 2007-08 Final Report, ESCOSA commented on the continued adoption of the CoAG definition of externalities and proposed the identification of relevant externalities.

A stocktake of the national regulatory treatment of externalities has not been undertaken, nor has there been any work on the development of a national framework for the treatment of externalities.

There remains a lack of clarity nationally about the difference between externalities and charging for water planning and management activities, as noted in the *Stocktake of approaches to cost recovery for water planning and management in Australia*.

The key difference between the two is that water resource management and planning activities support an understanding of externalities and develop frameworks and infrastructure to address them (eg. water plans to balance consumptive use against environmental needs, trading frameworks to improve resource allocation). Charging for externalities encompasses activities that seek to internalise the cost (or benefit) of the externality to the party causing it (eg. by a specific charge or tax, or a tradeable credit (NWC, 2007b, p 8).

The NWC has further reported:

In some states, cost recovery for water planning and management is a proxy for externality pricing – noting that it is set on a very different basis to externality pricing. (NWC, 2007b, p 56)

While there is an overlap in some states between this [water planning and management] cost recovery and charges for externalities, more work needs to

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

be done nationally to tease out these charges and further explore the scope for market-based responses to externalities of water use. (NWC, 2007b, p 58)

Until these matters are addressed at a national level, the Government continues to include externality costs that are 'both attributable to and incurred by' SA Water in the URB and lower revenue bound in compliance with CoAG guidelines and previous practice. Using this definition, externality costs incurred by SA Water include licence fees and levies paid to Natural Resources Management (NRM) Boards (noting that these costs are included in OMA costs in the regulatory model).

Additional information on the derivation of these costs is provided below, as previously requested by the NWC (NWC, 2006, p 6.42).

### **3.5.1      *Environment Protection Agency licence fee***

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

SA Water paid a licence fee of \$1.58m to the EPA in 2006-07. The licence fee is applied as fixed charges but a move to load-based fees is expected in the short to medium term.

### **3.5.2      *Natural Resources Management Board levies***

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

SA Water's payments to NRM Boards in 2007-08 are outlined in Table 9. SA Water contributes to three of the eight NRM Boards.

**Table 9: SA Water's contributions to NRM Boards in 2007-08**

<b>NRM Boards</b>	<b>Payment (\$M)</b>
SA Murray-Darling Basin	\$2.03
Eyre Peninsula	\$0.36
South East	\$0.10
<b>TOTAL:</b>	<b>\$2.49</b>

## Statement of Compliance 5

The Government's 2008-09 water and wastewater pricing decisions are compliant with 1994 CoAG pricing principles by including in the URB externalities that are both attributable to and incurred by SA Water.

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

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

### 3.6 Water planning and management costs

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

The NWC, in its *NWI First Biennial Assessment of Progress in Implementation*, noted that implementation of this specific NWI obligation for South Australian and for all other jurisdictions was dependent on timing of the development of principles through the SGWC (NWC, 2007a, p 102).

As discussed in section 3.5, there remains a lack of clarity nationally about the difference between externalities and charging for water planning and management activities.

Nevertheless, the *Stocktake of approaches to cost recovery for water planning and management in Australia* outlined the development of a national classification of water planning and management activities and, hence, costs. Once nationally consistent principles for the recovery of water planning and management costs are available, consideration will be given to the adoption of these principles.

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

This work is expected to recognise the significant interconnections and overlap between externalities and water planning and management costs and will take into account the existing contributions to water planning and management costs already met by SA Water customers through the Save the River Murray Levy.

#### 3.6.1 Save the River Murray Levy

Information is provided on the Save the River Murray Levy because it is a significant source of cost recovery from SA Water's water consumers for water planning and management costs in South Australia.

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

However, although SA Water collects the Levy from its customers, SA Water does not retain the funds and is not attributed with any of the associated costs. Therefore, the regulatory model does not include any of the Levy revenue or the associated water planning and management costs.

In 2006-07 \$21.1m was transferred to the Save the River Murray Fund (the Fund) of which \$21.0m was raised in 2006-07 from SA Water customers. The Fund was established under the *Waterworks Act 1932* on 24 July 2003. The Fund is held by the Minister for the River Murray and administered by DWLBC on behalf of the Minister.

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

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

Table 10 provides information on the receipts and payments from the Fund.

**Table 10: Save the River Murray Fund - receipts and payments**

	<b>2003-04</b>	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>	<b>Total</b>
	<b>(\$M)</b>	<b>(\$M)</b>	<b>(\$M)</b>	<b>(\$M)</b>	<b>(\$M)</b>
Receipts	12.8	17.6*	21.8*	21.1	73.3
Payments	8.1	10.7	26.2	15.8	60.8
Balance	4.7	6.9	(4.4)	5.3	12.5

Source: *Save the River Murray Annual Report 2006-07*

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

In 2006-07, payments were made to a number of projects and activities from the Fund, including:

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

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

- Improved Information Management
- Water Acquisition for Environmental Flows
- Irrigation Research, Technology Diffusion and Education
- Water Quality Improvement.

### Statement of Compliance 6

The Government is progressing its NWI obligation with respect to water planning and resource management costs in accordance with the accredited South Australian *NWI Implementation Plan*, and taking into account general principles for nationally consistent approaches to pricing, to the extent possible, pending finalisation of national principles.

It is noted that SA Water customers already meet a range of water planning and management charges through the separately charged Save the River Murray Levy.

### 3.7 Tax equivalent regime

The Competition Policy Agreement (Clause 3) of 11 April 1995 requires that:

Parties will impose on the Government business enterprises...full Commonwealth, State and Territory taxes or tax equivalent systems.

SA Water is liable for the full range of rates and taxes or their equivalents as if it were not a State owned business. This includes corporate tax and a range of land tax and council rates.

It is unnecessary to include a separate taxation amount in the URB, as the return on assets, discussed above, is estimated using a pre-tax WACC.

### Statement of Compliance 7

The Government's 2008-09 pricing decisions are compliant with the 1994 CoAG pricing principles by using a pre-tax real rate of return on assets.

## **4 Lower revenue bound — maintaining commercial viability**

### **4.1 Introduction**

The lower revenue bound (LRB) is defined as the sum of:

- OMA costs
- provision for future asset refurbishment / replacement
- dividends
- interest cost on debt
- externalities
- taxation or tax equivalent regime (TER) payments.

Each component of the LRB is discussed below. Estimates of the LRB for 2006-07 to 2012-13 are reported in Chapter 8.

### **4.2 Operating, maintenance and administrative costs**

OMA costs are discussed in Section 3.2.

### **4.3 Provision for future asset refurbishment/replacement**

The CoAG guidelines state:

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

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

In its 2007-08 Final Report, ESCOSA sought information to explain the derivation of the annuity estimate (ESCOSA, 2007a, p 36). This information was initially provided in the 2005-06 Transparency Statement.

In 2008-09, the Government has continued to include an annuity estimate of the cost to SA Water of future asset refurbishment and replacement in the LRB. The annuity estimate is based on the approach established in 2005-06 and was up-dated for the 2007-08 pricing decision. It is derived from SA Water's asset management plans to produce a 25 year view of its asset replacement / refurbishment requirements, established on the basis of a model called NESSIE. The model takes into account issues such as:

- SA Water's 5 year asset management plan
- the requirement for continuity of the service capability of the assets
- adjustments for the actual scale of replacement costs
- the effect of current replacement practices on asset lives.

SA Water reviewed the base case using the strategic management modelling approach. This approach assumes that the asset is replaced when the increased

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

repair and running (wear out) costs over time equal the annualised cost of replacement, after which the cycle repeats itself. The additional repair and wear out costs are based on an analysis of cost drivers relevant to the specific asset group.

These results are reviewed to establish an optimal mix of capital and maintenance costs for SA Water to maintain appropriate service capacity and standards. This information is then incorporated into the NESSIE model to establish a revised asset management plan.

The annuity estimate is derived by calculating the present value of annual cash flows, based on the NESSIE model predictions. The present value is then converted to an equivalent annual annuity over the planning horizon of 25 years. The discount rate employed is based on WACC of 6% real.

### 4.4 Dividends

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

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

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

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

In its 2007-08 Final Report, ESCOSA sought information to demonstrate that the dividend amount is suitable for the LRB case (ESCOSA, 2007a, p 36).

The LRB is based on achieving medium term financial viability in cash flow terms and, therefore, does not preclude profit generation and hence scope for payment of dividends and TERs. It should not be assumed that the LRB only measures a zero annual profit position.

Estimates of the contributions to dividends by the water and wastewater businesses and metropolitan and country segments have been included in the LRB.

The initial dividend estimates were based on the dividend policy adopted in 2005-06 at 95% of estimated after tax profit.

The Government budget forward estimates will not receive any extra benefit from the additional revenue collected from the increase in water charges, after the cost of increased water concessions.

An adjustment has been made to SA Water's forecast dividend payments. Any net increase in SA Water's forecast contribution to the Government in each of the forward estimates period arising from an assumed 12.7% real increase for each of five years, after taking into account the cost of increased water concessions, has been neutralised by reducing SA Water's dividend payment for retention by SA Water – refer Table 23.

In the long term SA Water's profitability will reflect the regulatory WACC return on assets in excess of the rate of interest on borrowings.

#### **4.5 Interest cost on debt**

SA Water's interest expense is included in the LRB.

#### **4.6 Externalities**

Externalities costs attributable to and incurred by SA Water are included in the LRB. These externality costs are discussed in Section 3.5.

#### **4.7 Tax equivalent regime**

The CoAG guidelines require that taxes or TER payments should be included in the LRB. SA Water's TER payment is reported separately in the LRB.

ESCOSA's 2006-07 Final Report considered that this was appropriate.

In its 2007-08 Final Report, ESCOSA sought information to demonstrate that the tax amount is suitable for the LRB case (ESCOSA, 2007a, p 44).

As discussed above with respect to dividends (section 4.4), the LRB is based on achieving medium term financial viability and does not preclude profit generation, dividends or TER payments.

Estimates of the contributions to TER payments by the water and wastewater businesses and metropolitan and country segments have been included in the LRB.

The TER estimates were based on 30% of operating profit, adjusted in accordance with the liability method of tax effect accounting.

#### **Statement of Compliance 8**

The Government's 2008-09 pricing decisions are compliant with the 1994 CoAG pricing principles by including in the lower revenue bound OMA costs, provision for future asset refurbishment/replacement, dividends, interest cost on debt, externalities and TERs.



## 5 Revenue requirements and revenue estimates

### 5.1 Introduction

This section discusses the requirement for SA Water revenues to achieve full cost recovery and various influences on water revenue estimates.

### 5.2 Full cost recovery obligation

#### 5.2.1 *Water reform obligations*

The 1994 CoAG Strategic Framework requires water businesses to recover in revenues no more than the URB and at least the LRB.

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

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

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

#### 5.2.2 *National approach to full cost recovery*

Other jurisdictions have notionally achieved URB revenues (and prices) because regulators have adopted the 'line in the sand' approach to determining the regulatory asset value. Under the 'line in the sand' approach, regulatory asset values are reset to achieve a predetermined revenue target.

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

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

Thus, the 'line in the sand' approach 'locks in', on a go-forward basis, *existing* revenues and *existing* rates of return on *existing* (i.e. legacy) assets as at a legacy date.

However, all *new and replacement* capital investments (less contributed assets) from the same legacy date are required to achieve a full WACC return on the replacement (acquisition) value of those investments, on a go-forward basis.

### **5.2.3 South Australia: Go-forward full cost recovery**

South Australia accepts the necessity for consistent approaches to pricing by setting revenues to align with principles for the recovery of capital expenditure adopted in other jurisdictions. Such alignment can be achieved even though SA Water's RAB is based on fair value (depreciated replacement cost).

Consistent with the national approach, the only amendment to the 1994 CoAG Strategic Framework is with regard to the return on assets / recovery of capital expenditure based on a South Australian legacy date of 30 June 2006. Other aspects of cost recovery continue to be accounted for in accordance with the CoAG Framework (viz, OMA costs and return of assets (depreciation)).

Thus, full cost recovery on a 'go-forward' basis is defined as the sum of:

- OMA costs<sup>1</sup>
- return of assets (depreciation)
- return on assets based on a South Australian legacy date of 30 June 2006 consisting of:
  - existing returns<sup>2</sup> on all pre 30 June 2006 existing legacy assets on an on-going basis
  - the full WACC of 6% pre-tax real on all post 30 June 2006 new and replacement assets.

This cost recovery position is referred to herein as "Go Forward Full Cost Recovery" (GFFCR).

## **5.3 Revenue requirements**

The URB continues to identify the *maximum* revenue bound as if *all* assets were to earn the full WACC of 6% pre-tax real on their depreciated replacement cost.

Where revenues are set to match GFFCR, then, as existing assets are replaced, revenues will gradually adjust over a very long transition period, until the WACC is earned on the depreciated replacement cost of all assets.

### **5.3.1 Water: New revenue amount (based on GFFCR)**

GFFCR identifies the revenue amount (including Community Service Obligations) that is required to achieve full cost recovery on a go-forward basis (consistent with national approaches). In its 2008-09 pricing decision, the Government approved the adoption of a revenue amount (based on GFFCR) for the water business segment.

Thus, the new boundaries for the setting of water revenues are to recover no more than the URB and at least the revenue amount (based on GFFCR). The LRB is largely superseded by the new GFFCR revenue amount, although LRB will continue to be reported in accordance with the 1994 CoAG Strategic Framework.

Estimates of the future URB and GFFCR positions are subject to change, particularly as firmer estimates become available of future operating and capital expenditures for

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<sup>1</sup> including externalities 'attributable to and incurred by' SA Water, as per the CoAG definition

<sup>2</sup> Specifically, the return earned should be no less than the return being achieved at the legacy date, and, if the return being earned before the legacy date is above the current WACC return, no more than the return being achieved at the legacy date.

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

the Adelaide desalination plant, upon completion of all environmental and engineering studies, pilot plant testing, independent verification of costs, and upon resolution of procurement and funding arrangements.

There is also a possibility of Commonwealth Government grants towards the Adelaide desalination plant and various *Water Proofing Adelaide* projects.

Accordingly, appropriate adjustments would be made in each annual price setting process to estimated revenues (and charges to consumers), following any changes to the URB and the GFFCR position.

### **5.3.2 Wastewater: New revenue amount (based on GFFCR)**

As reported in 2007-08, with the adoption of a 6% pre-tax real WACC on regulatory assets, wastewater revenue is currently greater than its URB based on depreciated replacement cost.

However, the gap between the wastewater URB and estimated revenue has narrowed since 2007-08 due to asset escalation, some asset reallocations and a real decrease in wastewater charges in 2007-08.

Wastewater revenues are to recover no more than the GFFCR amount, while transitioning to the URB.

Estimates of the future URB and GFFCR position are subject to change, particularly as, in the medium term, there may be cost pressures if environmental standards are increased requiring further reduced outflows of treated wastewater to the Gulf.

Similar to water revenues, appropriate adjustments would be made in each annual price setting process to estimated revenues (and charges to consumers), following any changes to the URB and the GFFCR position.

### **5.3.3 Regional areas**

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

The regional business segment, through the Government's Statewide uniform charging policy and the application of its Community Service Obligation policy, will achieve the URB for the regional water and wastewater business segments.

## **5.4 Influences on water revenue estimates**

Water revenue outcomes are determined by the complex interaction of water prices and water consumption (viz, price elasticity of demand) and a range of other factors including the weather, economic activity, population growth. Demand management initiatives also aim to constrain increases in water consumption in the short and longer terms.

Future revenue estimates were based on an assumption of normal long term trends in water consumption. Impacts of current short term water restrictions arising from the drought are not included in revenue estimates.

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

Long term projections of water consumption were undertaken for the purposes of the 20 year *Water Proofing Adelaide* strategy. Downward adjustments to long term estimated water consumption have taken account of the following:

- permanent water conservation measures in place since 1 October 2003
- recent enhancements to the Government's water rebate schemes
- continual reductions in per capita water consumption arising from *Water Proofing Adelaide* initiatives.

Hence, SA Water's actual water revenue outcomes may diverge from revenue estimates for a number of reasons, many of which are outside the control of SA Water. Appropriate adjustments to water revenue estimates (and charges) would be made in each annual price setting process.

### Statement of Compliance 9

The Government's 2008-09 pricing decisions are compliant with the 1994 CoAG pricing principles. The regulatory treatments are also consistent with general principles for nationally consistent approaches to pricing, particularly by setting revenues to align with principles for the recovery of capital expenditure adopted in other jurisdictions.

## 6 Efficient resource pricing

### 6.1 Introduction

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

### 6.2 Efficient resource pricing

The CoAG Strategic Framework requires:

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

In addition the NWI requires:

Consistency in pricing policies across sectors and jurisdictions where entitlements are able to be traded (clause 65).

The development of principles for consistent approaches to water pricing are currently being progressed through the SGWC.

### 6.3 Water charges

Urban water service providers are required to adopt charging arrangements for water services:

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

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

#### 6.3.1 *Usage Charge: Consumption Based Pricing*

Efficient resource pricing principles under the CoAG guidelines require that:

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).

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

LRMC is a forward looking concept and incorporates:

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

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

LRMC is estimated, rather than being observed in the market place. It is difficult to determine and sensitive to the judgement and assumptions underlying the estimate. ESCOSA expressed similar comments in its recent *2007 Review of Retail Electricity Price Path Final Inquiry Report and Price Determination* (ESCOSA, 2007b, p A-46).

In its 2006-07 Final Report on water pricing, ESCOSA found:

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

Nevertheless, in its 2007-08 Final Report, ESCOSA noted that the first tier usage charge of \$0.50 per kL was likely to be significantly below LRMC and therefore a significant departure from efficient resource pricing principles. ESCOSA also noted that SA Water's first tier volumetric charge was substantially lower than other jurisdictions (ESCOSA, 2007a, p 48 and Table 5). Nor was ESCOSA convinced that facilitation of affordability was a sufficient reason for the low first tier usage charge.

A report on consumer protection in urban water reform by the OECD noted that concern about the affordability of water services has led to governments adopting a range of policy measures. The OECD identified several principles for the design of social assistance programs to ensure adequate access to water services, including:

- Social protection measures for water consumption should ensure an *equal* access to water for all households to meet their basic physiological and hygienic needs, irrespective of income level.
- Social protection systems should be *targeted*; i.e. social support should be provided only to those who really need it.
- Social protection systems should be *effective*; i.e. the amount of provided support should be sufficient to ensure consumption by the poor.
- Social protection systems should be *realistic* i.e. financially sustainable, based on actual budget capacities to provide such support.
- Social protection systems should be *easy and cost effective to administer* as well as transparent and accountable; the state should bear the ultimate responsibility for all social protection measures.
- Social protection systems should provide incentives for *water saving* by consumers.
- Social protection systems should relieve social tension but prevent *side effects* such as market distortion (OECD, 2003, p 15).

The OECD report also noted that, in addition or as an alternative to income subsidies, OECD countries often use tariff based measures including:

lifeline and block tariffs which give households access to basic water services at little or (occasionally) no cost, and price incentives to restrict higher levels of consumption (OECD, 2003, p 19).

The current SA Water inclining block tariff is similar to a *lifeline and block tariff* and has evolved from the earlier system of free water allowances.

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

The unfolding severity of the current drought and the Government's new water security initiatives have caused SA Water to significantly revise its previous estimates of LRMC. Beyond the water security initiatives already announced, additional water supplies for South Australia are more likely to be sourced by an expansion of the proposed Adelaide desalination plant (e.g. from 50GL per annum to 100GL per annum), rather than by expanded water trading in the Murray-Darling Basin. This would lead to an estimated LRMC of around \$1.90 per kL.

In its 2008-09 pricing decision with respect to water usage charges, the Government considered (amongst other things) affordability of water as an essential service and the revised LRMC estimates. As a result of these considerations, the Government modified its tariff structure so as to strengthen the further application of consumption based pricing principles.

### **6.3.2      *Service Availability (Supply) Charge***

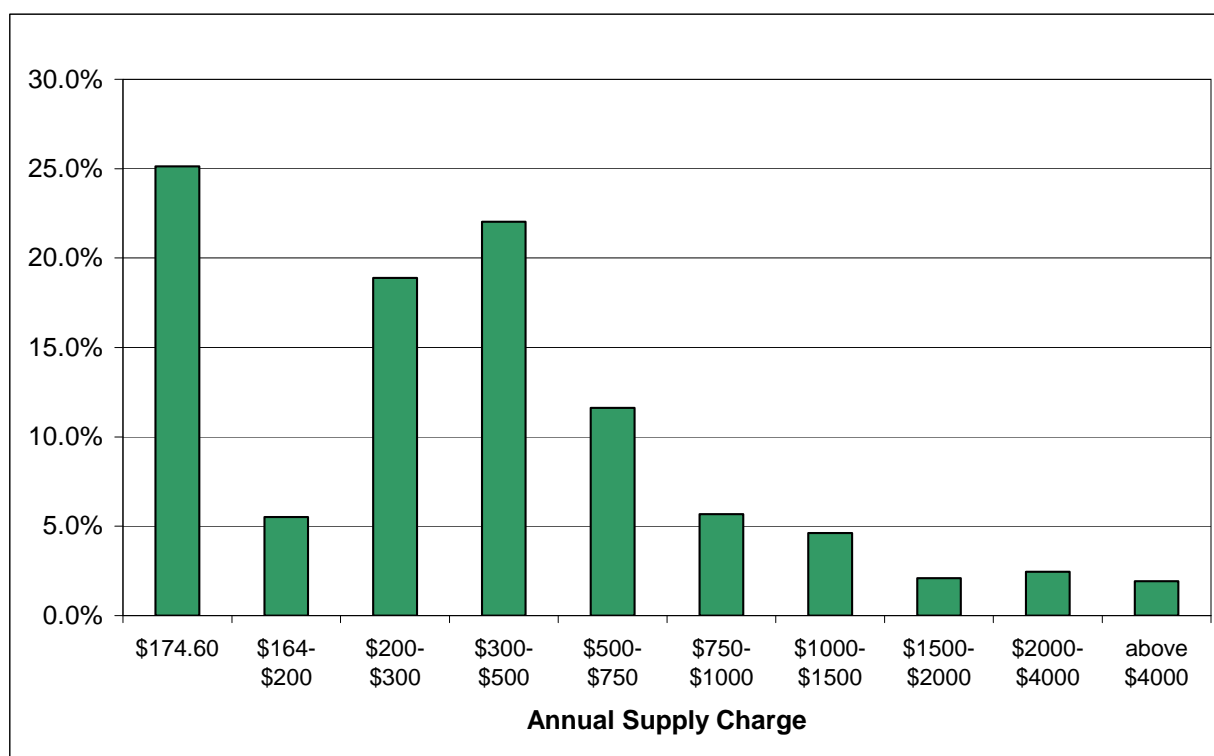
The CoAG guidelines require that water charges include a service availability charge which is calculated as the difference between the revenue requirement and the revenue recovered through water usage charges.

In terms of a consistent approach to pricing, setting service availability (supply) charges with regard to equity considerations is acceptable at a national level.

Based on economic capacity to pay, commercial customers pay a service availability (supply) charge based on property values.

Figure 1 illustrates the distribution of 2007-08 commercial customers' service availability (supply) water charges, which are based on property values. An update for 2008-09 would become available after property rates are set in June 2008. The minimum payment by commercial customers is \$174.60 in 2008-09, the same as in 2007-08.

**Figure 1: Commercial customers' service availability (supply) charge distribution 2007-08**



There would be some extreme examples of a small number of commercial customers paying up to \$0.6m per annum for relatively low total water demands (e.g. major shopping centres). It is unlikely that these customers would be able to secure the same quality of water services at a lower cost. It is likely those customers are still paying less than their standalone costs, based on Baumol Band principles.

In its 2008-09 pricing decisions, the Government continued to adopt the CoAG guidelines and nationally acceptable approaches with respect to equity considerations when setting the service availability (supply) charge for commercial customers.

## 6.4 Wastewater charges

Although CoAG pricing principles indicate a preference for wastewater 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, 2003, p 14)

Most of the costs of providing and operating a sewerage system relate to fixed costs incurred when the system is established, irrespective of the quantity of wastewater subsequently discharged. SA Water estimates that a typical household contributes approximately \$30 per annum in avoidable costs (i.e. around 10% of the minimum household charge of \$291 in 2008-09). Accordingly, consumption based charging for wastewater services, other than trade waste, is not efficient or practical.



## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

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

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

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

ESCOSA concluded:

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

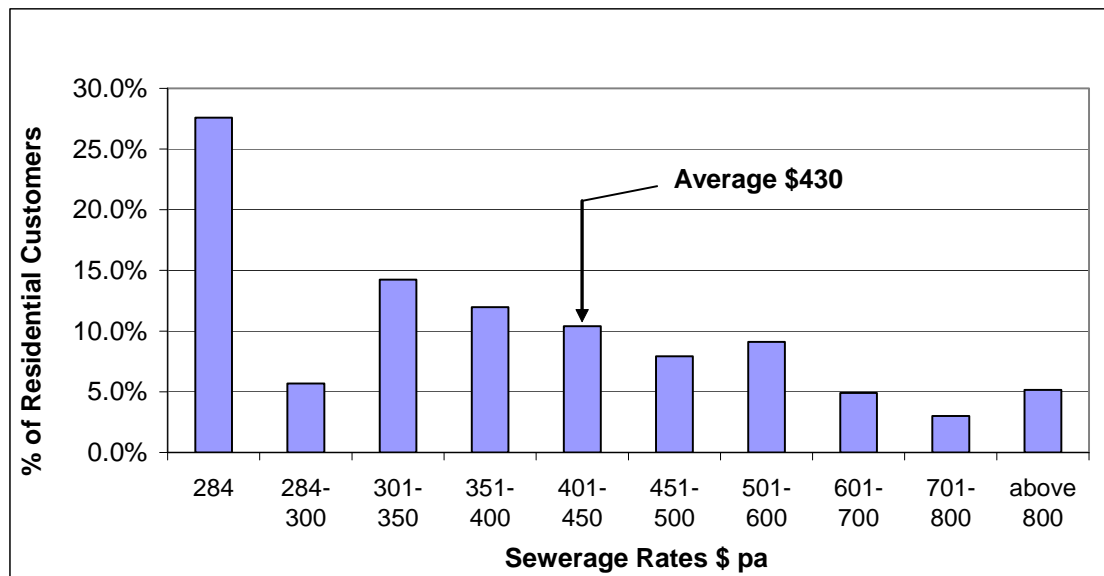
In its 2007-08 Final Report, ESCOSA stated:

The Commission believes that the tariff structure adopted is not inconsistent with the pricing principles. (ESCOSA, 2007a, p 49)

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

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

Figure 2 illustrates the distribution of 2007-08 residential wastewater charges that are based on property values according to the ability to pay principle. An update for 2008-09 would become available after property rates are set in June 2008.

**Figure 2: Residential wastewater charges distribution 2007-08**

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

For regional customers, higher rating scales are applied than Adelaide metropolitan customers, to counterbalance generally lower property values in regional areas. Regional customers still pay lower average charges than metropolitan customers.

## 6.5 Trade waste

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

In November 2004, the Government set trade waste charges for three years, commencing July 2005. Revenues from this source are very minor in the context of total sewerage revenues. Revision of the charges to apply for 2008-09 and the subsequent two years will be the subject of a separate review process.

## 6.6 Community service obligations

### 6.6.1 CoAG obligations

The 1994 CoAG Strategic Framework requires that where services are provided to customers at less than full cost, community service obligations (CSOs) should be paid to the service provider and reported transparently.

In its report *NWI First Biennial Assessment of Progress in Implementation*, the NWC acknowledged that all states have completed their commitments under the 1994 CoAG framework (NWC, 2007a, p 51 and 95).

In late 2004 the Government introduced a new Public Non-Financial Corporations (PNFC) ownership framework that included a new CSO policy. The new PNFC

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

framework, as applied to SA Water, requires that CSOs resulting from new major capital projects are clearly identified and tracked.

CSO payments are reported transparently in SA Water's Charter and disclosed in SA Water's Annual Report, which is tabled in Parliament.

CSO payments are funded directly from the South Australian Government budget and are included in the revenue estimate for the 2008-09 water and wastewater pricing decisions.

Details of all CSO payments are reported in Chapter 7.

### **6.6.2 NWI obligations and Statewide uniform pricing**

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

*Rural and Regional...*

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

In its 2007-08 Final Report, ESCOSA found that:

no evidence is provided to suggest that alternative management arrangements for CSOs have been examined. (ESCOSA, 2007a, p 54)

The Government's 2008-09 pricing decision confirmed continuation of its Statewide uniform pricing policy for reticulated water and wastewater.

Consistent with this policy, SA Water provides reticulated water and wastewater services to its customers in South Australian regional areas at prices similar to the metropolitan area. Given higher costs in many regional areas, water and wastewater services are provided to many regional customers at less than total economic cost, including return on assets.

The Government therefore provides SA Water with a CSO payment to ensure full cost recovery. Since 2004, the CSO amount has been calculated as the shortfall between the revenue from regional customers and the URB cost of providing regional services. The URB cost consists of operating costs, depreciation and return on assets (ROA). The ROA is calculated using a pre-tax real WACC of 6%. The CSO payment ensures SA Water earns a 6% rate of return on its regulated assets and, thus, the URB is achieved for its regional business.

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

The Government funds CSO payments from general revenue and makes CSO payments direct to SA Water.

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

Full cost recovery for water and wastewater services in regional areas, and therefore compliance with the NWI, has been achieved via transparently reported CSO payments.

### **Alternative approaches**

With regard to examining alternative management arrangements for Statewide uniform pricing CSOs, one approach might be to write down the value of the regional RAB, similar to the 'line in the sand' approach. The regulatory asset value could, thus, be reset such that existing revenues from regional customers are equivalent to a 6% return on assets. In this way, CSO payments could be eliminated. Even though the regulatory asset value would be reset at the level of each water network that supplies an individual regional community, water charges would remain consistent across the State.

However, substantially lower asset values mean substantially lower depreciation expense. This raises fundamental concerns about identifying the true costs of supplying regional communities and the consistency of revenues with the replacement of capital assets in future.

The Government reviewed its CSO policy as part of a review of its PNFC ownership framework in late 2004. Subsequently, the Government introduced a new PNFC ownership framework and a new CSO policy that included a change in the methodology used to calculate the Statewide uniform pricing CSO, as discussed above.

The Government considers that, as a review of CSO payments to SA Water was undertaken in 2004, another review (including alternative management arrangements for CSOs) is not required at this stage.

## **6.7 Cross-subsidies**

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

The NWC in its 2005 NCP Assessment stated:

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

In its report *NWI First Biennial Assessment of Progress in Implementation*, the NWC acknowledged that all states have completed their commitments under the 1994 CoAG framework. (NWC, 2007a, p 51 and 95)

In its 2007-08 Final Report, ESCOSA found that:

insufficient information has been provided to demonstrate that no cross-subsidies are in place. (ESCOSA, 2007a, p 54)

The NCC identifies the Baumol Band as the accepted definition of cross-subsidies. (NCC, 2001, p 127) In summary, to avoid cross-subsidies based on the Baumol Band definition, pricing of the relevant service is required to ensure that all customers at least meet their marginal or avoidable costs, while the joint fixed costs are spread

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

among the pool of customers by mechanisms (e.g. service availability (supply) charges) that take account of the value of benefits received (i.e. ability to pay). Further, total charges to each customer should not exceed the stand-alone cost.

The following discusses matters where there may be perceptions of cross-subsidies.

### ***Statewide uniform pricing***

There is scope for cross-subsidy arising from Statewide uniform pricing although very difficult to identify and demonstrate. In any event, any potential for cross-subsidies is effectively minimised by the Government's CSO payment to SA Water for Statewide uniform pricing.

However, based on nationally consistent approaches to pricing, any benefit in moving away from Statewide uniform pricing is highly likely to be outweighed by the costs involved in identifying and charging specific locational prices and by poor equity outcomes.

Statewide uniform pricing, underpinned by a transparently reported CSO, remains an important element of the Government's equity, social justice and regional policies.

### ***Service availability (supply) charges to commercial water customers***

Notwithstanding the significant service availability (supply) charge faced by a small number of commercial customers, it is unlikely that these customers would be able to secure the same quality of water services at a lower cost.

It is likely those customers are still paying less than their standalone costs, based on Baumol Band principles.

In any event, based on nationally consistent approaches to pricing, it is acceptable that service availability (supply) charges be set with regard to equity considerations.

### ***Wastewater charges***

There would be some examples of residential wastewater customers paying significant amounts for sewerage services. Notwithstanding the significant property based charge faced by a small number of customers, it is unlikely that these customers would be able to secure the same quality of services at a lower cost.

It is likely those customers are still paying less than their standalone costs, based on Baumol Band principles.

## **Statement of Compliance 9**

The Government's 2008-09 water and wastewater pricing decisions are compliant with CoAG guidelines on efficient resource pricing, and are consistent with general principles for nationally consistent approaches to setting tariffs (including CSOs), to the extent possible, pending finalisation of national principles.

## **7 Water and wastewater pricing decisions 2008-09**

### **7.1 Introduction**

This chapter outlines the issues considered by the Government in reaching its 2008-09 water and wastewater pricing decisions, and the balance achieved between regulatory pricing principles and customer impacts. The CSO outcomes arising from the Government's pricing decision are also identified.

### **7.2 Issues considered**

The Government's pricing decisions for 2008-09 involved consideration of many inter-related and complex economic, equity, social and environmental variables in the context of a comprehensive, multi-faceted strategy to address urban water security challenges, including:

- regulatory pricing obligations, viz:
  - CoAG pricing principles (including URB (refer chapter 3), LRB (refer chapter 4) and efficient resource pricing (refer chapter 6))
  - NWI obligations (including clauses 65, 66(i) and 66(v)) (refer chapters 2 – 6)
  - ESCOSA's comments in previous inquiries (refer chapters 2 – 6)
  - The NWC's *NWI First Biennial Assessment of Progress in Implementation*
  - general principles for nationally consistent approaches to pricing, to the extent possible, pending finalisation of national principles (including GFFCR) (refer chapters 2 – 6)
- new urban water security and sustainability initiatives (including the proposed Adelaide desalination plant and *Water Proofing Adelaide*) (refer chapter 1)
- customer impacts, viz:
  - affordability (ability to pay), equity and social justice issues
  - concessions for vulnerable groups
  - regional (Statewide uniform pricing) policy
- CSOs.

### **7.3 Water charges 2008-09**

SA Water has three main types of water customers, viz:

- residential

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

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

### **7.3.1      *Usage charges***

The following specific water usage charges were gazetted on 6 December 2007:

- a first tier charge of \$0.71 per kL for water usage up to 120kL
- a second tier charge of \$1.38 per kL for water usage above 120kL
- a new third tier usage charge for single dwelling residential properties only of \$1.65 per kL for usage above 520kL.

The Government has marginally lowered the first tier from 125kL per annum to 120kL per annum. The Government is currently investigating the legislative requirements to allow for quarterly water metering rather than 6 monthly water metering. The movement to 120kL per annum will allow the first tier to be easily applied on a quarterly basis (i.e. 30kL per quarter).

### **7.3.2      *Service availability (supply) charge***

The increase in usage charges was taken into consideration when setting the service availability (supply) charge.

The service availability (supply) charge will have a real decrease in value, but remain constant in nominal dollars in 2008-09 at the 2007-08 level of \$157.40 for residential customers and \$174.60 for other non-commercial customers.

For commercial customers, the service availability (supply) charge is based on property value, subject to a minimum charge. This minimum charge will also have a real decrease in value, but remain constant in nominal dollars in 2008-09 at the 2007-08 level of \$174.60. The property rate, when set in June 2008, will provide for a small nominal increase of around 1.9% on average, but a decrease in real terms.

### **7.3.3      *Comparison of water charges***

Table 11 compares the Government's 2008-09 water charges with charges applicable in 2007-08.

**Table 11: Comparison of water charges**

Description	2007-08	2008-09
<b>Non-commercial</b>		
<b>Service Availability (supply) charge</b>		
Residential	\$157.40	\$157.40
Other non-residential (industry)	\$174.60	\$174.60
<b>Water usage charge</b>		
<b>2007-08</b>		
First tier (<125 kL)	\$0.50/kL	
Second tier (>125 kL)	\$1.16/kL	
<b>2008-09</b>		
First tier (<120 kL)		\$0.71
Second tier (>120kL)		\$1.38
<b>For single residential dwellings only</b>		
Third tier (>520kL)		\$1.65
<b>Commercial</b>		
<b>Service Availability (supply) charge</b>		
Property rating scale	0.09000%	TBD*
Commercial Minimum	\$174.60	\$174.60
<b>Water usage charge</b>		
<b>2007-08</b>		
First 125 kL	\$0.50/kL	
Above 125 kL	\$1.16/kL	
<b>2008-09</b>		
First tier (<120 kL)		\$0.71
Second tier (>120kL)		\$1.38

\* Rating scales for 2008-09 are to be determined and will be gazetted in June 2008, when the latest information on property values is available from the Valuer General

These charging arrangements apply to both metropolitan and regional customers, by virtue of the Government's Statewide uniform pricing policy.

### **7.3.4 Summary**

Overall, the Government approved an average real (ie, before inflation) increase in total water charges of 12.7% to apply in 2008-09

The 12.7% real increase has not been evenly spread over the different types of charges. While there is a significant increase in usage charges for the first and



## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

second tiers, and a new third tier for single residential dwellings, this has been offset to an extent by a real decrease in the service availability (supply) charge.

The changes in the mix of charges has resulted in a greater emphasis on usage charges and less emphasis on the service availability (supply) charge. This provides a greater financial incentive for customers to conserve water.

### 7.4 Wastewater charges 2008-09

Wastewater charging is based on property value, subject to a minimum charge.

The Government approved the metropolitan wastewater charge to remain constant in 2008-09 in real terms (i.e. a 2.5% increase in nominal terms) and a 0.5% real increase in the regional wastewater charge (i.e. a 3.0% increase in nominal terms).

The minimum charge for all customers has remained constant in real terms, resulting in an increase of 2.5% in nominal terms to \$291 (increased from \$284 in 2007-08).

#### 7.4.1 Comparison of wastewater charges

Table 12 compares wastewater charges applicable in 2007-08 with the Government's 2008-09 decision.

**Table 12: Comparison of wastewater charges**

Description	2007-08		2008-09	
	Property rating scale (%)	Min (\$)	Property rating scale (%)	Min (\$)
<b>Metropolitan</b>				
Residential	0.001424%	\$284	TBD*	\$291
Non-residential	0.001683%	\$284	TBD*	\$291
<b>Regional</b>				
Residential	0.001564%	\$284	TBD*	\$291
Non-residential	0.002060%	\$284	TBD*	\$291

\* Rating scales for 2008-09 are to be determined and will be gazetted in June 2008, when the latest information on property values is available from the Valuer General.

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

Higher rating scales are applied to regional customers than Adelaide metropolitan customers counterbalancing generally lower property values in regional areas. Regional customers still pay lower average charges than metropolitan customers, even after the marginally higher increase in wastewater charges.

## **7.5 In principle revenue directions**

The in principle revenue direction for water revenues announced in December 2006 has been superseded. The extent of future increases in water charges beyond 2008-09 is dependent, to a great degree, on progress on the proposed Adelaide desalination plant.

The in principle revenue direction for wastewater revenues announced in December 2006 has also been superseded. A further long term revenue direction will not be determined for sewerage until the implications of the Adelaide Coastal Water Study for future wastewater costs are clarified.

As legislation requires annual gazettal of water and wastewater charges and rates, Cabinet will continue to formally set water and wastewater prices on an annual basis. Thus, as revised information becomes available, appropriate adjustments will be made in subsequent annual water and wastewater price setting processes.

The Government has decided that there should be no benefit to the Government budget due to the latest water price increase. Appropriate adjustments have been made to SA Water's forecast dividend to ensure there is no benefit to the Government budget (after taking into account the impact of the new, enhanced pensioner concession scheme) – refer Table 23.

The Government will appoint an independent consultant to assess SA Water's financial modelling prior to the 2009-10 pricing process.

In the meantime for planning purposes, a longer term in principle water and wastewater revenue direction for 2009-10 to 2012-13 has been based on annual increases the same as the 2008-09 increases in charges.

## **7.6 Customer impacts: water**

### **7.6.1 *Affordability, equity and social justice issues***

Regulatory pricing obligations require that, based on the GFFCR principle, future revenues (including CSOs) on new assets must be sufficient to recover all future costs.

The substantial average real increase in total water charges of 12.7% (real terms) in 2008-09 is consistent with South Australia's obligation to fully fund all new investments, as represented by the GFFCR principle. The proposed Adelaide desalination plant will be the most significant capital investment over the coming five years and, for planning purposes, it was assumed that the desalination plant would be fully operational in 2012-13, the estimated first full financial year of its operation.

While a lower water price increase could be applied in the early years of the five year planning period, this would result in significantly higher increases in water charges in the later years to ensure South Australia is meeting its obligations. The Government is seeking to smooth the water pricing increases over the next five years, so that there is some certainty and predictability for customers, and so that GFFCR would be met in 2012-13.

Further, the Government considered it necessary to reform water pricing structures, taking into account:

- consumption based pricing principles

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

- the approaching augmentation of water supplies and the consequential upward revisions to estimates of LRMC
- ESCOSA's previous comments that the first tier usage charge was significantly below LRMC
- affordability of water as an essential service
- water conservation.

The Government resolved that the required increase in water revenues be recovered from usage charges, while the minimum service availability (supply) charges will remain constant in 2008-09. Estimated increases in the LRMC reinforced the need for an increase in water usage charges.

It was considered appropriate to establish a responsible first step in 2008-09 towards meeting the new LRMC estimates in the water usage charge. Further examination will be undertaken in subsequent annual price setting processes.

To manage the transitional impacts to higher usage charges, the first tier usage charge was retained, although it was increased significantly.

Second tier usage charges were also increased markedly and a third tier usage charge was established for single dwelling residential customers. Although the majority of residential customers consume between 120kL and 520kL per annum (and therefore face the second tier charge for their incremental water usage), those residential consumers with high water usage will now be charged the new third tier. It is estimated that the third tier may impact on around 25,000 out of about 700,000 customers. The new third tier is intended to promote efficient and environmentally sustainable water consumption choices.

In order to further improve the pricing signal to customers, the Government is intending to introduce quarterly, rather than biannual meter reading, and further improvements to billing information. The minor adjustment to the volume of water consumption between the first and second tiers would facilitate future quarterly metering.

The increased charge for the average residential customer consuming 250 kL pa will be approximately \$57.10 in 2008-09.

The Government continued to adopt the CoAG guidelines and nationally acceptable approaches with respect to equity considerations when setting the service availability (supply) charge for commercial customers.

### **7.6.2      *New, enhanced water concessions for vulnerable customers***

In view of the increased water charges, the Government established new, enhanced concessions targeted at specific vulnerable customers.

From 1 July 2008 the new water concession will be set at 20% of an eligible customer's water bill, capped at \$200 per annum for owner-occupiers. To ensure that no concession recipients are worse off under the new scheme, a minimum \$95 will be provided to owner-occupiers.

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

Eligibility for the water concession will also be extended to include qualifying tenants<sup>3</sup>. For the qualifying tenants, the amount of the concession will be capped at \$160 per annum with a \$55 minimum amount, in recognition of the fact that tenants are not generally liable for the supply charge component of water bills.

The eligibility criteria will also be changed for both tenants and owner-occupiers to include Commonwealth Low Income Health Care Card holders.

The actual pensioner concession payments will continue to be funded through a subsidy from the Department for Families and Communities calculated as the amount of the concessions paid.

### 7.7 Customer impacts: wastewater

#### 7.7.1 *Affordability, equity and social justice issues*

The increase in the minimum wastewater charge from \$284 to \$291 in 2008-09 (2.5% increase) will affect approximately 25% of metropolitan residential customers and 46% of regional residential customers.

Table 13 illustrates the indicative wastewater charges for the average residential property in the metropolitan and regional areas.

**Table 13: Indicative residential wastewater charge for the average residential property**

	Average property value (June 2007)	Indicative charge (2007-08)	Indicative charge (2008-09)	Change	Change
	\$	\$	\$	\$	%
Metropolitan	\$297,400	\$423	\$434	\$11.00	2.5%
Regional	\$203,200	\$342	\$353	\$11.00	3.3%*

\* The increase in the wastewater charge for the average regional residential customer will be above 3.0%, indicatively 3.3%.

Source: SA Water.

Based on June 2007 average property values, the wastewater charge will increase by approximately \$11 in 2008-09 for both metropolitan and regional households.

### 7.8 Regional policies

The NWI (clause 66(v)) acknowledges that some small regional community water services will not achieve full cost recovery and 'will never be economically viable'. Nevertheless, water services to small regional communities need to be maintained to meet social and public health obligations.

Statewide uniform pricing remains a key element of the Government's social policies. This aims to ensure that non-metropolitan customers do not face unreasonable charges by virtue of their location within the State. Accordingly, metropolitan water charging arrangements apply to regional water customers.

<sup>3</sup> For example, tenants who demonstrate that they are paying the water bill

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

There is also a significant disparity between average residential wastewater revenue per customer in the metropolitan and regional areas of around 12% (\$382 in regional areas compared to \$436 in the city in 2007-08) despite higher costs per customer in regional areas. The higher increase in regional wastewater rates, compared to the metropolitan area, is consistent with very gradual move in regional wastewater charges towards charges applicable in the metropolitan area.

The higher increase in regional wastewater rates is also consistent with the intention that regional wastewater charges be adjusted annually by 0.5% more than for metropolitan customers to very gradually move toward charges equivalent to those that apply in the metropolitan area.

### 7.9 Community service obligations

Table 14 provides estimates of CSO payments to SA Water, taking into account the 2008-09 pricing decision.

**Table 14: Estimated CSO payments to SA Water (nominal)**

CSO payments (in nominal terms)	2007-08 Budget (\$M)	2008-09 Budget (\$M)
<b>Statewide Uniform Pricing</b>		
- Water Business	131.15	138.21
- Wastewater Business	20.53	24.67
<b>Exemptions and Concessions</b>	10.78	11.20
<b>Water Proofing Adelaide</b>	0.94	3.44
<b>Rain Water Tank Rebate (<i>new</i>)</b>	0.04	0.04
<b>River Murray Levy Administration</b>	0.06	0.06
<b>Government Radio Network</b>	0.41	0.42
<b>Administration of Pensioner Concessions</b>	0.52	0.52
<b>Total CSO payments</b>	<b>164.43</b>	<b>178.56</b>

#### 7.9.1 *Statewide uniform pricing*

Statewide uniform pricing means that regional customers pay the same water charges and similar wastewater charges. The resulting increase in country water revenue has reduced the estimated 2008-09 Statewide uniform pricing CSO payment.

#### 7.9.2 *Water Proofing Adelaide*

In 2007-08 the Government introduced a small CSO to SA Water to compensate for the non-commercial activities in the metropolitan area that SA Water is likely to be required to undertake. The increased CSO for 2008-09 has been determined on the same *Water Proofing Adelaide* budget profile as used in the 2007-08 Government Budget.

**7.9.3      *Service charge exemptions/concessions***

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

**7.9.4      *Rain Water Tank Rebate***

As part of the *Water Proofing Adelaide* strategy, the South Australian Government introduced, from July 2006, a rainwater tank plumbing rebate scheme. The CSO payment would be \$0.5m per annum for four years. Rebates of up to \$600 will be offered to plumb existing rainwater tanks into existing homes and up to \$800 to plumb new rainwater tanks into existing homes. It is expected that plumbed rainwater tanks to new homes will save 4 GL per annum by 2025 and that savings of up to 18 GL per annum could be achieved by 2025 if rainwater tanks were plumbed into all existing homes

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

**7.9.5      *Administration of the Save the River Murray Levy***

SA Water will continue to administer the Save the River Murray Levy in 2008-09. The estimated cost is based on actual administration costs incurred by SA Water.

It should be noted that SA Water does not retain funds raised by the Levy.

**7.9.6      *Government Radio Network***

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

**7.9.7      *Administration of the pensioner concession scheme***

SA Water administers pensioner entitlement applications and the distribution of concessions to local government for pensioners who are SA Water customers. SA Water receives a CSO payment only for the costs of administration of the pensioner concession scheme.

The actual pensioner concession payments will continue to be funded through a subsidy from the Department for Families and Communities calculated as the amount of the concessions paid.

### **Statement of Compliance 10**

The Government's 2008-09 pricing decisions involved consideration of, and a balance between, CoAG pricing principles, NWI obligations (clauses 65, 66(i) and 66(v)) general principles for nationally consistent approaches to pricing and broader policy matters, viz, equity, social justice and regional policies and sustainable water management initiatives, in the context of a multi-faceted strategy to guarantee urban water security for the long term.

The Government's 2008-09 pricing decisions are consistent with NWI obligations and with general principles for nationally consistent approaches to pricing, to the extent possible, particularly with respect to the principle of go-forward full cost recovery.

### **7.10 Consultation**

As part of the Government's pricing deliberations, relevant departments and agencies were consulted, including the Department of Treasury and Finance, Department for Families and Communities and the Department of Trade and Economic Development.

## **8 Financial details relevant to the 2008-09 pricing decisions**

### **8.1 Introduction**

This chapter outlines some of the financial details that the Government reviewed in making its 2008-09 water and wastewater pricing decisions and other financial information related to SA Water's financial viability. The chapter includes:

- Table 15: Adjusted infrastructure asset base (nominal)
- Table 16, Table 17 and Table 18: regulatory model estimates (real)
- Figure 3, Figure 4 and Figure 5: regulatory model estimates (graphs)
- Table 19, Table 20 and Table 21: regulatory model estimates: metropolitan and regional areas (real)
- Table 22: SA Water estimated capital expenditure (nominal)
- Table 23: Government budget impacts (nominal)
- Table 24: Summary of financial ratios for SA Water (nominal)



## 8.2 Revenue bounds and revenue estimates

### 8.2.1 Asset base

Table 15 illustrates the roll-forward estimate in nominal terms of the asset base for total infrastructure assets.

**Table 15: Adjusted infrastructure asset base (nominal)\***

	<b>SA WATER ASSETS (\$M)</b>						
	<b>2006-07</b>	<b>2007-08</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>
Opening balance	6,754	6,999	7,326	7,674	8,399	9,405	10,165
Capital Expenditure	151	227	243	613	874	615	642
Inflation adjustment	236	245	256	269	294	329	356
Depreciation	(143)	(146)	(151)	(157)	(162)	(185)	(210)
Closing balance	6,999	7,326	7,674	8,399	9,405	10,165	10,952
	<b>WATER ASSETS (\$M)</b>						
Opening balance	4,411	4,593	4,836	5,058	5,648	6,493	7,102
Capital Expenditure	123	182	156	521	759	514	560
Inflation adjustment	154	161	169	177	198	227	249
Depreciation	(95)	(100)	(104)	(107)	(111)	(133)	(156)
Closing balance	4,593	4,836	5,058	5,648	6,493	7,102	7,754
	<b>WASTEWATER ASSETS (\$M)</b>						
Opening balance	2,343	2,406	2,490	2,616	2,751	2,912	3,063
Capital Expenditure	28	46	87	93	116	101	81
Inflation adjustment	82	84	87	92	96	102	107
Depreciation	(47)	(46)	(48)	(49)	(51)	(52)	(54)
Closing balance	2,406	2,490	2,616	2,751	2,912	3,063	3,198

\* excludes post-corporatisation contributed assets

# TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

## 8.2.2 Estimates of URB, GFFCR, LRB and revenue estimate

Table 16, Table 17 and Table 18 present the estimated URB, GFFCR, LRB and revenue estimate for SA Water, the water segment and the wastewater segment. The components of the URB and LRB are also identified. The revenue estimate reflects the Government's 2008-09 water and wastewater pricing decisions

**Table 16: SA Water: regulatory model estimates (in 2007-08 dollars)\***

SA WATER (\$M)							
	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
<b>Regulated Asset Values</b>							
<b>Asset Values</b>	<b>7,174</b>	<b>7,326</b>	<b>7,486</b>	<b>7,994</b>	<b>8,734</b>	<b>9,209</b>	<b>9,680</b>
<b>Upper Revenue Bound</b>							
Operating Expenditure	278	282	290	293	301	329	354
Depreciation	146	146	148	149	150	167	186
Return On Assets (All 6%)	430	440	449	480	524	553	581
<b>Total URB</b>	<b>854</b>	<b>868</b>	<b>887</b>	<b>921</b>	<b>975</b>	<b>1,049</b>	<b>1,121</b>
<b>Lower Revenue Bound</b>							
Operating Expenditure	278	282	290	293	301	329	354
Annuity	44	44	44	44	44	44	44
Interest	90	109	110	129	166	201	216
Income Tax	97	85	101	110	110	n.a.	n.a.
Dividend**	213	189	222	212	204	n.a.	n.a.
<b>Total LRB</b>	<b>722</b>	<b>710</b>	<b>768</b>	<b>788</b>	<b>826</b>	<b>n.a.</b>	<b>n.a.</b>
<b>Revenue Estimate</b>							
<b>Total Revenue***</b>	<b>782</b>	<b>807</b>	<b>860</b>	<b>897</b>	<b>939</b>	<b>994</b>	<b>1,066</b>

\* Conversion to real 2007-08 dollars based on Government budget inflation estimate of 2.5% per annum. GFFCR aggregation is not applicable for SA Water in total. GFFCR is calculated at the business segment level.

\*\* After neutralising the impact of the 2008-09 increased charges – refer Table 23

\*\*\* Revenue does not include impacts from temporary water restrictions.

# TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

**Table 17: Water: regulatory model estimates (in 2007-08 dollars)\***

WATER (\$M)							
	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
<b>Regulated Asset Values</b>							
<b>Asset Values</b>	<b>4,708</b>	<b>4,836</b>	<b>4,935</b>	<b>5,376</b>	<b>6,030</b>	<b>6,434</b>	<b>6,854</b>
<b>Upper Revenue Bound</b>							
Operating Expenditure	187	187	193	195	203	229	253
Depreciation	98	100	101	102	103	120	138
Return On Assets (All 6%)	282	290	296	323	362	386	411
<b>Total URB</b>	<b>567</b>	<b>578</b>	<b>591</b>	<b>620</b>	<b>668</b>	<b>735</b>	<b>803</b>
<b>Go Forward Full Cost Recovery</b>							
<b>GFFCR Amount</b>	<b>494</b>	<b>505</b>	<b>519</b>	<b>549</b>	<b>597</b>	<b>665</b>	<b>734</b>
<b>Lower Revenue Bound</b>							
Operating Expenditure	187	187	193	195	203	229	253
Annuity	30	30	30	30	30	30	30
Interest	62	72	73	87	115	140	153
Contribution to Income Tax	44	42	56	65	68	n.a.	n.a.
Contribution to Dividend**	98	93	122	125	127	n.a.	n.a.
<b>Total LRB</b>	<b>421</b>	<b>425</b>	<b>474</b>	<b>502</b>	<b>543</b>	<b>n.a.</b>	<b>n.a.</b>
<b>Revenue Estimate</b>							
<b>Total Revenue***</b>	<b>472</b>	<b>496</b>	<b>543</b>	<b>577</b>	<b>615</b>	<b>665</b>	<b>734</b>

\* Conversion to real 2007-08 dollars based on Government budget inflation estimate of 2.5% per annum.

\*\* After neutralising the impact of the 2008-09 increased charges – refer Table 23

\*\*\* Revenue does not include impacts from temporary water restrictions.

# TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

**Table 18: Wastewater: regulatory model estimates (in 2007-08 dollars)\***

WASTEWATER (\$M)							
	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
<b>Regulated Asset Values</b>							
<b>Asset Values</b>	<b>2,466</b>	<b>2,490</b>	<b>2,552</b>	<b>2,618</b>	<b>2,704</b>	<b>2,775</b>	<b>2,826</b>
<b>Upper Revenue Bound</b>							
Operating Expenditure	91	95	97	97	99	100	101
Depreciation	49	46	47	47	47	47	47
Return On Assets (All 6%)	148	149	153	157	162	166	170
<b>Total URB</b>	<b>287</b>	<b>291</b>	<b>296</b>	<b>301</b>	<b>308</b>	<b>314</b>	<b>318</b>
<b>Go Forward Full Cost Recovery</b>							
<b>GFFCR Amount</b>	<b>312</b>	<b>315</b>	<b>320</b>	<b>325</b>	<b>331</b>	<b>337</b>	<b>341</b>
<b>Lower Revenue Bound</b>							
Operating Expenditure	91	95	97	97	99	100	101
Annuity	14	14	14	14	14	14	14
Interest	28	37	38	42	51	60	63
Contribution to Income Tax	52	43	46	45	42	n.a.	n.a.
Contribution to Dividend**	116	96	100	87	78	n.a.	n.a.
<b>Total LRB</b>	<b>301</b>	<b>285</b>	<b>294</b>	<b>286</b>	<b>283</b>	<b>n.a.</b>	<b>n.a.</b>
<b>Revenue Estimate</b>							
<b>Total Revenue</b>	<b>310</b>	<b>311</b>	<b>317</b>	<b>320</b>	<b>324</b>	<b>329</b>	<b>333</b>

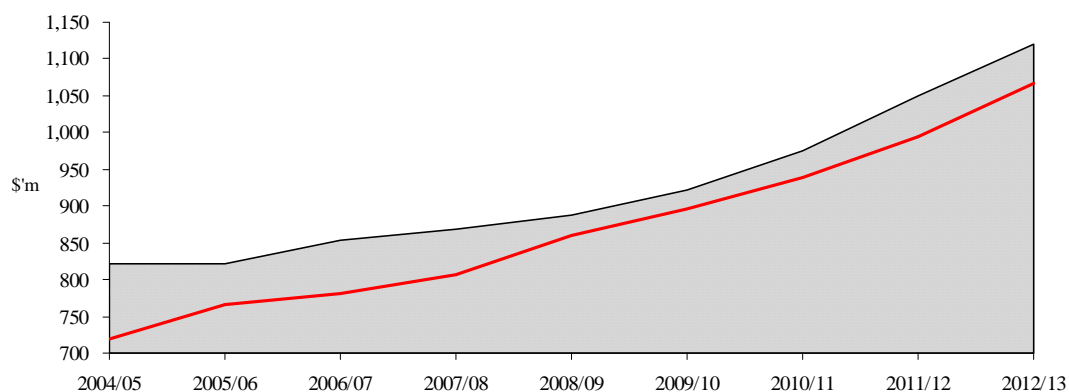
\* Conversion to real 2007-08 dollars based on Government budget inflation estimate of 2.5% per annum

\*\*After neutralising the impact of the 2008-09 increased charges – refer Table 23

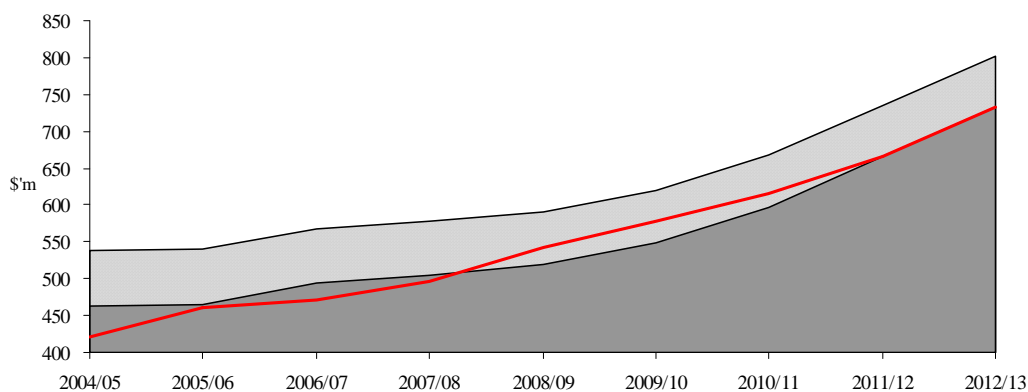
The URB, GFFCR and revenue estimate for SA Water, the water segment and the wastewater segment, are graphically represented in Figure 3, Figure 4 and Figure 5.

# TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

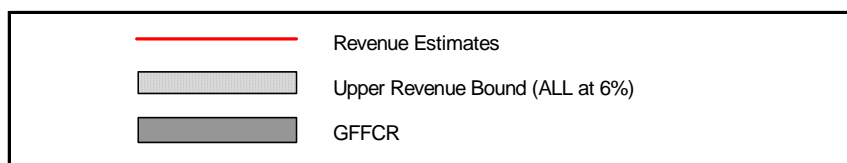
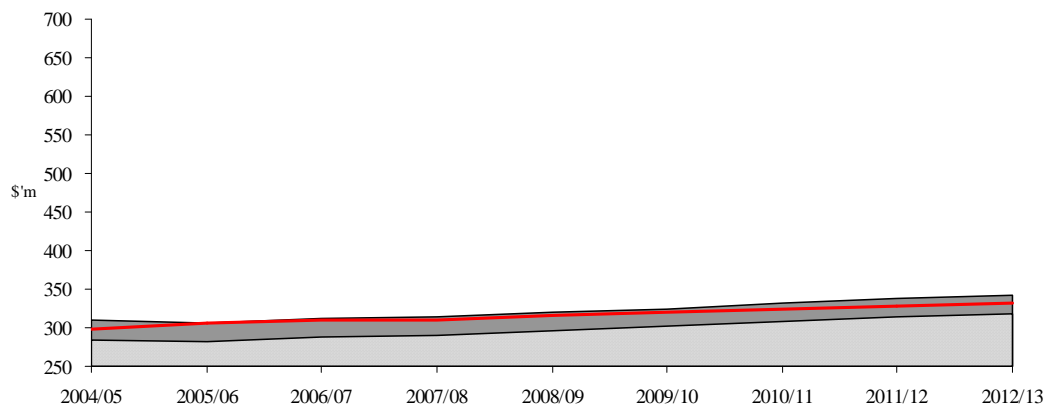
**Figure 3: SA Water: regulatory model estimates (in 2007-08 dollars)**



**Figure 4: Water: regulatory model estimates (in 2007-08 dollars)**



**Figure 5: Wastewater: regulatory model estimates (in 2007-08 dollars)**



# TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

Table 19, Table 20 and Table 21 present, by the metropolitan and regional areas, the URB, GFFCR and revenue estimate for SA Water, the water segment and the wastewater segment.

**Table 19: SA Water: regulatory model estimates: metropolitan and regional areas (in 2007-08 dollars)\***

SA WATER							
	2006-07 (\$M)	2007-08 (\$M)	2008-09 (\$M)	2009-10 (\$M)	2010-11 (\$M)	2011-12 (\$M)	2012-13 (\$M)
<b>Upper revenue bound</b>							
Metropolitan	548	549	563	594	644	713	778
Regional	306	319	324	327	332	335	342
<b>URB</b>	<b>854</b>	<b>868</b>	<b>887</b>	<b>921</b>	<b>975</b>	<b>1,049</b>	<b>1,121</b>
<b>Revenue Estimate</b>							
Metropolitan	492	504	535	569	607	659	724
<i>Usage and Access Charges</i>	<i>461</i>	<i>474</i>	<i>506</i>	<i>540</i>	<i>579</i>	<i>621</i>	<i>670</i>
CSOs	10	9	9	9	9	18	35
<i>Other</i>	<i>21</i>	<i>22</i>	<i>21</i>	<i>20</i>	<i>20</i>	<i>19</i>	<i>19</i>
Regional	290	302	324	327	332	335	342
<i>Usage and Access Charges</i>	<i>132</i>	<i>137</i>	<i>151</i>	<i>166</i>	<i>183</i>	<i>202</i>	<i>223</i>
CSOs	149	156	164	153	141	126	112
<i>Other</i>	<i>9</i>	<i>9</i>	<i>9</i>	<i>8</i>	<i>8</i>	<i>7</i>	<i>7</i>
<b>Total Revenue**</b>	<b>782</b>	<b>807</b>	<b>860</b>	<b>897</b>	<b>939</b>	<b>994</b>	<b>1,066</b>

\* Conversion to real 2007-08 dollars based on Government budget inflation estimate of 2.5% per annum

\*\* Revenue does not include impacts from temporary water restrictions.

# TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

**Table 20: Water: regulatory model estimates: metropolitan and regional areas (in 2007-08 dollars)\***

	WATER						
	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)	(\$M)
<b>Upper revenue bound</b>							
Metropolitan	312	312	321	348	394	460	522
Regional	255	265	269	272	274	275	281
<b>Upper revenue bound</b>	<b>567</b>	<b>578</b>	<b>591</b>	<b>620</b>	<b>668</b>	<b>735</b>	<b>803</b>
<b>Go Forward Full Cost Recovery</b>							
Metropolitan	239	240	249	277	323	390	453
Regional	255	265	269	272	274	275	281
<b>GFFCR amount</b>	<b>494</b>	<b>505</b>	<b>519</b>	<b>549</b>	<b>597</b>	<b>665</b>	<b>734</b>
<b>Revenue Estimate</b>							
Metropolitan	232	245	273	305	341	390	453
<i>Usage and Access Charges</i>	218	229	258	290	326	366	412
CSOs	1	4	4	4	4	14	31
<i>Other</i>	12	12	12	11	11	10	10
Regional	240	251	269	272	274	275	281
<i>Usage and Access Charges</i>	104	109	122	137	153	172	193
CSOs	128	134	139	127	114	97	82
<i>Other</i>	8	8	7	7	7	6	6
<b>Total Revenue**</b>	<b>472</b>	<b>496</b>	<b>543</b>	<b>577</b>	<b>615</b>	<b>665</b>	<b>734</b>

\* Conversion to real 2007-08 dollars based on Government budget inflation estimate of 2.5% per annum

\*\* Revenue does not include impacts from temporary water restrictions.

# TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

**Table 21: Wastewater: regulatory model estimates: metropolitan and regional areas (in 2007-08 dollars)\***

WASTEWATER							
	2006-07 (\$M)	2007-08 (\$M)	2008-09 (\$M)	2009-10 (\$M)	2010-11 (\$M)	2011-12 (\$M)	2012-13 (\$M)
<b>Upper revenue bound</b>							
Metropolitan	236	237	242	245	250	254	257
Regional	51	54	55	56	58	60	61
<b>Upper revenue bound</b>	<b>287</b>	<b>291</b>	<b>296</b>	<b>301</b>	<b>308</b>	<b>314</b>	<b>318</b>
<b>Go Forward Full Cost Recovery</b>							
Metropolitan	260	261	266	269	273	277	280
Regional	51	54	55	56	58	60	61
<b>GFFCR amount</b>	<b>312</b>	<b>315</b>	<b>320</b>	<b>325</b>	<b>331</b>	<b>337</b>	<b>341</b>
<b>Revenue Estimate</b>							
Metropolitan	260	260	262	264	266	268	271
<i>Usage and Access Charges</i>	242	246	248	250	253	255	258
CSOs	8	4	4	4	4	4	4
<i>Other</i>	9	10	10	9	9	9	9
Regional	50	51	55	56	58	60	61
<i>Usage and Access Charges</i>	28	28	29	29	29	30	30
CSOs	21	21	25	26	27	29	30
<i>Other</i>	1	1	1	1	1	1	1
<b>Total Revenue</b>	<b>310</b>	<b>311</b>	<b>317</b>	<b>320</b>	<b>324</b>	<b>329</b>	<b>333</b>

\* Conversion to real 2007-08 dollars based on Government budget inflation estimate of 2.5% per annum



### 8.3 Capital expenditure

SA Water's estimated capital expenditure for 2007-08, as per the Government budget, is presented in Table 22. The values in are in nominal terms.

**Table 22: SA Water estimated capital expenditure (nominal)**

SA Water	Proposed expenditure 2007-08 (\$M)	Total (\$M)
<b>Christies Beach WWTP Capacity Upgrade</b>		
Project to upgrade WWTP to allow for population growth and improved environmental outcomes.	4.7	151
<b>Country Quality Improvement Program – Riverland Towns</b>		
Project to address water quality issues for 15 communities currently receiving non-filtered potable supplies	48.1	54.3
<b>Environment Program</b>		
Projects to meet changes in external environmental regulations, standards or internal targets.	10.1	n.a.
<b>Improve Business Program</b>		
Projects to improve management and co-ordination of existing infrastructure and business services	7.3	n.a.
<b>Information Technology Program</b>		
Projects to improve information technology based customer and business systems	17.2	n.a.
<b>Little Para Reservoir Dam Safety</b>		
Project to bring Little Para Reservoir into line with current guidelines.	10	16
<b>Maintain Business Program</b>		
Projects to replace or rehabilitate existing infrastructure to maintain existing service levels and capacity	48.9	n.a.
<b>Safety Program</b>		
Projects to manage safety issues	5.3	n.a.
<b>Security Program</b>		
Projects to improve the security of SA Water's infrastructure assets	4.5	n.a.
<b>Strategic Accommodation</b>		
Fixtures and fittings for SA Water's new head office and laboratory.	31.4	46.1

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

SA Water	Proposed expenditure 2007-08 (\$M)	Total (\$M)
<b>System Growth Program</b>		
Projects to expand SA Water's water and wastewater systems.	21	n.a.
<b>Torrens System Upgrade</b>		
Projects to replace/upgrade the open channel aqueduct.	12.3	21.5
<b>Water Quality Program</b>		
Projects to meet changes in external water quality standards or regulations, and/or internal water quality targets.	2	n.a.
<b>Clayton Water Supply Pipeline</b>		
Project to ensure Clayton's water supply complies with ADWG despite anticipated impact of drought on water quality.	5	5
<b>Morgan to Whyalla Pipeline</b>		
Replacement of high voltage switchboards at the pipeline's eight pumping stations.	2	8.7
<b>Myponga Water Treatment Plant</b>		
Project to improve water quality at Myponga Water Treatment Plant.	3.2	15
<b>Virginia Angle Vale Reuse Extension</b>		
Project to extend the existing Virginia Reclaimed Water Irrigation Scheme to the North into the Angle Vale area.	1.9	5
<b>Total</b>	<b>234.9</b>	<b>n.a.</b>

n.a denotes ongoing programs and projects

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

### 8.4 Government budget impacts

Table 23 indicates the Government budget impacts from increased charges, including a reduction in regional CSO payments, and the dividend adjustment after neutralising the impact of levelised price increases (as assumed for planning purposes) and after taking into account the new, enhanced pensioner concession scheme.

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

**Table 23: Government budget impacts (nominal)**

	2007-08	2008-09	2009-10	2010-11
	(\$M)	(\$M)	(\$M)	(\$M)
Change in Net Contribution to the Budget	0.0	11.0	32.6	35.8
Cost of increased concessions	(0.3)	(8.3)	(9.4)	(11.7)
<b>Budget Impact</b>	<b>(0.3)</b>	<b>2.6</b>	<b>23.2</b>	<b>24.1</b>
Dividend Adjustment to neutralise budget impact of levelised price increases* over 5 years	0.0	(2.6)	(23.2)	(24.1)
<b>Net Budget Impact</b>	<b>(0.3)</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

\* Assumed for planning purposes

### 8.5 Profitability and ongoing financial viability

Financial indicators of SA Water's ongoing viability, such as indicators of accounting profitability and financial management, are provided in Table 24. They are consistent with the Productivity Commission's definitions of financial performance indicators although reported statistics may differ as the Productivity Commission uses Government finance statistics.

The values in Table 24 are in nominal terms based on 2007-08 MYBR estimates at the time of publication. Estimates include the effects of the 2007-08 water restrictions and 2008-09 pricing decisions.

**Table 24: Summary of financial ratios for SA Water (nominal)**

Financial ratios	2007-08 (estimate)	2008-09 (estimate)
<b>Profitability</b>		
Return on assets*	4.2%	5.1%
Return on equity	3.4%	4.1%
<b>Financial management</b>		
Interest cover (times)	3.8	4.3
Total debt / total assets (target 15-25%)	18.3%	18.8%
Dividend payout ratio	95%	94%

\*As per the definition used by the Productivity Commission.

These financial indicators demonstrate adequate profitability and interest cover.

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## **APPENDICES**

**Appendix 1: Notice of Referral, including Terms of Reference**

**NOTICE OF REFERRAL FOR AN INQUIRY INTO WATER AND  
WASTEWATER PRICING IN METROPOLITAN AND REGIONAL SOUTH  
AUSTRALIA**

**PURSUANT TO PART 7 OF THE ESSENTIAL SERVICES COMMISSION  
ACT 2002**

**FROM:** Kevin Foley, Treasurer

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

**RE:** Water and Wastewater Prices in Metropolitan and Regional South Australia  
1 July 2008 to June 2009 and indicative in principle revenue direction to 30  
June 2013.

**BACKGROUND:**

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

**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 price setting processes undertaken in the preparation of advice to Cabinet, resulting in Cabinet making its decision on the level and structure of SA Water's water and wastewater prices in metropolitan and regional South Australia in 2008-09 and an indicative in principle revenue direction to 30 June 2013 having regard to:
  - a. the application of 1994 CoAG pricing principles;
  - b. the National Water Initiative, specifically, Clause 65 with respect to the continued application of pricing principles to urban areas, Clause 66(i) with respect to water and wastewater pricing in the metropolitan area and Clause 66(v) with respect to water and wastewater pricing in regional (urban) areas.
- (b) In undertaking this inquiry, the Commission is to take into account:
  - a. the accredited *South Australian National Water Initiative Implementation Plan* with respect to Clauses 65, 66(i) and 66(v);
  - b. the National Water Commission *National Water Initiative First Biennial Assessment of Progress in Implementation*, August 2007, Attachment 1 'Summary progress on implementing NWI actions' relevant to Clauses 65, 66(i) and 66(v);
  - c. the attached *Transparency Statement Metropolitan and Regional Water and Wastewater Prices in South Australia 2008-09* (Part A) dated January 2008.
- (c) In considering the processes undertaken for the preparation of advice to Cabinet, the Commission is to advise on the extent to which information relevant to the 1994 CoAG pricing principles and the National Water Initiative was made available to Cabinet.

## REQUIREMENTS FOR INQUIRY:

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

- (a) I require that the Commission undertake its inquiry and submit a Draft Report to the Treasurer and the Minister for Water Security by no later than 16 May 2008;
- (b) I require that the Commission submit a Final Report on the inquiry to the Treasurer and the Minister for Water Security by no later than 27 June 2008;
- (c) In conducting the inquiry, the Commission is not required to hold public hearings, public seminars or workshops but may receive and consider any written submissions as it thinks appropriate and it must advertise to call for written submissions to be lodged no later than 28 days from the date of publication of the Notice of Inquiry;
- (d) If the Commission wishes to seek further information in relation to the conduct of this inquiry, it may contact the Director, Economic Regulation, Revenue and Economics Branch, Department of Treasury and Finance.

## **DIRECTIONS:**

The following directions are 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 to that end must enter into a Deed of Non-Disclosure with the Crown in right of the State of South Australia. I hereby authorise the Under Treasurer to act as agent for and on behalf of the Crown for that purpose. Further, the Commission must require any consultant firm or person providing consultancy services to the Commission in relation to the inquiry to be made a party to that Deed. A copy of the Deed will be made available to the Commission for comment.



Kevin Foley  
**TREASURER**

27 FEB 2008

## **Appendix 2: Water Proofing Adelaide Wastewater Recycling Projects**

### ***Glenelg Reuse Scheme***

The Glenelg WWTP will be expanded and 5.5GL per annum of treated water from the plant will be reused. A 30km pipeline network from the Adelaide Airport into the city centre and North Adelaide will deliver recycled water to:

- irrigate the Adelaide parklands
- potentially enable environmental flows down the River Torrens
- make available reused water for 64 commercial development opportunities in the CBD.

Total project cost is \$60m, with the potential for Commonwealth funding. This project will free up stressed ground water resources and River Murray water that is currently used to water parklands and supply commercial developments in the city.

### ***Christies Beach WWTP***

The Christies Beach WWTP (CBWWTP) upgrade project will increase the capacity of the plant from the current 30 ML per day to 45 ML per day. The upgraded plant will have better nutrient removal capability and will reduce the nitrogen and ammonia load to the Gulf of St Vincent. The project includes onsite sludge management systems so that sludge will no longer be pumped to the sludge lagoons at Noarlunga adjacent the Onkaparinga River.

The plant will continue to produce 3 GL per annum of reuse water of a quality suitable for horticulture.

The current approved capital expenditure is \$151m.

### ***Waterproofing the South***

A project related to the CBWWTP upgrade project is the Waterproofing the South scheme (WPTS).

WPTS is an integrated approach to expanding or substituting traditional sources of water with alternative sources. The Onkaparinga Council is the lead agency for the WPTS scheme within which there are a number of proposed projects. Reuse of effluent from CBWWTP is a key project in the scheme. The SA Water Board has recently endorsed an in principle approval to pump, store and treat effluent from CBWWTP at an off site location for use as dual reticulation in new housing developments.

It is estimated that the scheme would use up to 3.2 GL per annum and would cost in the order of \$55m. The WPTS scheme is currently awaiting Commonwealth Government agreement to final funding arrangements.

### ***Bolivar WWTP***

The Bolivar WWTP plant will supply an additional 3GL per annum of recycled water following the extension of the Virginia Pipeline Scheme in 2008. The project will take 'Class A' water from the current scheme to a pumping station where it will be distributed to Angle Vale, about 5 kilometres north east of Virginia in the Northern Adelaide Plains Horticulture Region.

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

The additional 3GL of recycled water will reduce the nutrient discharge from the Bolivar WWTP into the marine environment by 6%, and will assist in reducing the over-allocation of groundwater in the Northern Adelaide Plains.

## **Appendix 3: CoAG Strategic Framework**

### **Relevant clauses from the CoAG Strategic Framework 1994**

In relation to water resource policy, CoAG agreed:

- 1 to implement a strategic framework to achieve an efficient and sustainable water industry comprising the elements set out in (3) ... below.
- 2 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*, 2<sup>nd</sup> Edition, p 103–104, available at [www.ncc.gov.au](http://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

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

(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, 2<sup>nd</sup> Edition, p 112–113, available at [www.ncc.gov.au](http://www.ncc.gov.au)

## **Appendix 4: National Water Initiative Clauses**

### **Best Practice Water Pricing and Institutional Arrangements**

#### **Outcomes**

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

#### **Actions**

##### **Water Storage and Delivery Pricing**

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

##### **Metropolitan**

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

##### **Rural and Regional**

- v) full cost recovery for all rural surface and groundwater based systems, recognising that there will be some small community services that will

never be economically viable but need to be maintained to meet social and public health obligations:

- a) achievement of *lower bound pricing* for all rural systems in line with existing NCP commitments;
- b) continued movement towards *upper bound pricing* for all rural systems, where practicable; and
- c) where full cost recovery is unlikely to be achieved in the long term and a Community Service Obligation (CSO) is deemed necessary, the size of the subsidy is to be reported publicly and, where practicable, jurisdictions consider alternative management arrangements aimed at removing the need for an ongoing CSO.

### **Cost Recovery for Planning and Management**

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

### **Investment in new or refurbished infrastructure**

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

### **Release of unallocated water**

70. Release of unallocated water will be a matter for States and Territories to determine. Any release of unallocated water should be managed in the context of encouraging the sustainable and efficient use of scarce water resources.
71. If a release is justified, generally, it should occur only where alternative ways of meeting water demands, such as through water trading, making use of the unused parts of existing entitlements or by increasing water use efficiency, have been fully explored.



## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

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

### **Environmental Externalities**

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

### **Institutional Reform**

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

### **Benchmarking Efficient Performance**

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

### **Independent pricing regulator**

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

Source: CoAG, 25 June 2004, *Intergovernmental Agreement on a National Water Initiative*, available at [www.coag.gov.au/meetings/250604/#water\\_initiative](http://www.coag.gov.au/meetings/250604/#water_initiative)

**Appendix 5: 2005-06 Annual Efficiency Report**

**2005-06  
ANNUAL EFFICIENCY REPORT**



**December 2007**

## **CONTENTS**

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	<b>EXECUTIVE SUMMARY</b>	<b>1</b>
<b>1.</b>	<b>INTRODUCTION</b>	<b>6</b>
<b>2.</b>	<b>METROPOLITAN SERVICE STANDARDS</b>	<b>8</b>
2.1	Introduction	
2.2	Asset Performance	
2.3	Customer Service	
2.4	Environmental Performance	
2.5	Summary – Metropolitan Water Supply & Wastewater Service Standards	
<b>3.</b>	<b>METROPOLITAN SERVICE COSTS</b>	<b>20</b>
3.1	Introduction	
3.2	Metropolitan Water Supply Costs	
3.3	Metropolitan Wastewater Service Costs	
3.4	Summary – Metropolitan Water and Wastewater Business Costs	
<b>4.</b>	<b>REGIONAL SERVICE STANDARDS</b>	<b>31</b>
4.1	Introduction	
4.2	Asset Performance	
4.3	Customer Service	
4.4	Environmental Performance	
4.5	Summary – Regional Water and Wastewater Service Standards	
<b>5.</b>	<b>REGIONAL SERVICE COSTS</b>	<b>40</b>
5.1	Introduction	
5.2	Regional Water Supply Costs	
5.3	Regional Wastewater Service Costs	
5.4	Summary – Regional Water and Wastewater Business Costs	
<b>6.</b>	<b>VALUE FOR MONEY FOR CUSTOMERS</b>	<b>48</b>
6.1	Introduction	
6.2	Customer Feedback	
6.3	Comparative Levels of Service	
6.4	Comparative Level of Costs of Services and Customer Bills	
6.5	Summary – Value for Money	

**Appendix 1 - Key Differences in Providing Water Supply and Wastewater Service**

## **EXECUTIVE SUMMARY**

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This report provides a review of the efficiency of the South Australian Water Corporation's (herein referred to as SA Water or the Corporation) metropolitan and regional operations until the year ending June 2006. The review is undertaken as a key input into processes for:

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

The review considers the Corporations' efficiency in terms of an analysis of service standards, costs and value for money. This is undertaken by way of trends over time as well as by comparing results with similar water and wastewater companies in Australia.

For metropolitan operations, comparisons are made with eight similar water and wastewater companies using the inaugural National Performance Report (*NPR 2005-06*) published by the National Water Commission. Data is provided for the period 2000-01 to 2005-06 as the *NPR 2006-07* had not been published at the time of reporting.

For regional operations, information on service levels is provided for six regional centres, namely, Mt Gambier, Murray Bridge, Pt Augusta, Pt Lincoln, Pt Pirie and Whyalla. These centres represent approximately 26% of the total population served in all country areas by SA Water. The centres were chosen as they represent the mix of different types of operating environments within SA Water's regional system and are viable comparators to regional areas interstate. Comparisons of performance are made with twelve other regional water and wastewater companies. The data used for regional cost analysis is based on the Corporation's internal estimates at a regional level. Data for 2005-06 was the first year regional benchmarking was undertaken and therefore trend data is not as strong as for the metropolitan sector of the business.

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

Appendix 1 provides a summary of key differences in the operating environment of SA Water and other States.

Key findings of the efficiency analysis are summarised here.

### ***Metropolitan service standards***

Table 1 summarises the performance of the Corporation in terms of measures for three primary areas of activity: asset performance, customer service and environmental performance. The Table contrasts the Corporation's performance with the average of other compared water companies and provides a ranking. While the data in the report compares performance over six years the Table summarises the performance for the 2005-06 year.

It can be seen that SA Water's performance was better than (or the same as) the average of the compared companies for each of the 12 performance measures except two (those being the number of sewer main breaks and chokes per 1,000 properties and the proportion of bio-solids reused).

Table 1  
SA Water metropolitan service performance - summary comparisons – 2005-06

Category	2005-06 Performance relative to other providers	
	Average of compared companies	Rank <sup>(1)</sup> 05-06
<b><i>Asset performance</i></b>		
Water main breaks (per 100 km of main)	Better	2 (7)
Number of sewer main breaks and chokes( per 1,000 properties) <sup>(2)</sup>	Worse	7 (9)
Infrastructure leakage index	Better	2 (8)
Water losses (litres/connection/day)	Better	2 (7)
<b><i>Customer Service</i></b>		
Percentage of population where microbiological compliance was achieved	Same	Equal 1 (9)
Water quality complaints (per 1,000 properties)	Better	2 (8)
Average connect time to a telephone operator (seconds)	Better	2 (7)
Number of sewage odour complaints (per 1000 properties)	Same	Equal 6 (8)
<b><i>Environmental performance</i></b>		
Percent of sewage treated to a tertiary level	Better	Equal 1 (9)
Recycled water (per cent effluent recycled)	Better	2 (8)
Percent of bio-solids reused	Worse <sup>(2)</sup>	6 (7)
Sewer overflows to the environment (per 100 km)	Better <sup>(3)</sup>	7 (9)

- (1) Ranked from best to worst of average of compared companies. Parentheses contain number in comparison group. The number of companies varies depending on the data supplied.
- (2) The "average" is affected by an extreme value for one company in the comparison group. When this data is removed SA Water's results are better than the average.
- (3) The "average" is affected by an extreme value for one company in the comparison group. When this data is removed SA Water's results are worse than the average

### ***Metropolitan costs***

Table 2 provides a summary comparison of SA Water's cost performance against the weighted average of the nine urban water and wastewater service providers used in this report.

Table 2

**SA Water Metropolitan Service Operating Costs (in 2005-06 dollars)**  
**Summary Comparisons**

				2005-06 performance Relative to Other Companies	
Category	3 years to 05-06	5 yrs to 05-06	Trend	Weighted average of compared companies	Rank <sup>1</sup>
<b>Water Supply</b>					
Real Operating Cost per Property	-7.7%	-3.2%	Decreasing	Better	3 (9)
<b>Wastewater</b>					
Real Operating Cost per Property	10.4%	21.3%	Increasing	Better	2 (9)

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

### *Water supply*

As Table 2 shows, SA Water's metropolitan water supply costs have decreased in real terms from 2000-01 to 2005-06. When real operating costs per property are adjusted for constant major pumping and consumption patterns across all years the real operating cost per property remains relatively stable from 2000-01 to 2006-07. This suggests favourable efficiency trends, especially when there has been an increasing level of customer satisfaction with water quality over the period (see Section 2.3).

SA Water's metropolitan water supply operating costs are well below the weighted average of the compared companies. This is in spite of some manifest cost disadvantages for Adelaide metropolitan water supply, most obviously the need to pump water from the River Murray, over the Mount Lofty Ranges, and the need for relatively extensive treatment of that water to achieve drinking water standards.

### *Wastewater*

For metropolitan wastewater, SA Water's costs have increased by approximately 21% in real terms over the five year period to 2005-06, largely attributable to the Environmental Improvement Program (EIP) required by the Environment Protection Authority (EPA). The results, however, have seen a significant improvement in the quality of discharges into the environment over the period, with the Corporation now treating 100% of sewerage to a tertiary level (see Section 2.4). After adjustment for commissioning of new assets provided to meet EPA requirements, costs have been relatively stable over the period.

The Corporation's metropolitan wastewater operating costs per property are also well below the weighted average of the compared companies. Of the compared companies, SA Water has had the most significant increase in the proportion of wastewater treated to a tertiary level from 2000-01 to 2005-06. This supports the premise that the Corporation's operating costs are efficient, as service levels have improved significantly with operating costs remaining well under interstate benchmarks.

**Regional service standards**

Table 3 provides a summary comparison of the results for 2005-06 of the six South Australian regional centres when compared with twelve other interstate providers. Trend data for service standards for these centres is not available as the *NPR 2005-06* was the first report of non-major urban data in this format.

The Table shows the results for Mt Gambier were better than the average for each of the five performance measures, Pt Augusta and Whyalla better than the average in four of the measures, Pt Lincoln and Pt Pirie better in three of the five measures and Murray Bridge better in two of the five measures.

Table 3

2005-06 result compared with average of compared companies and ranked\*

Performance Measure	Mt Gambier	Murray Bridge	Pt Augusta	Pt Lincoln	Pt Pirie	Whyalla
<b>Asset performance</b>						
Water main breaks	Better (3 of 15)	Worse (10 of 15)	Worse (11 of 15)	Better (4 of 15)	Better (6 of 15)	Better (9 of 15)
Sewer main breaks	Better (1 of 17)	Better (7 of 17)	Better (6 of 17)	Worse (15 of 17)	Better (10 of 17)	Better (9 of 17)
<b>Customer service</b>						
% of pop. micro achieved**	Na	Na	Na	Na	Na	Na
Water quality complaints	Better (9 of 16)	Better (11 of 16)	Better (1 of 16)	Better (4 of 16)	Better (3 of 16)	Better (6 of 16)
Sewer odour complaints	Better (6 of 17)	Worse (12 of 17)	Better (6 of 17)	Better (2 of 17)	Worse (12 of 17)	Better (1 of 17)
<b>Environmental performance</b>						
Sewer overflows	Better (10 of 17)	Worse (16 of 17)	Better (8 of 17)	Worse (15 of 17)	Worse (14 of 17)	Worse (13 of 17)
No. of 'Better' results from the five measures	5	2	4	3	3	4

\* Average – the result is either better or worse than the average. The rank is the result as ranked from best to worst of the number of compared companies that provided data. The changes in the denominator reflect the number of companies that provided data for the measure in the *NPR*.

\*\* NA – as all compared companies achieved highest result (100%).



### **Regional costs**

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

Table 4

SA Water Regional Service Costs– summary comparisons

			2005-06 performance Relative to Other Companies	
Category	3 years to 05-06	5 yrs to 05-06	Trend	Rank <sup>1</sup> 2005-06
<b>Water Supply</b>				
Real Operating Cost per Property	-0.3%	0.8%	Increasing	10 (12) <sup>(2)</sup>
<b>Wastewater</b>				
Real Operating Cost per Property	32.3%	32.7%	Increasing	8 (13)

(1) Ranking is from cheapest to most costly.

(2) Water Corporation – Bunbury (WA) has not been included as it does not provide water supply services.

### **Water supply**

Operating costs for regional water supply are generally higher in South Australia than interstate due to poor water accessibility and quality. In spite of this disadvantage the Corporation has controlled operating costs well, highlighted by the marginal five year increase of 0.8% to 2005-06.

Regional water supply operating costs have been well controlled while service standards have been maintained or improved as described in Section 4.

### **Wastewater**

Regional wastewater costs have increased over the period primarily as a result of the need to upgrade facilities to meet environmental standards, coupled with higher treatment standards and an increase in preventative maintenance.

### **Value for money**

The Customer Satisfaction Survey conducted by the Corporation in 2007 indicates customers are generally very satisfied with the range and quality of services provided by the Corporation. Eighty-four per cent (84%) of responses to the survey consider that the price of water represents good value.

The standard of service offered by the Corporation to its customers is predominately at the mid-to-high range in the metropolitan area and in the mid range in the regional areas when compared with the service levels offered customers of the interstate water bodies.

While SA Water's operating costs for water supply and wastewater services are comparatively low in Adelaide when compared with other Australian cities, water and wastewater bills are comparatively high. To some extent this level of contribution may reflect the relative quality of assets employed which, in turn, provides a high level of service.

## **1. INTRODUCTION**

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CoAG pricing principles require that revenue targets be based on efficient resource and business costs. These costs need to be assessed in terms of the performance of capital infrastructure, levels of expenditure and levels of service.

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

In order to assess the efficiency of the provision of SA Water's metropolitan and regional services an analysis has been undertaken of the relative performance of the Corporation's water supply and wastewater services in terms of service standards and service costs. Service standards are examined in terms of asset management, customer service, and environmental performance. Service costs are reported in terms of real operating costs per property.

SA Water participated in the first National Performance Report (*NPR*), of the National Water Commission for 2005-06. The report, published in May 2006, builds on the previous performance report, *WSAAfacts*, produced by the Water Services Association of Australia (WSAA). While *WSAAfacts* focussed on major urban-based water companies, the *NPR* reports on both major and non-major urban water companies. Previously, aggregated non major urban performance reporting in Australia was limited to State-based reports and an Australian Water Association non-major urban report published in 2000-01. As a result, there has been little opportunity in recent years to draw comparisons of SA Water's regional operations with similar interstate water companies. The *NPR* now provides that opportunity and this analysis provides comparisons for these companies. However, while the *NPR* provides trend data for major urban companies, it does not do the same for non-major urban companies, as it is the first aggregated report.

The *NPR* involves each participating water service provider reporting data using common definitions and with some data being subject to independent auditing. This minimises any differences in interpretation of definitions and assumptions, although some inconsistencies are likely to remain. Moreover, the performance measures used are the outcome of detailed industry consideration of the range of indicators that effectively capture relevant aspects of water service providers' operations. The *NPR* is required by the National Water Initiative (NWI) as part of a new nationally consistent framework for performance reporting.

Data in this Annual Efficiency Report for service standards and operating costs are presented for metropolitan operations for six years until 2005-06 and for regional operations only for 2005-06. Data is not available for 2006-07 as *NPR 2007* was not published at the time of reporting.

The data used for regional cost analysis is based on the Corporation's internal estimates of the total regional cost, which may limit the comparability of these numbers with interstate companies published in the *NPR*.

The metropolitan analysis is undertaken in terms of trends in the Corporation's performance over a six-year period and by comparison with relevant urban water and wastewater companies in Australia. The regional analysis is limited to a comparison of data from the *NPR* of relevant, similarly-sized non-major urban water companies over only one year.

Data for 2005-06 was the first year non-major urban benchmarking was undertaken for some time, and therefore trend data is not as strong as for the metropolitan sector of the business.

The report is structured in terms of benchmarking of metropolitan service standards, metropolitan service costs, regional service standards and regional service costs. Finally, a section on value for money draws together the elements of customer feedback on services provided with an assessment of the relative quality of the services compared with other interstate providers and an assessment of the amount of the customers' bill in the context of the total cost of providing the services.

## **2. METROPOLITAN SERVICE STANDARDS**

### **2.1 Introduction**

This section analyses the performance of SA Water's metropolitan services in terms of its trends over six years to 2005-06 and compares the performance with eight other water companies from other States/Territories in Australia.

SA Water's operations in the metropolitan area comprise a network of 8,826 km's of water main and 7,025 km's of wastewater main providing services to a population of approximately 1.09 million people.

Table 2.1 lists the water and wastewater services provided by each water company included in the benchmarking exercise. For those companies with other segments of their business, such as electricity and regional operations, the data has been restricted to only the metropolitan water component.

Table 2.1

Water and wastewater services provided by each compared company

Service provider	State	Water Wholesale	Water Retail	Wastewater Wholesale	Wastewater Retail	Other
ACTEW Corporation	ACT	Yes	Yes	Yes	Yes	Water- Bulk Storage
Brisbane Water	QLD	Yes	Yes	Yes	Yes	Stormwater
City West Water	Vic	No	Yes	Yes	Yes	None
Power and Water	NT	Yes	Yes	Yes	Yes	Water- Bulk Storage
SA Water	SA	Yes	Yes	Yes	Yes	Water- Bulk Storage
South East Water	Vic	No	Yes	Yes	Yes	None
Sydney Water	NSW	Yes	Yes	Yes	Yes	1. Water- Bulk Storage 2. Stormwater
Water Corporation	WA	Yes	Yes	Yes	Yes	1. Water- Bulk Storage 2. Stormwater
Yarra Valley Water	Vic	No	Yes	Yes	Yes	None

These major urban water and wastewater service providers were chosen for 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.

Indicators relating to service performance and costs in this review of SA Water's metropolitan operations have been obtained generally from the *NPR*. Most of the performance indicators used in the *NPR* continue from *WSAAfacts*, and new measures are identified.

Each service performance indicator is categorised as either: “asset performance” which indicates system function, “customer service”, which includes aspects of service directly relevant to the customer; and “environmental performance”, which indicates the extent of any environmental spillovers. 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.

The availability of water, arguably the most significant ingredient in the provision of water services, is not included as a category of performance because in many respects it lies beyond the direct control of the Corporation being so subject to climate and environmental variations. Comparing availability with other water providers that are either not subject to these conditions or to the same extent is therefore not considered meaningful although it does have implications for the cost of services as addressed elsewhere in this report.

Most water supplies available to SA Water are allocated through the licensing mechanism of the Natural Resources Management Act administered by DWLBC. Compliance with these licences and associated conditions together with ongoing dialogue with the regulator in terms of demand and supply demonstrates an efficient approach to water availability. With agreement of the Minister the Corporation has purchased water entitlements over recent years to ensure water availability.

The following performance indicators were chosen to benchmark metropolitan water supply service performance due to their overall relevance and consistency in data availability:

***Asset performance***

- Water main breaks (per 100 km of main)
- Sewer main breaks and chokes (per 1000 properties)
- Infrastructure leakage index
- Water losses (litres/connection/day)\*

***Customer service***

- Percentage of compliance where microbiological compliance was achieved\*
- Water quality complaints (per 1,000 properties)
- Number of sewage odour complaints (per 1000 properties)
- Average connect time to a telephone operator

***Environmental performance***

- Per cent of sewage treated to a tertiary level
- Recycled water (percent of effluent recycled)
- Percent of biosolids reused
- Sewer overflows to the environment (per 100 km of main)

\* This is a new performance measure.

## 2.2 Asset Performance

### *Number of water main breaks per 100km of main*

Table 2.1 shows the number of water main breaks as a proportion of the total length of water mains serviced by the provider. This is included as an indicator of frequency of system failure. It does not include breaks in the service connection from the main to the customers' property nor the internal plumbing.

For SA Water, the number of water main breaks per 100km of main has remained relatively consistent throughout the reporting period although the 2005-06 outcome reflects a 13 per cent decline over five years. In all years performance by SA Water has been better than the average.

Table 2.1

Water main breaks per 100km of main

Utility	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	% change 3 years to 2005-06	% change 5 years to 2005-06
ACTEW Corporation	18.4	18.8	26.3	26.3	23.8	52.0	97.7	182.6
Brisbane Water	37.5	36.5	36.7	34.5	40.0	N.a.	N.a.	N.a.
City West Water	58.3	56.0	102.9	91.6	65.9	27.8	-73.0	-52.3
Power & Water	20.3	24.5	20.7	18.1	44.3	55.2	166.7	171.9
SA Water	24.5	22.1	24.2	23.4	24.6	21.3	-12.0	-13.1
South East Water	26.0	21.1	29.0	26.6	22.7	18.4	-36.6	-29.2
Sydney Water	37.7	37.5	50.7	38.0	37.8	34.5	-32.0	-8.5
Water Corporation	12.6	12.9	13.2	13.6	13.8	N.a.	N.a.	N.a.
Yarra Valley Water	55.9	40.7	56.2	51.3	41.4	22.6	-59.8	-59.6
Average*	32.4	30.0	40.0	35.9	34.9	33.1	-17.2	2.3

\* Note this is an average and not a weighted average as used in the financial analysis.

### *Sewer main breaks & chokes (per 1,000 properties)*

Table 2.2 shows the sewer main breaks and chokes (per 1,000 properties). This includes all sewer mains but excludes the property connection sewers and pipelines carrying treated effluent.

Table 2.2

Sewer main breaks and chokes (per 1,000 properties)

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	% change 3 years to 2005-06	% change 5 years to 2005-06
ACTEW Corporation	25.1	22.8	26.5	23.3	28.5	23.1	-12.8	-8.0
Brisbane Water	6.2	5.8	5.3	3.8	4.6	4.3	-18.9	-30.6
City West Water	3.6	3.3	4.1	3.7	3.2	3.1	-24.4	-13.9
Power & Water	3.0	1.6	2.0	1.5	2.1	6.2	210.0	106.7
SA Water	5.9	5.8	7.1	7.0	8.0	7.9	11.3	33.9
South East Water	1.8	1.6	2.3	2.5	2.1	2.3	0.0	27.8
Sydney Water	10.2	9.8	11.9	10.4	11.7	12.3	3.4	20.6
Water Corporation	3.8	3.5	3.8	3.4	3.2	3.1	-18.4	-18.4
Yarra Valley Water	4.8	4.2	6.0	6.3	5.9	5.7	-5.0	18.8
Average	7.2	6.5	7.7	6.9	7.7	7.6	-1.4	5.6

For SA Water, the number of sewer main breaks and chokes (per 1,000 properties) rose by 34 per cent over the five years to 2005-06 from 5.9 breaks and chokes to 7.9.

The performance of the SA metropolitan system was better than the average for the first three years and marginally worse than the average for the last three years. The average of all companies over this time also rose (from 7.2 to 7.6) by 5.6%.

Metropolitan Adelaide has reactive clay soils which are prone to movement. This creates problems for the metropolitan sewage system in times of drought, especially areas where earthenware pipes are still used. There is some evidence as reflected in the NPR that Adelaide metropolitan system is very prone to tree root damage as well.

Since 2002-03 SA Water's performance has shown, along with about half the compared companies, a general deterioration. In large part this is attributed to the drought where tree root intrusion has been a major cause of these problems. Expenditure levels are under review.

#### *Infrastructure Leakage Index (ILI)*

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

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.

Table 2.3

Infrastructure Leakage Index (ILI)

	2001-02	2002-03	2003-04	2004-05	2005-06	% change 3 years to 2005-06
ACTEW Corporation	1.2	1.3	0.9	1.0	Na	Na
Brisbane Water	2.0	2.3	2.4	2.5	2.0	-13.0
City West Water	1.7	2.0	1.4	1.2	1.3	-35.0
Power & Water	4.6	5.5	4.9	5.8	1.7	-69.1
SA Water	1.2	1.2	1.2	1.2	1.1	-8.3
South East Water	1.5	1.4	1.3	1.0	1.0	-28.6
Sydney Water	2.8	2.9	2.1	1.8	1.6	-44.8
Water Corporation	1.3	1.5	N.a.	1.6	1.7	13.3
Yarra Valley Water	1.3	1.3	1.0	1.4	1.2	-7.7
Average	1.9	2.2	1.7	1.9	1.5	-32.7

SA Water's performance has been consistent over the five years and consistently better than the average of all the compared companies. An ILI of 1.1 is in the range benchmarked as "excellent" and one of the best figures for Australian urban water authorities.

*Water losses (litres/connection/day)*

This new indicator reports the utility's real losses in the water distribution system. Water losses in the distribution system can be classified as either apparent losses (unauthorised consumption, retail metering errors) or real losses (leakage and overflows from mains, service reservoirs and service connections prior to customer meters).

Real losses represent a wasted resource, reduce the effective capacity of a water supply system, and may result in unnecessary operating costs.

Based on data from the *NPR* Table 2.4 shows SA Water is one of the two companies with the lowest rate of losses of the seven (not all companies reported this data) compared companies and well below the average.

Table 2.4

Water losses (litres/connection/day)	2005-06
ACTEW	N.a.
Brisbane Water	129.0
City West Water	74.4
<b>SA Water</b>	<b>67.0</b>
South East Water	65.3
Sydney Water	96.0
Water Corporation	88.0
Yarra Valley Water	81.5
<b>Average</b>	<b>85.9</b>

## **2.3 Customer Service**

*Percentage of population where microbiological compliance was achieved (new measure)*

SA Water is committed to supplying drinking water that is consistent with the *microbiological performance standards* for levels of *E.coli*<sup>1</sup> and total coliform bacteria contained in the Australian Drinking Water Guidelines 1996 (the Guidelines).

Generally the methodology for calculating microbiological and health related chemical/radiological compliance is specified by the health regulator in each jurisdiction. In the absence of such specification, the guidance in the *Australian Drinking Water Guidelines (2004)* is used as interpreted below:

*For each zone, at least 98% of routinely monitored samples contain no E.coli per 100ML of water over the 12 month period.*

---

<sup>1</sup> The *Australian Drinking Water Guidelines (2004)* use *E.coli* as the indicator of faecal contamination and for companies using these guidelines for verification of performance, *E.coli* is the required assessment indicator. Total coliforms were removed as an indicator of faecal contamination in the 2004 guidelines; however some water businesses may still have requirements for verification of water quality using the combination of total coliforms and *E.coli*. If this is the case, compliance against total coliforms and *E.coli* should be reported.



Table 2.5 shows that all companies, including SA Water, satisfied the new measure, percentage of population with microbiological compliance performance in 2005-06.

Table 2.5

Percentage of population where microbiological  
compliance was achieved

	2005-06
ACTEW Corporation	100
Brisbane Water	100
City West Water	100
Power and Water	100
SA Water	100
South East Water	100
Sydney Water	100
Water Corporation	100
Yarra Valley Water	100
<b>Average</b>	<b>100</b>

*Water quality complaints (per 1,000 properties)*

While microbiological water quality is the most important indicator from a public health perspective, aesthetic qualities such as colour, taste and odour are important for customers and are often the main concern for complaint. The Corporation aims to achieve the *physical and chemical performance standards* contained in the Australian Drinking Water Guidelines for colour, turbidity and acidity levels.

Table 2.6 shows the water quality complaints (per 1,000 properties). SA Water's results show a significant improvement over the reporting period and the Corporation has consistently been in the top group of performers of the compared companies. This is despite source water that is generally well below the quality enjoyed by other companies.

Table 2.6

Water quality complaints (per 1,000 properties)

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	% change 3 years to 2005-06	% change 5 years to 2005-06
ACTEW Corporation	2.3	2.8	1.8	1.9	2.5	6.1	238.9	165.2
Brisbane Water	8.1	4.4	3.3	4.8	3.7	2.9	-12.1	-64.2
City West Water	1.9	1.8	1.1	0.8	1.3	1.4	27.3	-26.3
Power and Water Corp	5.4	4.6	1.7	2.7	2.7	N.a.	Na	Na
SA Water	2.4	1.7	1.6	1.1	1.2	0.9	-43.8	-62.5
South East Water	3.4	3.4	2.8	2.2	1.8	1.7	-39.3	-50.0
Sydney Water	3.2	2.4	2.0	1.4	1.1	0.8	-60.0	-75.0
Water Corporation	18.4	16.5	18.6	20.1	17.3	11.3	-39.2	-38.6
Yarra Valley Water	5.4	5.5	5.1	5.6	6.5	6.5	27.5	20.4
<b>Average</b>	<b>5.6</b>	<b>4.8</b>	<b>4.2</b>	<b>4.5</b>	<b>4.2</b>	<b>3.9</b>	<b>-6.4</b>	<b>-29.6</b>

Each year SA Water surveys its customers on a range of matters in order to obtain an assessment of customers' attitudes and preferences to the services being provided. The 2007 Customer Satisfaction Survey sought a range of responses from participants about water quality. Table 2.7 shows responses from participants about their level of concerns with water quality for the period 2002-2007. The Table shows the percentage of customers with concerns about the quality of their tap water has decreased significantly from 35% in 2002 to 11% in 2007. Correspondingly, those with no concerns with respect to water quality increased significantly from 63% in 2002 to 88% in 2007.

Table 2.7

Level of tap water quality concerns

	2002	2003	2004	2005	2006	2007
Yes, strong concerns	11%	9%	10%	6%	4%	3%
Yes, moderate concerns	24%	21%	18%	15%	12%	8%
No, no real concerns	63%	70%	68%	77%	83%	88%
Can't say	2%	0%	4%	2%	1%	1%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

#### *Average connect time to a telephone operator*

Table 2.8 shows the average connect time to a telephone operator (seconds) before a customer is connected to a company representative.

Table 2.8

Average connect time to a telephone operator (sec)

*	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	% change 3 years to 2005-06	% change 5 years to 2005-06
Brisbane Water	Na	Na	21.0	24.3	15.6	17.9	-14.8	Na
City West Water	183.0	76.2	49.8	31.0	15.0	62.6	25.7	-65.8
Power and Water	Na	Na	Na	Na	Na	Na	Na	Na
<b>SA Water</b>	<b>19.2</b>	<b>18.0</b>	<b>27.0</b>	<b>26.0</b>	<b>20.0</b>	<b>20.0</b>	<b>-25.9</b>	<b>4.2</b>
South East Water	Na	30.0	25.8	26.1	22.0	22.0	-14.7	Na
Sydney Water	Na	12.8	15.8	18.8	25.9	20.1	27.2	Na
Water Corporation	13.8	15.6	18.6	19.9	21.0	24.1	29.6	74.6
Yarra Valley Water	Na	30.6	28.8	28.6	29.8	38.6	34.0	Na
<b>Average</b>	<b>72.0</b>	<b>30.5</b>	<b>26.7</b>	<b>25.0</b>	<b>21.3</b>	<b>29.3</b>	<b>9.9</b>	<b>-59.3</b>

\* ACTEW is not included as it reported data in *NPR* for 2005-06 only.

The average connect time to a telephone operator for SA Water decreased by approximately 26 per cent for the three-year period to 2005-06 primarily as a result of the unusually high enquiry load by customer enquiries in 2002-03 and 2003-04 as a consequence of the imposition of water restrictions and the River Murray levy. While the change for the 5-year period reflects a marginal increase, for the last two years the results have met the Corporation's performance targets and are below the average for all companies.

*Number of sewage odour complaints (per 1,000 properties)*

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

SA Water's results show a marginal improvement over the reporting period. SA Water's performance is in the mid range of the selected companies.

Table 2.9

Number of sewage odour complaints (per 1,000 properties)

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	% change 3 years to 2005-06	% change 5 years to 2005-06
ACTEW Corporation	Na	Na	0.1	0.0	0.1	0.6	500.0	Na
Brisbane Water	0.4	1.2	1.1	1.3	1.7	0.4	-63.6	0.0
City West Water	0.3	0.3	0.3	0.4	0.5	0.4	33.3	33.3
Power and Water Corp	1.6	1.9	1.8	1.0	1.0	Na	Na	Na
SA Water	0.8	0.7	0.8	0.7	0.7	0.6	-25.0	-25.0
South East Water	Na	Na	0.2	0.3	0.2	0.1	-50.0	Na
Sydney Water	0.7	0.9	1.1	1.0	1.0	1.1	0.0	57.1
Water Corporation	1.4	1.6	1.6	1.1	1.0	0.9	-43.8	-35.7
Yarra Valley Water	0.2	0.2	0.2	0.2	0.3	0.3	50.0	50.0
Average	0.8	1.0	0.8	0.7	0.7	0.6	-31.3	-28.7

## 2.4 Environmental Performance

*Percent of sewage treated to tertiary level*

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

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

It can be assumed that where tertiary treatment is undertaken the balance of treatment will be done at either the primary or secondary level.

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 2005-06, all (100 per cent) wastewater received tertiary treatment.

In 2005-06 SA Water had the equal highest percent of sewage 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. As Section 3 will show this increased level of tertiary treatment has been the major driver behind the increasing metropolitan wastewater operating costs per property for the period 2000-01 to 2006-07.

Table 2.10

Percent of sewage treated to tertiary level

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	% point change 3 years to 2005-06	% point change 5 years to 2005-06
ACTEW Corporation	100.0	100.0	100.0	100.0	100.0	100.0	0.0	0.0
Brisbane Water	53.2	67.0	76.0	66.5	66.3	21.1	-54.9	-32.1
City West Water*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Power & Water	1.9	2.0	1.5	1.4	2.5	1.6	0.1	-0.3
SA Water	17.4	54.6	81.6	91.0	97.0	100.0	18.4	82.6
South East Water	12.9	6.0	8.0	7.3	55.8	21.3	13.3	8.4
Sydney Water	12.0	17.3	22.7	17.0	17.7	21.8	-0.9	9.8
Water Corporation	0.0	14.4	40.5	40.4	39.0	94.5	50.0	94.5
Yarra Valley Water	100.0	100.0	100.0	100.0	100.0	98.1	-1.9	-1.9
<b>Average</b>	<b>33.0</b>	<b>40.1</b>	<b>47.8</b>	<b>47.1</b>	<b>53.1</b>	<b>50.9</b>		

\* All sewage is treated to secondary level.

*Recycled water (percent of effluent recycled)*

This measure is 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.

Table 2.11

Recycled water (percent effluent recycled)

*	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	% point change 3 years to 2005-06	% point change 5 years to 2005-06
ACTEW Corporation	4.6	5.5	7.3	8.1	7.9	6.7	-0.6	2.1
Brisbane Water	2.6	4.0	3.5	3.2	5.0	4.8	1.3	2.2
Power & Water	4.5	3.9	3.5	2.6	4.1	2.5	-1.0	-2.0
SA Water	15.9	15.1	19.2	21.4	20.7	18.1	-1.1	2.2
South East Water	12.5	11.3	22.8	18.9	17.9	19.4	-3.4	6.9
Sydney Water	1.9	2.2	2.6	3.2	2.8	3.5	0.9	1.6
Water Corporation	2.9	3.8	4.1	3.6	3.6	5.3	1.2	2.4
Yarra Valley Water	1.7	1.5	3.1	3.2	2.2	4.0	0.9	2.3
<b>Average</b>	<b>5.8</b>	<b>5.9</b>	<b>8.3</b>	<b>8.0</b>	<b>8.0</b>	<b>8.0</b>		

\* City West Water is not included as it did not report data for this measure.

SA Water's results indicate an increase in the proportion of recycled water (percent of effluent recycled) over the five years to 2005-06 of 2.2 percentage points although a minor reduction in the last three years primarily due to the drought. For each year SA Water had the highest or second highest proportion of recycled water among the compared providers and more than twice the average for each year.

*Per cent of bio-solids reused*

Bio-solids are the stabilised organic solids derived from wastewater treatment processes. Reuse involves managing bio-solids safely and sustainably to utilise their nutrient, energy, or other values. This is a significant environmental performance measure.

SA Water's operations generate approximately 25,000 dry tonnes per annum of bio-solids which pose an escalating financial and environmental concern if not appropriately managed and disposed off-site. With limited storage space and other environmental management constraints imposed by the EPA, ongoing storage is not a viable option. Re-use by land application is the most accepted and least cost practice method of disposal by water authorities in Australia and overseas. Re-use, while not commercially viable in isolation, ensures that the issue is addressed on an ongoing basis and is not allowed to become a hidden, deferred liability.

Table 2.12 shows the percent of biosolids reused. Between 2000-01 and 2004-05 SA Water's reuse of bio-solids was greater than 100 per cent because it was drawing down stockpiles accumulated in previous years. This draw down has now been completed. It is presumed South East Water also drew down its stockpile of biosolids in 2005-06 (and in 2002-03) although to a significantly greater degree than previously and when compared to SA Water's draw downs. As a result the "average" for 2005-06 is significantly higher than for the previous year. When this data is removed SA Water's results are better than the average. Moreover, despite an outcome marginally below 100% in 2005-06 (95%) it is not inconsistent with the long term 100% reuse policy.

Table 2.12

Per cent of bio-solids reused

*	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	% point change 3 years to 2005-06	% point change 5 years to 2005-06
ACTEW Corporation	100.0	100.0	100.0	100.0	100.0	100.0	0.0	0.0
Brisbane Water	NR**	NR	NR	100	96.5	99.6	N.a.	Na
SA Water	154.0	158.0	144.0	168.0	129.0	95.0	-49.0	-59.0
South East Water	17.0	58.0	177.2	121.7	33.4	321.5	144.3	303.5
Sydney Water	99.0	99.0	100.0	99.9	100.0	100.0	0.0	1.0
Water Corporation	70.3	86.0	97.7	93.2	96.0	99.9	2.2	29.6
Yarra Valley Water	NR	NR	NR	NR	0.0	0.0	Na	Na
Average	88.1	100.2	123.8	97.6	77.3	116.6		

\* City West Water and Power and Water are not included as the companies did not report data for this measure.

\*\* NR indicates the data was not reported.

*Sewer overflows to the environment (per 100 km of main)*

Table 2.13 shows the incidence of untreated wastewater spills, discharges or escapes from the wastewater system (i.e. pumping stations, pipes, maintenance holes or designed overflow structures) to the external environment. It does not include overflows caused by a blockage in the property connection or spills, discharges or overflows that escape to dedicated storages.

Table 2.13

Sewer overflows to the environment (per 100 km of main)

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	% change 3 years to 2005-06	% change 5 years to 2005-06
ACTEW Corporation	46.0	93.5	102.8	96.6	107.2	76.8	-25.3	67.0
Brisbane Water	29.0	16.0	19.5	20.3	12.3	8.7	-55.4	-70.0
City West Water	10.9	7.4	10.1	8.2	6.7	5.8	-42.6	-46.8
Power & Water	6.2	6.0	8.6	6.8	6.7	5.6	-34.9	-9.7
SA Water	11.5	12.2	14.2	13.7	14.9	12.7	-10.6	10.4
South East Water	3.5	1.8	1.4	1.6	3.7	4.8	242.9	37.1
Sydney Water	NR	NR	5.4	6.0	3.3	3.7	-31.4	Na
Water Corporation	9.1	9.7	10.4	8.6	9.1	9.4	-9.6	3.3
Yarra Valley Water	NR	NR	NR	NR	30.9	27.6	Na	Na
Average	16.6	20.9	23.9	22.3	22.9	17.2		

SA Water's results show a steady rate of overflows throughout the reporting period with an increase of approximately 10% in the first three years followed by a general decrease of approximately 11% over the 3 years to 2005-06. While the Corporation has consistently been in the high to mid range of overflows when compared with the selected companies it has always been below the average although ACTEW's results skew the range.

Sewer overflows most often occur following a choke in a main or other pipe. In Adelaide the majority of chokes are caused by tree root intrusion which in turn is far more prevalent where the pipes are of the old earthenware type (ie VC – vitreous clay) rather than other types. Sixty-four (64%) of Adelaide's sewers are earthenware and many of these are in areas that have been planted with trees which are now significant in both size and number. The adoption of PVC pipework for the construction of more recent sewers will no doubt reduce the incidence of tree root intrusion over time but this is currently counter-balanced by the effects of drought and water restrictions which have led to higher levels of intrusion.

## 2.5 Summary - Metropolitan Water Supply and Wastewater Service Standards

Table 2.14 provides a summary of the results of SA Water's metropolitan service performance for 2005-06 in terms of a comparison with the average of the compared companies and a ranking of its performance relative to the compared companies.

The data shows that SA Water's performance was better than (or the same as) the average of the compared companies for each of the 12 performance measures except two (those being the number of sewer main breaks and chokes per 1,000 properties and the proportion of bio-solids reused).

Table 2.14

SA Water metropolitan service performance - summary comparisons – 2005-06

Category	2005-06 Performance relative to other providers	
	Average of compared companies	Rank <sup>(1)</sup> 05-06
<b>Asset performance</b>		
Water main breaks (per 100 km of main)	Better	2 (7)
Sewer main breaks and chokes (per 1,000 properties) <sup>(2)</sup>	Worse	7 (9)
Infrastructure leakage index	Better	2 (8)
Water losses (litres/connection/day)	Better	2 (7)
<b>Customer Service</b>		
Percentage of population where microbiological compliance was achieved	Same	Equal 1 (9)
Water quality complaints (per 1,000 properties)	Better	2 (8)
Average connect time to a telephone operator (seconds)	Better	2 (7)
Number of sewage odour complaints (per 1000 properties)	Same	Equal 6 (8)
<b>Environmental performance</b>		
Percent of sewage treated to a tertiary Level	Better	Equal 1 (9)
Recycled water (per cent effluent recycled)	Better	2 (8)
Percent of bio-solids reused	Worse <sup>(2)</sup>	6 (7)
Sewer overflows to the environment (per 100 km)	Better <sup>(3)</sup>	7 (9)

- (1) Ranked from best to worst of average of compared companies. Parentheses contain number in comparison group. The number of companies varies reflecting the number that provides data for the specific measure.
- (2) The "average" is affected by an extreme value for one company in the comparison group. When this data is removed SA Water's results are better than the average.
- (3) The "average" is affected by an extreme value for one company in the comparison group. When this data is removed SA Water's results are worse than the average

### 3. METROPOLITAN SERVICE COSTS

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#### 3.1 Introduction

This section presents information regarding the Corporation's costs of providing metropolitan services. For consistency the same water and wastewater service providers have been used as in the service performance comparisons.

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.<sup>2</sup> Moreover capital costs are to a significant degree a legacy of decisions taken long ago and it may be preferable to confine attention to aspects which are potentially in the control of current management.

In this review, operating cost data is presented but total cost data is not. The *National Performance Framework: 2006 urban performance reporting indicators and definitions, a handbook for WSAA members (National Performance Framework)* defines total costs as operating cost plus current depreciation cost. In 2005-06 operating costs accounted for approximately 65 per cent of total costs for both SA Water's metropolitan water supply and metropolitan wastewater costs.<sup>3</sup>

The Corporation's operating cost efficiency is initially compared with the same entities used in the service performance comparisons, as reported in the National Water Commission's 2005-06 *NPR*. This is followed by a section that provides a detailed analysis of the Corporation's results over the last seven years.

To abstract from the effects of general price inflation all data is presented in 2005-06 dollars.

The *National Performance Framework* requires that operating costs should, where possible or material, include:

- water resource access charge or resource rent tax (water supply only);
- purchases of raw or treated water (water supply only);
- charges for bulk treatment/transfer of sewerage (sewerage only);
- salaries and wages;
- overheads on salaries and wages;
- materials/chemicals/energy;
- contracts;
- accommodation; and
- all other operating costs that would normally be reported.

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<sup>2</sup> 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.

<sup>3</sup> Alternatively, under a building block methodology of total costs, which includes a return on asset component, SA Water's operating costs for metropolitan operations in 2005-06 were approximately 30 per cent of total costs.



Furthermore, the guidelines require that operating costs should exclude, amongst other things, all non-core business operating costs.

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

Averages provided are weighted for size differential using the number of properties serviced.

The above applies also to the benchmarking of regional service costs (section Section 5 of this report).

## **3.2 Metropolitan Water Supply Costs**

### *Benchmarking*

The performance indicator from the *NPR* that assesses the costs of providing water supply services in the metropolitan area is real operating cost per property for water supply services.

Table 3.1

Real Operating Cost per Property – Water (in 2005-06 dollars)

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	% Change 3 years to 2005-06	% Change 5 years to 2005-06
ACTEW Corporation	265	300	294	308	308	235	-20.1%	-11.3%
Brisbane Water	293	282	228	229	246	238	4.4%	-18.8%
City West Water	331	301	309	288	301	277	-10.4%	-16.3%
Power and Water	397	292	321	318	291	303	-5.6%	-23.7%
SA Water	185	172	194	176	178	179	-7.7%	-3.2%
South East Water	186	175	185	173	180	177	-4.3%	-4.8%
Sydney Water	n/a	n/a	258	228	237	218	-15.5%	n/a
Water Corporation	163	164	159	168	176	173	8.8%	6.1%
Yarra Valley Water	n/a	n/a	n/a	n/a	n/a	180	n/a	n/a
Weighted Average <sup>4</sup>	222	212	228	213	222	205	-10.2%	-7.5%

The Corporation's operating costs in 2005-06 are the third lowest of the compared entities. SA Water's operating costs per property decreased from \$185 to \$179 (approximately 3.2%) in real terms over the 5 years to 2005-06, despite fluctuations throughout the period. During the period SA Water's operating costs have been well below the weighted average of the compared entities.

As previously noted, direct comparisons of costs can be misleading. For example, two of the companies with lower costs are in Melbourne, which has substantially

<sup>4</sup> The weighted average is the average weighted for the number of connections for each company. This is done to provide more accurate data of the comparative level of costs.

better source water supplies that require little or no filtration. Climatic conditions across regions may have caused significant differences also, in terms of volumes supplied. Accordingly, the primary focus of this report is directed at analysis of the trends, and some key cost drivers, over the reporting period.

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

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

For further information on the above key differences affecting operating efficiency refer to Appendix 1 of this report.

These differences are widely recognised. For example, 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. The index, which is presented in Table 3.2<sup>5</sup>, shows that SA Water has a 0.9 disadvantage index in water accessibility and quality. Only two other water companies (ActewAGL and Water Corporation) have a disadvantage index and in each case they are relatively small.

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

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<sup>5</sup>

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

Table 3.2

Index of Disadvantage in Water Accessibility and Quality by Drainage Division

	Availability	Quality	Combined Impact <sup>1</sup>
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
ActewAGL (Murray-Darling)	0	0	0

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

Despite having a clear water quality and water availability disadvantage, when compared with other interstate water companies, the Corporation has an operating cost that is comparable to the lowest operators. There appears to be a reasonable jump in cost to the next range of operators (refer Table 3.1).

#### *Detailed Analysis*

As mentioned above, this section provides analysis of SA Water's operating cost performance from 2000-01 to 2006-07. Figure 3.1 and Table 3.3 below show the Corporation's real operating costs and key supply statistics, respectively.

Figure 3.1

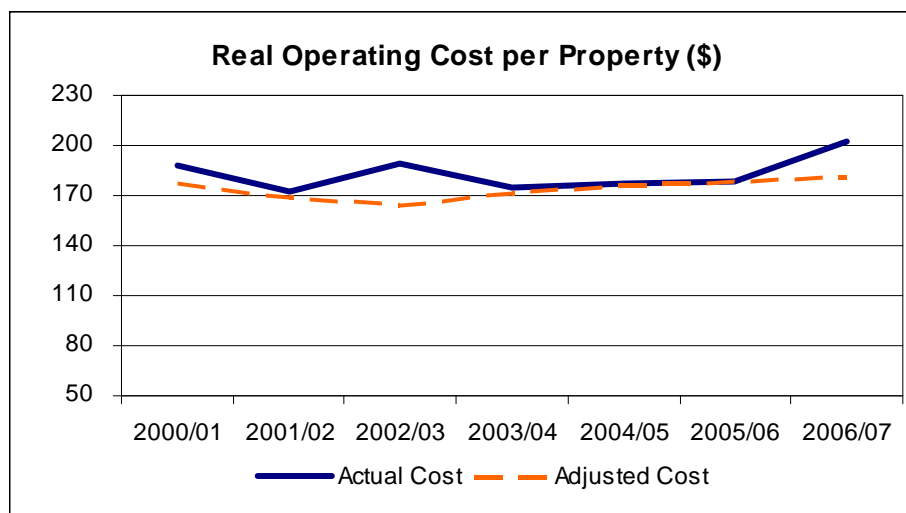


Table 3.3

**Metropolitan Water Statistics**

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
Number of properties receiving water supply ('000s)	470	475	481	486	492	498	504
Consumption (GL - master meter)	194	173	178	166	166	151	156
Volume pumped from River Murray (GL)	86	70	154	73	65	68	193 <sup>6</sup>

Fluctuations in operating costs are mainly a result of weather conditions. To properly assess the cost efficiency of SA Water it is necessary to adjust/normalise the cost per property figures for the following factors to demonstrate the underlying trend:-

- Weather conditions during the winter/spring period which impact on the level of intakes into SA Water reservoirs. During dry periods, intakes are supplemented through significant volumes of water pumped from the River Murray causing increased electricity costs for SA Water. Volumes pumped from the River Murray were significant in 2002-03 and 2006-07.
- Weather conditions during the summer period which impact on the level of consumption. During drought summer conditions, customers consume higher volumes of water, resulting in SA Water incurring higher water treatment and distribution costs. This has been ameliorated to some extent by the water conservation measures introduced in 2003, Level 2 water restrictions introduced in October 2006 and Level 3 restrictions introduced in January 2007.

The adjusted real operating cost per property in Figure 3.1 reflects constant major pumping and consumption patterns across all years. This cost remained relatively stable between 2000-01 and 2006-07.

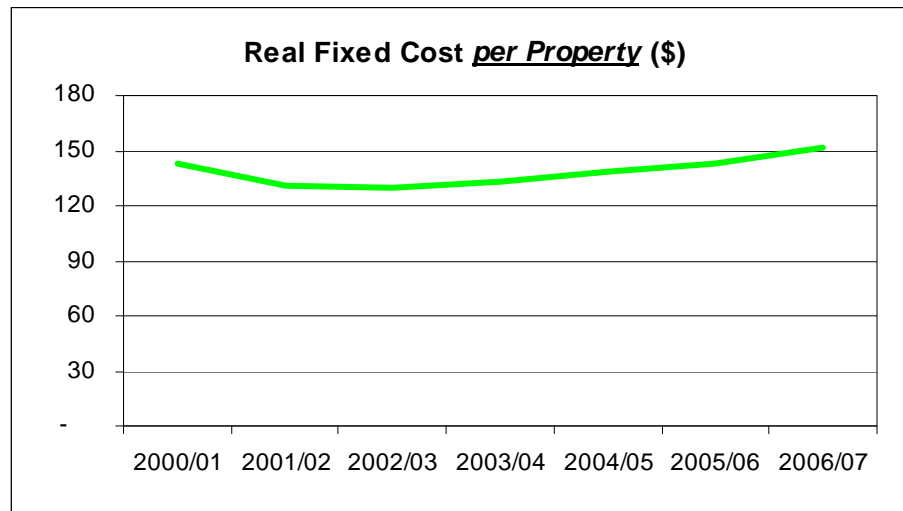
**Fixed Costs**

In broad terms, the Corporation's metropolitan water supply operating costs are 80% fixed and 20% variable. Fixed costs, which are made up of labour costs, material and other costs and operational and service contracts, are appropriate to analyse in terms of property (i.e. customer) numbers as shown in Figure 3.2.

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<sup>6</sup> More water was pumped from the River Murray than was consumed because it was necessary to store additional water in the Mt Lofty Ranges as a contingency against water quality problems in the River Murray.

Figure 3.2



In 2005-06 fixed costs per property were at the same level in real terms as they were in 2000-01 (\$143 per property). The increase in fixed costs in 2006-07 (to \$152 per property) primarily reflects:

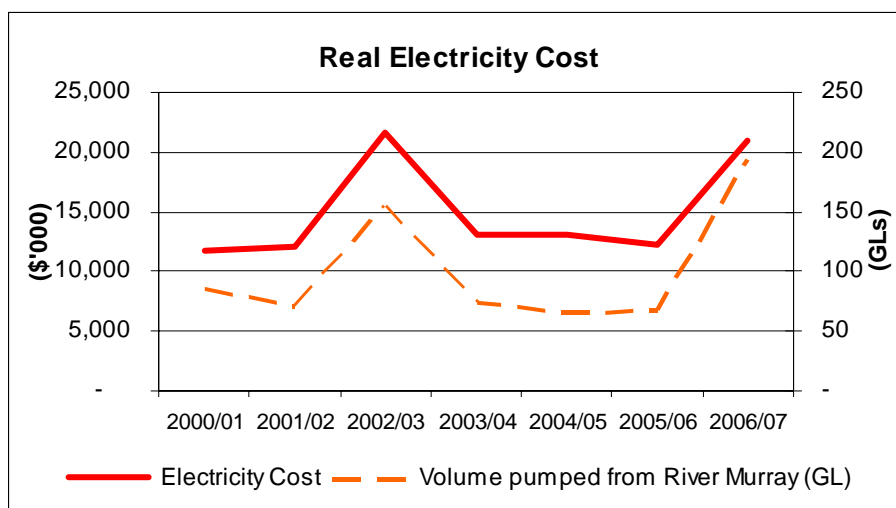
- an increase in expenditure on operational and service contracts, as a result of an increase in bursts attended and water services provided by United Water due to the dry conditions causing soil movement; and
- increased costs associated with implementation of water restrictions. These included labour costs for water conservation officers, additional call centre resources and the purchasing of water entitlement licenses.

#### Variable Costs

For the purposes of this analysis variable costs are made up of electricity and chemical costs. The key drivers of these costs are customer demand and inflows to natural catchments which are primarily impacted by seasonal weather conditions.

The largest variable cost is electricity used in pumping water from the River Murray, from relatively low lying reservoirs and throughout the distribution network. The total expenditure on electricity for pumping water from the River Murray through the major transmission pipelines can vary significantly depending on the combination of customer demand and quantity of water available from natural catchments and requirements for water security. This is highlighted by the electricity costs and yearly volumes pumped from the River Murray as shown in Figure 3.3.

Figure 3.3



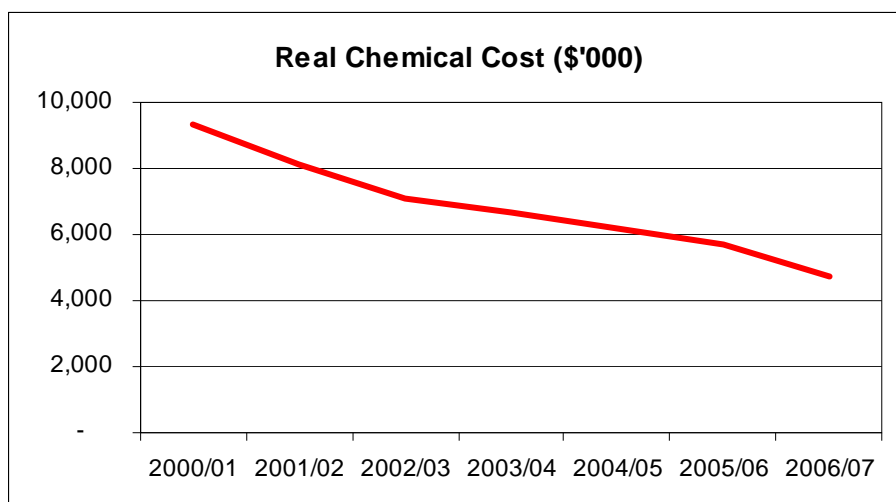
Electricity costs spiked in 2002-03 and 2006-07 due to the significant increases in the volumes pumped from the River Murray in these years. In 2006-07 as a drought pumping strategy an additional 57GLs of water above the metropolitan water licence was pumped from the River Murray as a contingency to provide water security for 2007-08 in anticipation of the continuation of drought conditions. The additional pumping increased electricity costs significantly as the less efficient multiple pump operation was required of the Mannum-Adelaide and Murray Bridge-Onkaparinga systems. Other than these anomalies, electricity costs have remained relatively stable over the period.

Examination of Figure 3.3 indicates a reduction in real electricity costs per GL between 2002-03 and 2006-07. This reflects savings achieved in the negotiation of new electricity supply contracts over the period.

Real chemical costs have halved from 2000-01 to 2006-07, as shown in Figure 3.4. This decrease is due to:

- a significant reduction in the level of consumption over the period (refer Table 3.3) driven by the introduction of permanent water conservation measures in 2003 and subsequently Level 2 and then Level 3 restrictions; and
- lower treatment costs associated with water sourced from the River Murray due to low flow rates and the subsequent lower turbidity.

Figure 3.4



### 3.3 Metropolitan Wastewater Service Costs

#### *Benchmarking*

The performance indicator from the *NPR* that reflects relative efficient business costs in providing wastewater services is real operating cost per property for wastewater services. Data from 2000-01 to 2005-06 is provided in Table 3.4.

Table 3.4

Real Operating Cost per Property - Sewerage (in 2005-06 dollars)

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	% Change 3 years to 2005-06	% Change 5 years to 2005-06
ACTEW Corporation	285	295	291	294	280	256	-12.0%	-10.2%
Brisbane Water	228	236	209	187	180	173	-17.2%	-24.1%
City West Water	248	227	222	214	237	220	-0.9%	-11.3%
Power and Water	349	274	326	268	278	259	-20.6%	-25.8%
<b>SA Water</b>	<b>122</b>	<b>132</b>	<b>134</b>	<b>140</b>	<b>148</b>	<b>148</b>	<b>10.4%</b>	<b>21.3%</b>
South East Water	197	196	194	194	207	202	4.1%	2.5%
Sydney Water	n/a	n/a	281	205	205	131	-53.4%	n/a
Water Corporation	155	154	157	174	185	181	15.3%	16.8%
Yarra Valley Water	n/a	n/a	n/a	n/a	n/a	206	n/a	n/a
<b>Weighted Average<sup>(1)</sup></b>	<b>192</b>	<b>192</b>	<b>225</b>	<b>194</b>	<b>199</b>	<b>171</b>	<b>-24.0%</b>	<b>-11.1%</b>

(1) The real operating cost per property for each entity has been weighted based on that entities proportion of the total customer connections for all entities.

The Corporation's real operating cost per property for wastewater services rose by approximately 21% in real terms over the five years to 2005-06. Despite the upward trend, the Corporation's operating cost per property was the second lowest in 2005-06 and well below the weighted average of the compared companies over the period.

The increase in operating costs is largely attributable to additional costs incurred as a result of the Corporation's Environment Improvement Program (EIP), which has been

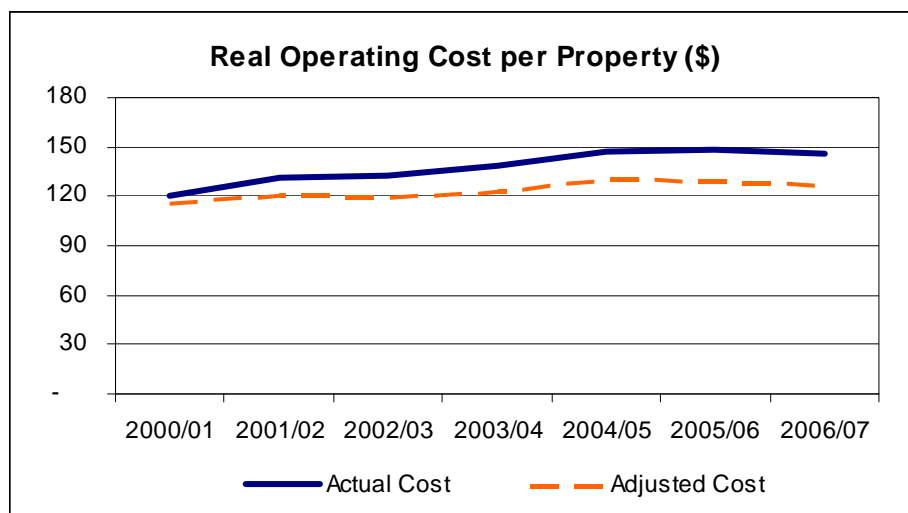
introduced to meet higher environmental standards required by the Environment Protection Authority (EPA). SA Water has, at a significant cost over the past several years, adjusted its operating practices to reduce negative environmental impacts.

It has been documented previously that there has been a substantial increase in the proportion of wastewater treated to a tertiary level, which reached 100% in 2005-06, up from 17% in 2000-01 (refer Table 2.8). Interstate companies have seen some significant increases in the degree of tertiary treatment, but none as significant as SA Water's increase. As indicated earlier tertiary treatment is typically the most expensive treatment process to operate.

#### *Detailed Analysis*

Figure 3.5 shows the Corporation's real operating costs per property from 2000-01 to 2006-07.

Figure 3.5



To properly assess the cost efficiency of SA Water in light of the improved environmental standards, it is necessary to adjust the cost per property for the commissioning of assets built as part of the EIPs required by the EPA. These have included the Bolivar Dissolved Air Flotation Filtration plant and associated sludge dewatering process, the Queensbury Diversion, the Christies Beach EIP and the Glenelg EIP. The increased costs associated with these initiatives are funded in part from additional revenue generated by the Environmental Enhancement Levy, introduced in 1990 as a 10% levy on sewerage rates.

On an adjusted basis, operating costs per property have remained relatively stable from 2000-01 to 2006-07. The peak in 2004-05 primarily relates to an increase in the average number of full-time employees required to meet higher development activity and to support sustainability objectives.

For wastewater services, the Corporation's costs are approximately 90% fixed and 10% variable and, as distinct from water supply services, there is relatively little variance in volumes treated from year to year. Accordingly, a separate analysis of fixed and variable costs against their respective cost drivers does not provide any significantly greater insight into operating cost trends.



Release of the Adelaide Coastal Waters Study<sup>7</sup> is currently pending. At this stage it is too soon to fully assess the implications that this may have for future capital works and associated operating costs to address discharges to St Vincent's Gulf from the Adelaide sewerage treatment plants. It appears likely that some significant capital measures may result, which will most likely increase costs and environmental standards.

### 3.4 Summary - Metropolitan Water and Wastewater Business Costs

Table 3.5 provides a summary comparison of SA Water's cost performance against the weighted average of the nine urban water and wastewater service providers used for comparison purposes in this report.

Table 3.5

SA Water Metropolitan Service Operating Costs (in 2005-06 dollars)  
Summary Comparison

				2005-06 performance Relative to Other Companies	
Category	3 years to 05-06	5 yrs to 05-06	Trend	Weighted average of compared companies	Rank <sup>1</sup>
<b>Water Supply</b>					
Real Operating Cost per Property	-7.7%	-3.2%	Decreasing	Better	3 (9)
<b>Wastewater</b>					
Real Operating Cost per Property	10.4%	21.3%	Increasing	Better	2 (9)

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

#### *Water supply*

As Table 3.5 shows, SA Water's metropolitan water supply costs have decreased in real terms from 2000-01 to 2005-06. When real operating costs per property are adjusted for constant major pumping and consumption patterns across all years the real operating cost per property remains relatively stable from 2000-01 to 2006-07. This suggests favourable efficiency trends, especially when there has been an increasing level of customer satisfaction with water quality over the period (see Section 2.3).

SA Water's metropolitan water supply operating costs are well below the weighted average of the compared companies. This is in spite of some manifest cost disadvantages for Adelaide metropolitan water supply, most obviously the need to

<sup>7</sup> The Adelaide Coastal Waters Study (ACWS) was established early in 2001 by the South Australian Environment Protection Agency (now Authority) in response to on-going concerns about the decline in coastal water quality, as well as the loss of more than 4000 hectares of shallow sub tidal seagrass along the metropolitan coast since the late 1940s. The study will focus on the area of Gulf St. Vincent from Port Gawler in the north to Sellicks Beach in the south and extend approximately 20 km offshore. Although important, the Port River and associated estuary and wetlands are not a primary focus for the Adelaide Coastal Waters Study. However, the input of nutrients and other contaminants from these sources to the coastal strip will be investigated.

pump water from the River Murray, over the Mount Lofty Ranges, and the need for relatively extensive treatment of that water to achieve drinking water standards.

*Wastewater*

For metropolitan wastewater, SA Water's costs have increased by approximately 21% in real terms over the five year period to 2005-06, largely attributable to the EIP required by the EPA. The results, however, have seen a significant improvement in the quality of discharges into the environment over the period, with the Corporation now treating 100% of wastewater to a tertiary level (see Section 2.4). On an adjusted basis there is a relatively stable trend over the period.

The Corporation's metropolitan wastewater operating costs per property are also well below the weighted average of the compared entities. Of the compared companies, SA Water has had the most significant increase in the proportion of wastewater treated to a tertiary level from 2000-01 to 2005-06. This supports the premise that the Corporation's operating costs are efficient, as service levels have improved significantly with operating costs remaining well under interstate benchmarks.

## **4. REGIONAL SERVICE STANDARDS**

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### **4.1 Introduction**

SA Water's operations in regional South Australia comprise a network of 16,749 km's of water main and 1,358 km's of wastewater mains supplying a population of approximately 146,000 people.

In order to gain a more robust assessment of regional operations, six regional centres of the Corporation's country operations, Mt Gambier, Murray Bridge, Pt Augusta, Pt Lincoln, Pt Pirie and Whyalla, are used as representative of all country operations. Data from the *NPR* for these centres are provided for the 2005-06 year unless otherwise indicated and compared with similar sized regional water and sewerage service providers in New South Wales, Victoria, Queensland, Western Australia, and the Northern Territory. As this was the first year for regional benchmarking, trend data is not provided.

Table 4.1 lists the water and wastewater services provided by each service provider included in the benchmarking exercise.

Data for 2005-06 was the first year national benchmarking of non major urban utilities was undertaken for some time and therefore trend data is not as strong as for the metropolitan sector of the business.

For consistency with the analysis of the metropolitan performance the same performance indicators were chosen where possible to benchmark regional water supply service performance. Those used are as follows:

#### ***Asset performance***

- Water main breaks (per 100 km of water main)
- Sewer main breaks and chokes (per 1,000 properties)

#### ***Customer service***

- Percentage of population where microbiological compliance was achieved
- Water quality complaints (per 1,000 properties)
- Number of sewage odour complaints (per 1,000 properties)

#### ***Environmental performance***

- Sewer overflows to the environment (per 100 km of main)

Where possible the metropolitan Adelaide result from Section 2 for the performance indicator for 2005-06 is included as well as the average for the selected urban companies. This provides a comparison of service levels in the metropolitan and regional areas.

Table 4.1

**Water and wastewater services provided by compared companies**

Service provider	Water Wholesale	Water Retail	Total connected properties – water supply	Wastewater Wholesale	Wastewater Retail	Total connected properties – sewerage	Other
Mt Gambier (SA)	Yes	Yes	10,600	Yes	Yes	10,200	Water- Bulk Storage
Murray Bridge (SA)	Yes	Yes	6,400	Yes	Yes	5,100	Water- Bulk Storage
Pt Augusta (SA)	Yes	Yes	5,700	Yes	Yes	3,800	Water- Bulk Storage
Pt Lincoln (SA)	Yes	Yes	6,400	Yes	Yes	5,900	Water- Bulk Storage
Pt Pirie (SA)	Yes	Yes	6,800	Yes	Yes	6,600	Water- Bulk Storage
Whyalla (SA)	Yes	Yes	10,300	Yes	Yes	8,800	Water- Bulk Storage
Byron Shire (NSW)	Yes	Yes	10,300	Yes	Yes	9,900	Stormwater
Country Energy (NSW)	Yes	Yes	10,800	Yes	Yes	9,700	Water – Bulk storage Stormwater
Goulburn Mulwaree (NSW)	Yes	Yes	10,400	Yes	Yes	9,800	Water – Bulk Storage Stormwater
Alice Springs (NT)	Yes	Yes	11,200	Yes	Yes	10,800	Water - Bulk storage
South Gippsland (Vic)	Yes	Yes	16,800	Yes	Yes	14,000	Water – Bulk Storage Stormwater
East Gippsland Water (Vic)	Yes	Yes	19,700	Yes	Yes	15,800	Water – Bulk Storage Stormwater
Fitzroy River Water (Qld)	Yes	Yes	26,500*	Yes	Yes	23,100*	Water- Bulk Storage
Noosa Water Services (Qld)	No	Yes	26,700	No	Yes	25,500	Nil
Toowoomba City Council (Qld)	Yes	Yes	36,900*	Yes	Yes	35,400*	Water- Bulk Storage
Wide Bay Water (Qld)	Yes	Yes	20,800	Yes	Yes	16,700	Water- Bulk Storage
Bunbury (WA)	No	No	Nil	Yes	Yes	12,700	Nil
Mandurah (WA)	Yes	Yes	34,100	Yes	Yes	23,600	Water- Bulk Storage

\* Includes commercial and industrial.

## 4.2 Asset Performance

### *Water main breaks (per 100 km of water main)*

Table 4.2 shows the number of water main breaks as a proportion of the total length of water mains serviced by the provider. The breakage rates for the South Australian regional centres are variable. The rates for four of the six South Australian centres are better than the regional average and also better than the result for metropolitan Adelaide. It is notable that the regional average is significantly lower than the average of urban companies.

Many factors cause variability in the breakage rate across the State including soil types, traffic loadings, methods of construction, water quality, pressure, pipe age and rainfall. Metropolitan Adelaide has largely clay soils, many of which are expansive and highly reactive. This is far less of an issue in the country, particularly in regions such as Mt Gambier and Pt Lincoln where limestone shales, etc predominate. Country water mains as a rule are younger, have lower traffic loadings, lower static pressures and lower rainfall than the metropolitan area as well as having quite hard waters. In turn, this means reduced external corrosion, less internal leaching of pipe walls and less stress on pipes. Combined, these factors generally result in a reduced failure rate.

The higher rates for Pt Augusta and Whyalla are likely to be due to the pipes' reactions with salty groundwater resulting in external corrosion and the relatively high pressures in the mains in these towns.

Table 4.2

Water main breaks (per 100 km of water main)

State/Territory	Regional provider	2005-06
SA	Mt Gambier	4.6
	Murray Bridge	21.9
	Pt Augusta	23.8
	Pt Lincoln	6.8
	Pt Pirie	12.1
	Whyalla	19.7
NSW	Byron Shire	37.7
	Country Energy	13.3
	Goulburn Mulwaree Council	Na
NT	Alice Springs	60.3
Vic	South Gippsland Water	37.5
	East Gippsland Water	1.6
Qld	Fitzroy River Water	42.6
	Noosa Water Services	3.7
	Toowoomba City Council	14
	Wide Bay Corporation	7.3
WA	Bunbury	Na
	Mandurah	Na
Regional Average*		20.46
Metropolitan Adelaide		21.2
Average of urban compared companies		33.1

\* The compared companies were selected as they provide a similar range of services and are of a similar size. As a result a weighted average has not been used here.

#### *Sewer main breaks and chokes (per 1,000 properties)*

Table 4.3 reports the number of breaks and chokes per 1,000 properties. The breakage rate for the South Australian regional centres is very low except for Pt Lincoln. The rates for five South Australian centres are below the regional average, metropolitan Adelaide and the urban average.

Table 4.3

Sewer main breaks and chokes (per 1000 properties)

State/Territory	Regional provider	2005-06
SA	Mt Gambier	1.5
	Murray Bridge	3.8
	Pt Augusta	3.7
	Pt Lincoln	15.5
	Pt Pirie	5.8
	Whyalla	4.8
NSW	Byron Shire	9.6
	Country Energy	44.1
	Goulburn Mulwaree Council	Na
NT	Alice Springs	9.9
Vic	South Gippsland Water	3.6
	East Gippsland Water	4.6
Qld	Fitzroy River Water	11.9
	Noosa Water Services	9.3
	Toowoomba City Council	23.0
	Wide Bay Corporation	2.4
WA	Bunbury	2.8
	Mandurah	3.0
Regional Average		9.4
Metropolitan Adelaide		7.9
Average of urban compared companies		7.6

Country wastewater mains are generally younger than in the metropolitan area and all things being equal (eg. rates of deterioration, materials of construction, pipe location, rainfall, etc), younger mains are less prone to chokes than older mains. Younger mains systems will generally be less subject to tree root intrusion, typically the major cause of chokes.

The high number of sewer main breaks chokes in Pt Lincoln can be attributed to a number of external factors, including climate and topography, the high loading and seasonal impacts of the local fish processing industry, high levels of salt water intrusion and a number of stormwater cross connections. To improve asset performance an Environmental Management System for the networks has been developed and implemented. Improvements include the implementation of vapour rooting and jet rodding programs to remove tree roots, and smoke testing to minimise cross connections.

### 4.3 Customer Service

*Percentage of population where microbiological compliance was achieved*

Table 4.4 provides a breakdown of water quality results for 2005-06. The data reveals consistently high quality results for each centre.

Table 4.4

Percentage of population where microbiological compliance was achieved

State/Territory	Regional provider	2005-06
SA	Mt Gambier	100
	Murray Bridge	100
	Pt Augusta	100
	Pt Lincoln	100
	Pt Pirie	100
	Whyalla	100
NSW	Byron Shire	100
	Country Energy	100
	Goulburn Mulwaree Council	Na
NT	Alice Springs	100
Vic	South Gippsland Water	100
	East Gippsland Water	100
Qld	Fitzroy Water	100
	Noosa Water Services	100
	Toowoomba City Council	100
	Wide Bay Corporation	100
WA	Bunbury	100
	Mandurah	100

*Water quality complaints (per 1,000 properties)*

Table 4.5 shows the number of water quality complaints as a proportion of the number of properties. All six regional centres in South Australia recorded results well below the regional average. The results of four centres were better than metropolitan Adelaide's and the urban average.

As indicated earlier the Corporation's Customer Satisfaction Survey of 2007 sought responses about concerns dealing with water quality factors. Table 2.6 highlighted that the percentage of consumers with concerns about the quality of their tap water has decreased significantly from 35% in 2002 to 11% in 2007. This was relatively consistent across both the metropolitan and country segments.

Table 4.5

Water quality complaints (per 1,000 properties)

State/Territory	Provider	2005-06
SA	Mt Gambier	1.3
	Murray Bridge	1.7
	Pt Augusta	0.0
	Pt Lincoln	0.5
	Pt Pirie	0.3
	Whyalla	0.6
NSW	Byron Shire	1.4
	Country Energy	0.5
	Goulburn Mulwaree Council	Na
NT	Alice Springs	0.7
Vic	South Gippsland Water	11.1
	East Gippsland Water	11.2
Qld	Fitzroy River Water	2.0
	Noosa Water Services	0.05
	Toowoomba City Council	3.4
	Wide Bay Corporation	0.8
WA	Bunbury	Na
	Mandurah	4.7
Regional Average		2.5
Metropolitan Adelaide		0.9
Average of urban compared companies		3.9

*Number of sewage odour complaints (per 1,000 properties)*

Table 4.6 show the number of sewage odour complaints as a proportion of the number of properties. The results of four of the six centres were better than the regional average and better than or equal to metropolitan Adelaide's result which also was the same as the urban average.



Table 4.6

Number of sewage odour complaints (per 1,000 properties)

State/Territory	Provider	2005-06
SA	Mt Gambier	0.5
	Murray Bridge	1.2
	Pt Augusta	0.5
	Pt Lincoln	0.2
	Pt Pirie	1.2
	Whyalla	0.1
NSW	Byron Shire	2.6
	Country Energy	0.2
	Goulburn Mulwaree Council	Na
NT	Alice Springs	0.4
Vic	South Gippsland Water	1.5
	East Gippsland Water	0.5
Qld	Fitzroy River Water	0.9
	Noosa Water Services	1.1
	Toowoomba City Council	0.8
	Wide Bay Corporation	0.3
WA	Bunbury	1.3
	Mandurah	1.2
Regional Average		0.9
Metropolitan Adelaide		0.6
Average of urban compared companies		0.6

#### 4.4 Environmental Performance

*Sewer overflows to the environment (per 100 km of main)*

Table 4.7 shows the proportion of sewer overflows from the wastewater system to the external environment as a proportion of the length of sewer main. The results are very variable for the six South Australian centres. Two centres, Mt Gambier and Pt Augusta, recorded results better than the regional average for 2005-06. Pt Augusta was the only SA Water regional centre to record a better result than metropolitan Adelaide, while again, results for Mt Gambier and Pt Augusta were better than the urban average.

Generally the greater number of sewer main chokes, the more likely overflows will result and this explains the high number of overflows in Pt Lincoln. Other factors that affect the number of overflows especially in the country include reliability of power, preventative maintenance to minimise chokes, capacity of network to surcharge, level of SCADA on pump stations, etc.

SA Water has completed environmental management plans for each of these regional centres that will, amongst other things, focus attention on areas with high levels of sewer overflows. For example, at Murray Bridge the Corporation has just completed a sewer treatment program that should significantly reduce tree root incursion with resulting impacts on the overflow rate. Similar programs will be rolled out in the other centres including Pt Lincoln.

Table 4.7

Sewer overflows to the environment (per 100 km of main)

State/Territory	Provider	2005-06
SA	Mt Gambier	14.2
	Murray Bridge	41.6
	Pt Augusta	6.9
	Pt Lincoln	31.6
	Pt Pirie	26.1
	Whyalla	20.7
NSW	Byron Shire	13.1
	Country Energy	6.5
	Goulburn Mulwaree Council	Na
NT	Alice Springs	2.6
Vic	South Gippsland Water	16.8
	East Gippsland Water	6.6
Qld	Fitzroy River Water	0.013
	Noosa Water Services	6.0
	Toowoomba City Council	49.0
	Wide Bay Corporation	0.03
WA	Bunbury	6.9
	Mandurah	4.2
Regional Average		14.9
Metropolitan Adelaide		12.7
Average of urban compared companies		17.2

#### 4.4 Summary – Regional Water and Wastewater Service Standards

Table 4.8 provides a summary comparison of the results for 2005-06 of the six South Australian regional centres when compared with the other providers. The Table shows that results for Mt Gambier were better than the regional average for each of the five performance measures, Pt Augusta and Whyalla better than the regional average in four of the measures, Pt Lincoln and Pt Pirie better in three of the five measures and Murray Bridge better in two of the five measures.

Table 4.10

2005-06 results compared with average of compared companies and ranked\*

Performance Measure	Mt Gambier	Murray Bridge	Pt Augusta	Pt Lincoln	Pt Pirie	Whyalla
<b>Asset performance</b>						
Water Main Breaks	Better (3 of 15)	Worse (10 of 15)	Worse (11 of 15)	Better (4 of 15)	Better (6 of 15)	Better (9 of 15)
Sewer Main Breaks	Better (1 of 17)	Better (7 of 17)	Better (6 of 17)	Worse (15 of 17)	Better (10 of 17)	Better (9 of 17)
<b>Customer service</b>						
% of pop. Micro achieved**	Na	Na	Na	Na	Na	Na
Water quality complaints	Better (9 of 16)	Better (11 of 16)	Better (1 of 16)	Better (4 of 16)	Better (3 of 16)	Better (6 of 16)
Sewer odour complaints	Better (6 of 17)	Worse (12 of 17)	Better (6 of 17)	Better (2 of 17)	Worse (12 of 17)	Better (1 of 17)
<b>Environmental performance</b>						
Sewer overflows	Better (10 of 17)	Worse (16 of 17)	Better (8 of 17)	Worse (15 of 17)	Worse (14 of 17)	Worse (13 of 17)
No. of 'Better' results from the five measures	5	2	4	3	3	4

\* Average – the result is either better or worse than the average. The rank is the result as ranked from best to worst of the number of compared companies that provided data. The change in the denominator reflects the number of companies that provided data for the measure in the *NPR*.

\*\* Na – as all compared companies achieved highest result (100%).

## **5. REGIONAL SERVICE COSTS**

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### **5.1 Introduction**

This section presents information regarding the Corporation's costs of providing regional services. The water and wastewater service providers used in the service performance comparisons have been used in the benchmarking analysis.

The assumptions used for regional service costs are consistent with those used for metropolitan service costs, which are outlined in Section 3.1.

In this analysis, operating cost data is presented but total cost data is not. The *National Performance Framework* defines total costs as operating cost plus current depreciation cost. In 2005-06 operating costs accounted for approximately 62 per cent of total costs for SA Water's regional water supply and about 69 per cent for regional wastewater costs<sup>8</sup>.

The comparative SA Water data used for this analysis is based on the Corporation's internal estimates which may limit the comparability of these numbers with interstate entities at a regional level. Interstate data has been sourced from the *NPR*.

As mentioned previously (Section 1), no trend data is provided for regional areas as the 2005-06 *NPR* was the first publication for some time that provides aggregated non-major urban data.

### **5.2 Regional Water Supply Costs**

#### *Benchmarking*

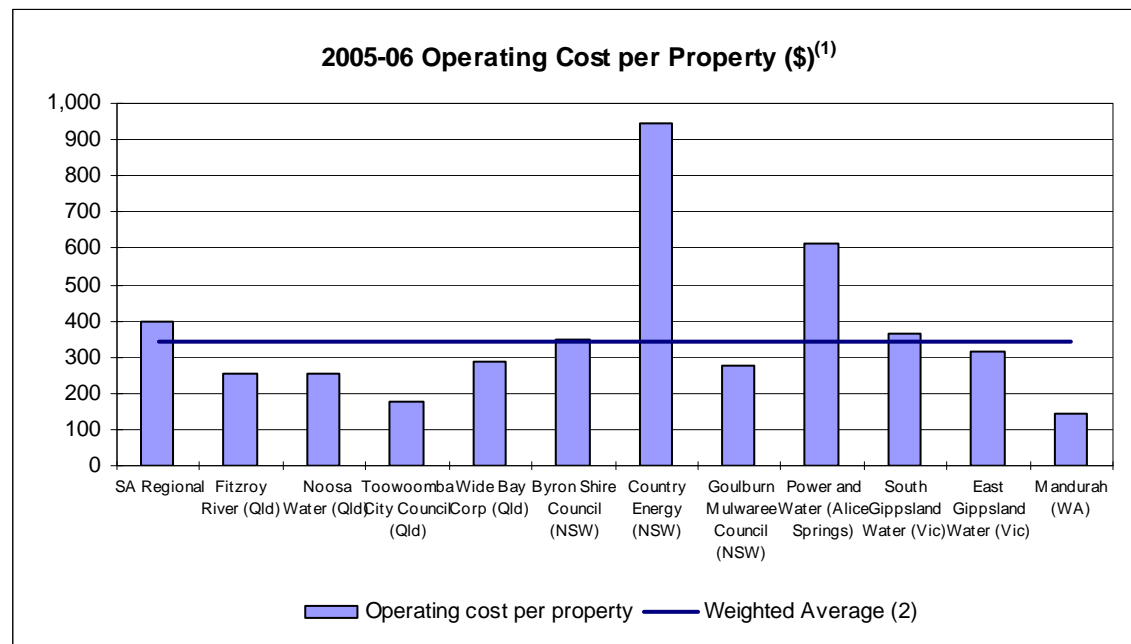
Figure 5.1 compares SA Water's 2005-06 total regional water supply operating cost per property with ten other interstate entities.

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<sup>8</sup>

Alternatively, under a building block methodology of total costs, which includes a return on asset component, SA Water's regional operating costs as a percentage of total costs for 2005-06 was approximately 31 per cent for water supply and 37 per cent for wastewater.

Figure 5.1



- (1) Water Corporation – Bunbury (WA) has not been included as it does not provide water supply services.
- (2) The real operating cost per property for each entity has been weighted based on that entities proportion of the total customer connections for all entities.

The weighted average operating costs per property for the compared companies in 2005-06 was \$343. SA Water’s regional operating cost per property was \$397, the third highest of the compared entities. This reflects:

- the diversity of systems within the South Australian region. For example, Mount Gambier’s water is sourced readily from the Blue Lake whereas Whyalla’s water must be treated and pumped 350km from the River Murray;
- whole-of-State regional averages which depend on the proportions of “low cost” and “high cost” regions that are present in the State; and
- South Australia’s disadvantage in terms of water availability and quality variations (as discussed in Section 3.2).

#### *Detailed Analysis*

Figure 5.2 shows the real regional operating cost per property from 2000-01 to 2006-07 and Table 5.1 provides some of the key supply statistics over the same period.

Figure 5.2

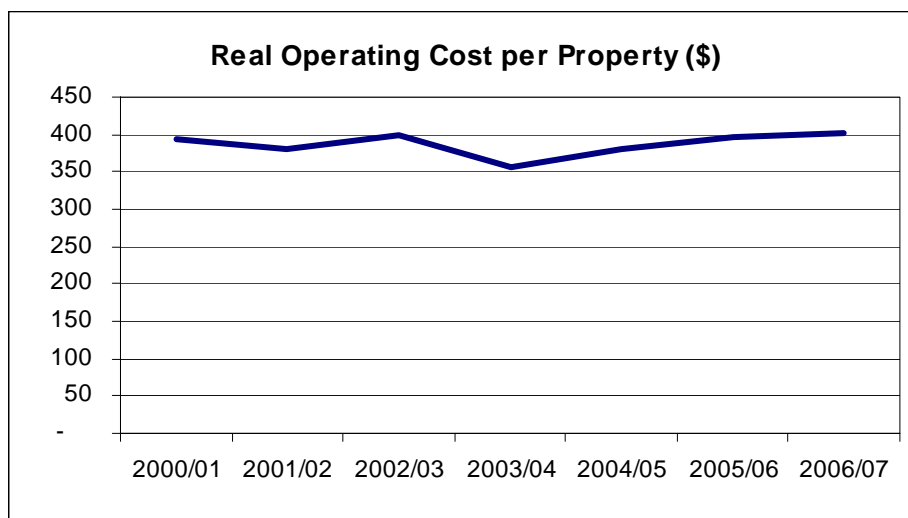


Table 5.1

Regional Water Cost Drivers

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
Number of properties receiving water supply ('000s)	170	171	174	177	180	183	186
Consumption (GL - master meter)	94	93	103	80	86	84	90
Volume pumped from River Murray (GL)	75	63	56	41	41	42	50

From 2000-01 to 2006-07 SA Water's total regional operating costs increased in real terms by 2%. The decrease in 2003-04 relates to a shift in the allocation of indirect costs following a detailed review of program reporting. A change was made in the allocation of indirect costs with a greater proportion allocated to the regional wastewater segment rather than regional water. The increasing trend from 2003-04 to 2005-06 is mainly due to:

- an increase in the average number of full-time employees in 2004-05, as additional resources were required across the Corporation to meet higher development activity, to monitor water quality and to support sustainability objectives;
- an increase in fleet costs in 2004-05 associated with higher Fleet SA costs, increased fuel prices and increased maintenance costs; and
- additional repair costs in 2005-06 associated with the Eyre Peninsula bushfire.

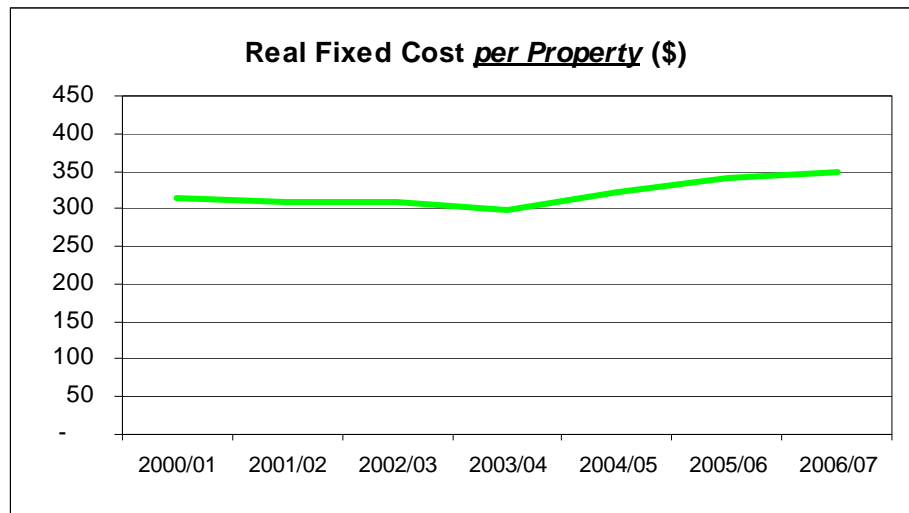
The increase in 2006-07 is driven by increased labour, material and other costs to respond to the increased bursts caused by drought conditions and implementing a higher level of water restrictions.

On average, variable costs (electricity and chemicals) form a lesser proportion of costs in regional areas (approximately 14% in 2005-06) than in the metropolitan area.

### Fixed Costs

Fixed costs are made up of labour costs, material and other costs and operational and service contracts. Fixed costs are appropriate to analyse in terms of property (i.e. customer) numbers as shown in Figure 5.3.

Figure 5.3



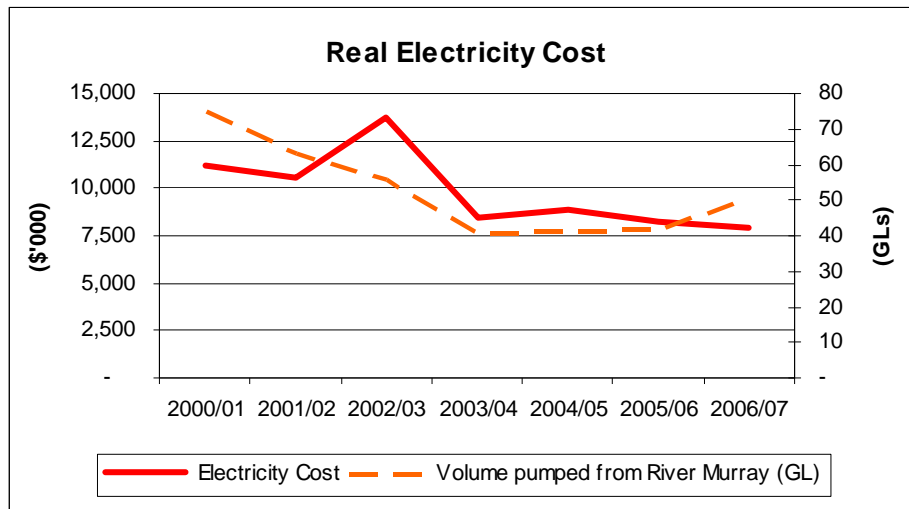
Fixed costs have displayed an upward trend from 2003-04 to 2006-07. For discussion on the major contributors to this increase refer discussion on total operating costs above.

### Variable Costs

For the purposes of this analysis variable costs are made up of electricity and chemical costs.

Electricity costs for the Corporation's regional water supply are shown in Figure 5.4. The volume pumped from the River Murray for regional water supply over the period is also included.

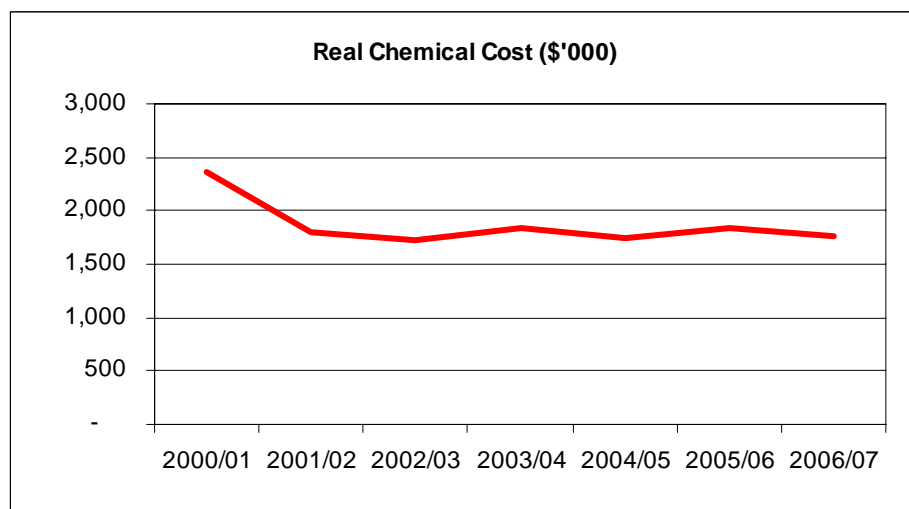
Figure 5.4



Overall, electricity costs for regional water supply have decreased since 2000-01 primarily due to the negotiation of savings in new electricity supply contracts over the period.

Real chemicals costs for regional water supply are shown in Figure 5.5.

Figure 5.5



From 2001-02 to 2006-07 real chemical costs have remained relatively stable.

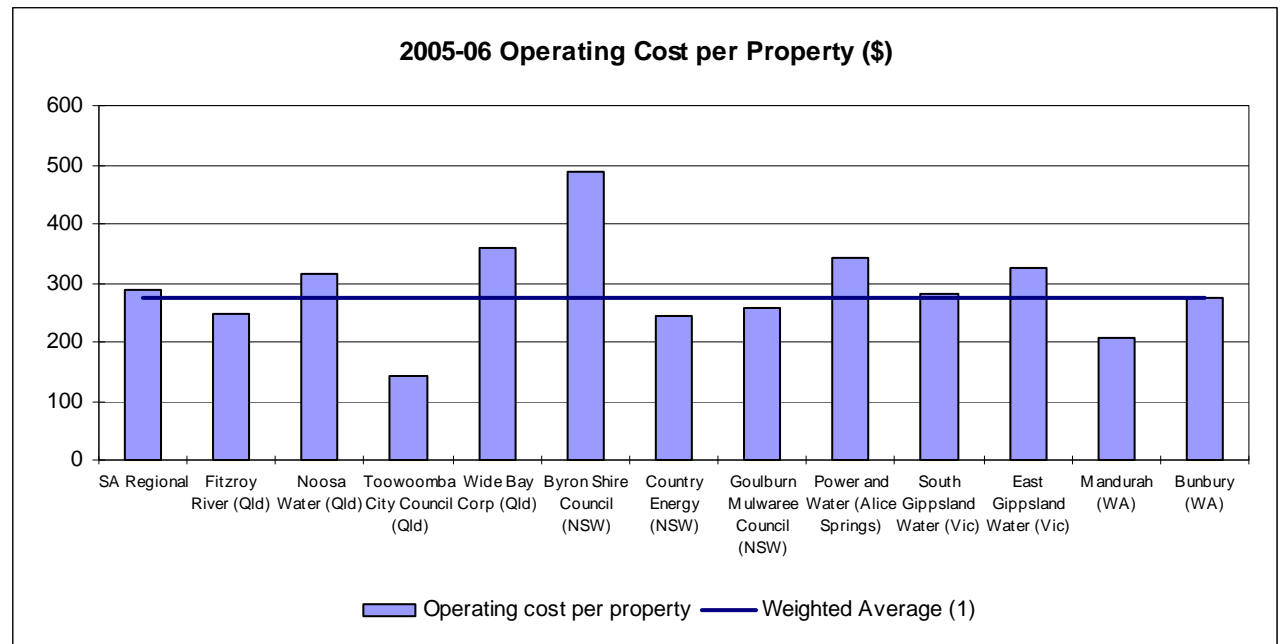


### 5.3 Regional Wastewater Service Costs

#### *Benchmarking*

Figure 5.6 compares SA Water's internal operating cost per property for the provision of regional wastewater services with twelve interstate entities, as published in the *NPR*.

Figure 5.6



- (1) The real operating cost per property for each entity has been weighted based on that entities proportion of the total customer connections for all entities.

SA regional is the sixth highest for the selected interstate regions in 2005-06 at \$288 per property, which is comparable to the weighted average of \$274 per property.

As with the regional water statistics (Section 5.2), interstate comparisons for regional wastewater operations should be interpreted with caution due to the variance of intrastate costs and the use of SA Water internal data versus data published in the *NPR* for interstate entities.

#### *Detailed Analysis*

The real regional operating costs have increased over the period 2000-01 to 2006-07, as shown in Figure 5.7, primarily due to the need to upgrade facilities to meet increased environmental standards.

Figure 5.7



The real operating cost per property has shown an upward trend from 2002-03 to 2005-06. This increasing trend is attributable to:

- significant cost increases arising from meeting the requirements of the environmental regulator including higher treatment standards required in regional areas;
- increases in preventative maintenance to reduce the incidence of chokes; and
- a Corporation-wide increase in fleet costs and labour costs in 2004-05, as mentioned previously in Section 5.2.

Real operating costs peaked in 2005-06 due to a once-off provision for the remediation costs of the Corporation's Thebarton Offices in 2005-06. Operating costs fell in 2006-07 reflecting the removal of this one-off cost and a shift in resources from country wastewater to country water to deal with drought conditions.

As discussed in Section 5.2, the significant increase in 2003-04 primarily relates to a shift in the allocation of indirect costs in 2003-04 following a detailed review of program reporting. A change was made in the allocation of indirect costs with a greater proportion allocated to the regional wastewater segment rather than regional water. This resulted in a more accurate recognition of cost activities going forward.

Over the period the Corporation has upgraded several of its regional wastewater treatment plants (WWTP) to meet environmental requirements. These projects include the construction of WWTPs in Victor Harbor, Whyalla, Port Pirie and an upgrade to the Heathfield WWTP.

## 5.4 Summary - Regional Water and Wastewater Business Costs

Table 5.2 provides a summary comparison of SA Water's cost performance for regional services.

Table 5.2

SA Water Regional Service Costs– summary comparisons

			2005-06 performance Relative to Other Companies	
Category	3 years to 05-06	5 yrs to 05-06	Trend	Rank <sup>1</sup> 2005-06
<b>Water Supply</b>				
Real Operating Cost per Property	-0.3%	0.8%	Increasing	10 (12) <sup>(2)</sup>
<b>Wastewater</b>				
Real Operating Cost per Property	32.3%	32.7%	Increasing	8 (13)

(1) Ranking is from cheapest to most costly.

(2) Water Corporation – Bunbury (WA) has not been included as it does not provide water supply services.

### *Water supply*

Operating costs for regional water supply are generally higher in South Australia than interstate due to poor water accessibility and quality. In spite of this disadvantage the Corporation has controlled operating costs well, highlighted by the marginal five year increase of 0.8% to 2005-06.

Regional water supply operating costs have been well controlled while service standards have been maintained or improved as described in Section 4.

### *Wastewater*

Regional wastewater costs have increased over the period primarily as a result of the need to upgrade facilities to meet environmental standards, coupled with higher treatment standards and an increase in preventative maintenance.

## **6. VALUE FOR MONEY FOR CUSTOMERS**

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### **6.1 Introduction**

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

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

- customer feedback – that is, what customers say about the quality of services and the price;
- an assessment of the relative quality of services compared to other water bodies; and
- an assessment of the amount of the customer's bill in the context of the total cost of providing services.

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

### **6.2. Customer Feedback**

As indicated earlier in this report, in July 2007 the Corporation undertook its seventh annual customer satisfaction benchmarking study to measure customer satisfaction with its service delivery and performance across a broad range of areas. The state-wide study involved 1218 households and 300 businesses participating in a telephone survey seeking responses to a comprehensive questionnaire of both water and wastewater services.

*Overall satisfaction rating*

Table 6.1 shows the total results of the random household survey. Table 6.2 provides results of the survey aggregated in metropolitan and regional areas. The results are shown as a satisfaction score (out of ten (10)) for four attribute measures.

Table 6.1

Total Random Household Sample – Results 2002-2007

Attribute	2002	2003	2004	2005	2006	2007	% Change 3 years to 2007	% Change 5 years to 2007
Reliability of service	8.7	8.8	9.0	8.6	8.9	9.0	0.0	3.4
Ease of Access	8.0	7.8	8.1	8.1	7.9	8.3	2.4	3.7
Responsiveness to a problem	7.9	7.6	7.8	7.8	7.8	8.3	6.4	5.0
Value for Money	6.8	7.0	6.7	7.1	7.3	7.8	16.4	14.7
Overall Response	8.1	8.1	8.2	8.2	8.2	8.2	0.0	1.2

Table 6.2

Total Random Household Sample - Metro and Regional – Results 2004-07

Attribute	Metropolitan Random Households				Regional Random Households			
	2004	2005	2006	2007	2004	2005	2006	2007
Reliability of supply	9.1	8.6	8.9	9.0	8.9	8.7	8.9	8.9
Ease of Access	8.1	8.1	7.9	8.3	8.0	8.0	8.0	8.1
Responsiveness to a problem	7.8	7.8	7.6	8.3	7.7	7.9	8.0	8.5
Value for Money	6.7	7.1	7.2	7.7	6.9	7.1	7.7	8.0
Overall Response	8.1	8.2	8.3	8.2	8.1	8.2	8.3	8.3

Overall, the results show improvement in most attributes for both metropolitan and regional segments. The only indicator which remained stable was reliability of supply in regional areas. There were no attributes which deteriorated in 2007 from the previous year.

The survey again confirmed SA Water is well regarded as a service provider with customer satisfaction remaining at a high rate (8.2 for metropolitan and 8.3 for regional out of a possible 10).

*Pricing – value for money*

The survey also sought responses to questions about water and wastewater pricing. The questions sought responses in terms of a importance and satisfaction rating for the charges levied for water and sewerage services. The results are shown in Table 6.3.

Table 6.3

Value for money –water and sewerage services – Results 2006-07

Attribute	Random Household Sample			
	Importance		Satisfaction	
	2006	2007	2006	2007
Whether the amount that is charged for water represents good value – and the relative importance.	8.9	9.3	7.4	7.8
Whether the amount that is charged for sewerage represents good value – and the relative importance.	8.9	9.3	7.4	8.0

In total, responses to the survey from customers show that the perceived importance and satisfaction rating of the value for money for both water and sewerage services increased in 2007 over the previous year.

### **6.3 Comparative Levels of Service**

*Metropolitan operations*

The performance of the Corporation's metropolitan operations, as reflected by a range of service measures when compared to other water companies, is summarised in Table 2.14 of this report. In order to compare relative performance for each measure an assessment is made in Table 6.4 of the performance by the Corporation's metropolitan operations in the measure when ranked against all the compared companies. Performance is categorised as high, medium or low.

A 'high' assessment is assigned where the company's performance in a measure is ranked either first, second or third highest when compared with all other companies. An assessment of 'medium' is given for a ranking of 4<sup>th</sup>–6<sup>th</sup> highest and 'low' to those ranked 7<sup>th</sup>–9<sup>th</sup>.

Table 6.4

SA Water's comparative ranking performance  
SA Water metropolitan service performance - summary comparisons

Service Standard	Rank <sup>(1)</sup> 05-06	Corporation Performance
<b><i>Asset performance</i></b>		
Water main breaks (per 100 km of main)	2 (7)	High
Sewer main breaks and chokes (per 1,000 properties)	7 (9)	Low
Infrastructure leakage index	2 (8)	High
Water losses (litres/connection/day)	2 (8)	High
<b><i>Customer Service</i></b>		
Percentage of population where microbiological compliance was achieved	Equal 1 (9)	High
Water quality complaints (per 1,000 properties)	2 (8)	High
Average connect time to a telephone operator (seconds)	2 (7)	High
Number of sewage odour complaints (per 1000 properties)	5 (8)	Medium
<b><i>Environmental performance</i></b>		
Percent of sewage treated to a tertiary level	Equal 1 (9)	High
Recycled water (percent effluent recycled)	2 (8)	High
Percent of bio-solids reused	6 (6)	Medium
Sewer overflows to the environment (per 100 km) <sup>(2)</sup>	7 (9)	Low

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

### *Regional operations*

The performance of the Corporation's regional centres compared with interstate regions are summarised in Table 4.10 of Section 4. Table 6.5 provides a summation of the Corporation's relative performance in five measures<sup>9</sup> for 2005-06 compared to regional operations interstate. A ranking is provided according to the number of companies that provided data in a similar manner to the metropolitan operations.

To obtain a comparative figure the performance of the six South Australian regional centres has been aggregated, averaged and assigned a ranking for each measure. As before, performance is categorised as high, medium or low<sup>10</sup>.

<sup>9</sup> The performance measure, *Percentage of population where microbiological compliance was achieved*, is not included as all companies achieved this to 100%.

<sup>10</sup> A 'high' assessment is assigned where the company's performance in a measure is ranked in the top five companies when compared with other companies. An assessment of 'medium' is given for a ranking of 6-10 (where 15 and 16 companies recorded data) and 6-11 (where 17 companies recorded data). An assessment of low was assigned where the ranking is 11-15 (where 15 companies recorded data or 11-16 where 16 companies recorded data) or 12-17 where 17 companies recorded data).

Table 6.5

SA Water's relative performance – Average regional operations – service standards 2005-06

Performance measure	Average Ranking (1)	Corporation Performance
<b>Asset performance</b>		
Water main breaks/100 km	7 (15)	Medium
Sewer main breaks and chokes/100km	8 (17)	Medium
<b>Customer Service</b>		
Water quality complaints/1,000 properties	6 (16)	Medium
Number of sewage odour complaints/1000 properties	7(17)	Medium
<b>Environmental performance</b>		
Sewer overflows/100 km	13 (17)	Low

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

### *Overall comparison of service level*

When comparing the range of service measures with other water companies in Australia (12 in the metropolitan area and 5 in regional areas), the Corporation displays the following overall relative performance in standards of service:

Service Standards	Relative Performance		
	High	Medium	Low
Metropolitan	8	2	2
Regional	0	4	1
<b>Total</b>	<b>8</b>	<b>6</b>	<b>3</b>

Overall, 82% (the results of 14 measures out of the 17 measures compared) of SA Water's combined metropolitan and regional operations were ranked at the high to medium level when compared to interstate companies. It can be reasonably argued therefore that the standard of service offered by the Corporation to its customers is predominately at the mid-to-high level when compared with the service levels offered customers of the other water companies.

## **6.4 Comparative Level of Costs of Services and Customer Bills**

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

'Costs' are reflected by the operating cost per property for water supply (metropolitan) and operating cost per property for wastewater services (metropolitan) as contained in *NPR 2005-06*. These data have been provided already in this report but are combined in Table 6.6 for broader comparison purposes. Also, for ease of comparison, data is presented for each Australian mainland city (based on the relevant water utility in each State/Territory). A weighted average has been used to recognise the substantially different number of properties served in each city. For example, Darwin has substantially higher costs than the other cities but has little impact on the weighted average given its size.



Table 6.6 shows operating costs per property for both water supply and wastewater services in Adelaide are the lowest in 2005-06 and consistently lowest or 2<sup>nd</sup> lowest of each city in the previous five years.

Table 6.6

Operating cost per property for water supply & wastewater services  
(2005-06 dollars)

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
Canberra	551	594	585	602	588	491
Brisbane	521	518	437	417	427	411
Melbourne	448	423	430	413	439	406
Darwin	746	566	647	586	569	562
Adelaide	307	305	327	316	326	327
Sydney	na	na	539	433	442	349
Perth	318	318	316	342	361	354
Weighted Average	411	403	448	406	420	378

Charges to customers are presented in Table 6.7 as a combined average residential water and wastewater bill. Again, a weighted average has been used. The Table shows that while Adelaide residents are charged on average consistently more than the weighted average for each of the four years reported, in 2005-06 the bill was the 4th lowest bill of all (7) compared cities.

Table 6.7

Residential average annual water & wastewater bill <sup>11</sup>

	2002-03	2003-04	2004-05	2005-06
Canberra	624	631	687	747
Brisbane	628	657	677	627
Melbourne	459	442	450	476
Darwin	704	721	742	725
Adelaide	693	687	700	720
Sydney	639	632	638	694
Perth	519	744	742	750
Weighted Average	488	507	517	531

Figure 6.1 provides a comparison of the implied contribution that individual customers make in their bills toward depreciation and providing a return on the value of assets (i.e. it reflects revenue per customer less operating costs per customer). Although SA Water's operating costs are low the contribution that the Corporation's customers make towards its assets is among the highest of companies interstate. To some extent this level of contribution may reflect the relative quality of assets which, in turn, as shown earlier, provides a generally high level of standards of service. It also reflects the traditionally low returns earned on asset by interstate providers.

It may also be relevant that various jurisdictions have taken different approaches to asset valuation and, in particular, some have adopted a "line in the sand" methodology to price setting. That is, the value of legacy assets has been set to lock in past rates of return on previous investments.

<sup>11</sup> This includes the residential sewerage charge plus residential water access charge plus residential water usage charge plus any residential sewerage disposal charges or fixed levies for the average residential consumption.

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

Figure 6.1

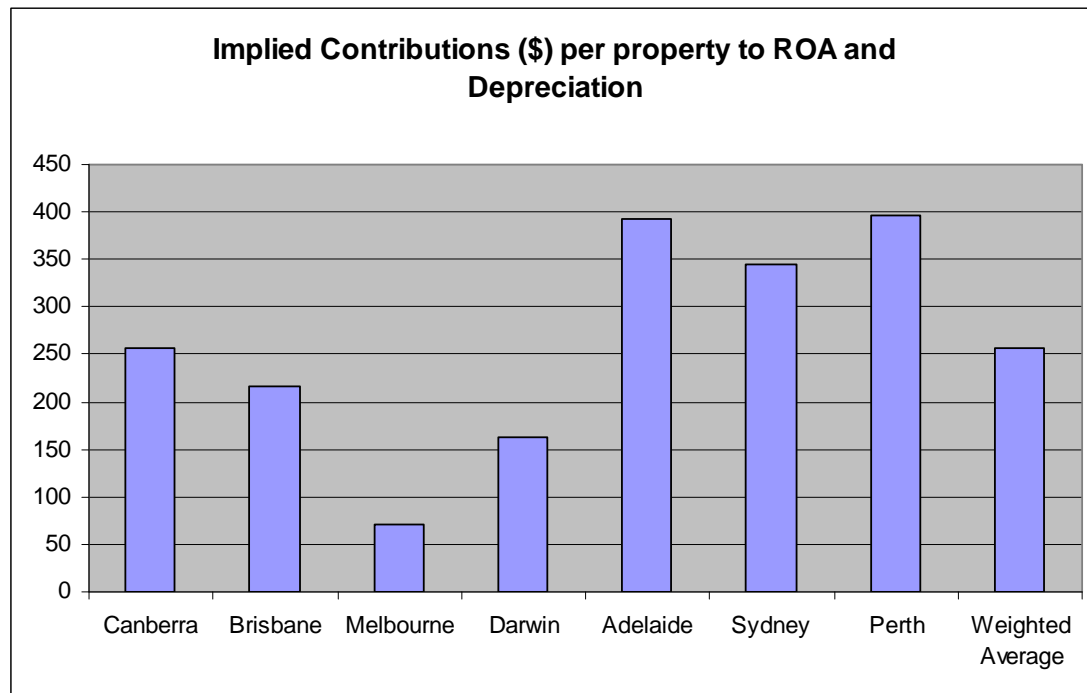


Figure 6.2 graphically demonstrates the value for money offered SA Water's customers by a comparison of:

- The average annual water and wastewater bill in Adelaide with other Australian cities; and
- A comparison of performance based on a constructed level of performance points for the service standards used in this report<sup>12</sup>.

It can be seen that while SA Water's bills are in the group at the higher level, it has the highest comparable level of performance of all the seven cities.

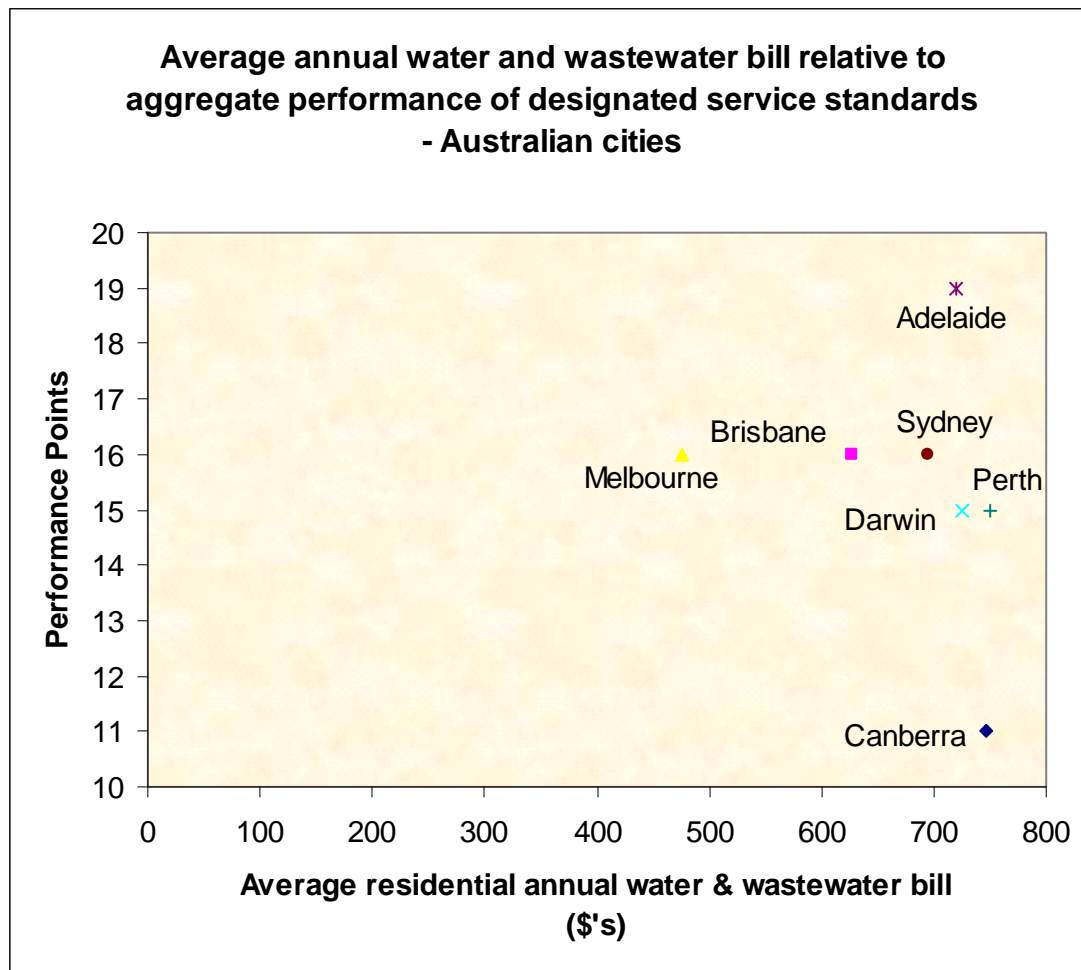
<sup>12</sup> Performance points were assigned to each water company for eight of the performance measures used in section 2 of this Report on the following basis:

- 3 points for high performance;
- 2 points for medium performance; and
- 1 point for low performance.

High, medium and low performance is determined by the ranking of each company for each measure as illustrated in Table 2.14. As not all companies provided data consistently for each performance measure separate ranges for the ranking, and therefore the points, were established where there were either seven, eight or nine companies being compared as follows:

- Where 7 companies compared: High = ranked 1-2, medium = 3-5, low = 6-7.
- Where 8 companies compared: High = ranked 1-2, medium = 3-6, low = 7-8.
- Where 9 companies compared: High = ranked 1-3, medium = 4-6, low = 7-9.

**Figure 6.2**



### **6.5 Summary – Value for Money**

The Customer Satisfaction Survey conducted by the Corporation in 2007 indicates customers are generally very satisfied with the range and quality of services provided by the Corporation. Eighty-four per cent (84%) of responses to the survey consider that the price of water represents good value.

The standard of service offered by the Corporation to its customers is predominately at the mid-to-high range in the metropolitan area and in the mid range in the regional areas when compared with the service levels offered to customers of the other water bodies. While SA Water's operating costs for water supply and wastewater services are low in Adelaide, when compared with other Australian cities, water and wastewater bills are comparatively high. To some extent this level of contribution may reflect the relative quality of assets employed which, in turn, as earlier demonstrated, provides a high level of service.

### KEY DIFFERENCES IN PROVIDING WATER SUPPLY AND WASTEWATER SERVICES

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

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

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

- Topography – The cost of provision of sewerage services can be significantly influenced by the general topography which dictates opportunities to utilise gravity systems rather than pumping. However, in the case of Adelaide it is its location next to a gulf with limited wave and tidal movement, as distinct to exposure to the open sea that has the most significant impact on costs. This situation has long demanded adoption of higher wastewater treatment than has been required in many other major capitals. .
- Age of system  
Adelaide's wastewater system on average is older than those of most other cities as the decision to sewer the city and suburbs was made quite early in its development.

- The type of material used in construction

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

- Siting and location of system

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

## Appendix 6: WACC Methodology

### Post-tax nominal WACC

The following formula was used to estimate the post-tax nominal WACC.

$$WACC = \frac{K_e * (1 - t)}{[1 - t * (1 - \gamma)]} * \left( \frac{E}{D + E} \right) + K_d * (1 - t) * \left( \frac{D}{D + E} \right)$$

where:

- K<sub>d</sub> = cost of debt
- K<sub>e</sub> = cost of equity
- D = amount of debt in capital structure
- E = amount of equity in capital structure
- γ = gamma
- t = tax rate

### Pre-tax real WACC

The forward transformation was then adopted to convert the post-tax nominal WACC to the pre-tax real WACC.

#### *Forward Transformation*

- Step 1 — convert post-tax nominal into pre-tax nominal using an appropriate tax rate
- Step 2 — convert pre-tax nominal into pre-tax real using the Fisher equation.

### Input Values

The input values used to calculate the post-tax nominal WACC and the pre-tax real WACC are described below.

#### **Cost of Debt**

The cost of debt is a significant component of the WACC and is the sum of the risk-free rate and the debt margin.

#### ***Risk-free Rate***

The nominal risk-free rate is estimated using the 20-day average of the yield on 10-year Government Bonds.

#### ***Debt Margin***

The debt margin is the interest margin above the risk-free rate of interest, which would be incurred by an efficient water business.

#### **Cost of Equity**

The cost of equity is estimated, using the CAPM, as the sum of the risk-free rate of interest and a premium considered sufficient to compensate equity holders for systematic risk.

#### ***Market Risk Premium***

The market risk premium (MRP) represents the rate of return required by equity holders above the risk-free rate of interest.

## TRANSPARENCY STATEMENT – 2008-09 WATER & WASTEWATER

### ***Equity Beta***

The equity beta represents the responsiveness of the return on equity to the market (or systematic risk). An equity beta of 1 indicates that the variability of returns is consistent with the market portfolio.

### ***Gearing ratio***

The gearing ratio adopted is the proportion of the total asset value attributable to debt, the remainder being attributable to equity.

### **Other inputs to the Post-tax nominal WACC**

#### ***Gamma***

Gamma represents the value of franking credits under the dividend imputation system as a proportion of tax payments.

#### ***Tax Rate***

The tax rate represents tax payable as a proportion of taxable income.

#### ***Expected Inflation***

Expected inflation is estimated using the Fisher equation on the basis of the 20-day average of the nominal and inflation indexed 10-year Government Bond yields.