

# INQUIRY INTO REFORM OPTIONS FOR SA WATER'S DRINKING WATER AND SEWERAGE PRICES

*Final Inquiry Report*

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The Essential Services Commission of South Australia is the independent economic regulator of the water, electricity, gas, ports and rail industries in South Australia. The Commission's primary objective is the *protection of the long-term interests of South Australian consumers with respect to the price, quality and reliability of essential services*. For more information, please visit [www.escosa.sa.gov.au](http://www.escosa.sa.gov.au).

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## GLOSSARY OF TERMS

AAF	Annual Average Flow
ADP	Adelaide Desalination Plant
AEMC	Australian Energy Market Commission
ASM	Australian Sub Meters
BOD	Biological Oxygen Demand
CBA	Cost Benefit Analysis
CCSA	Conservation Council of South Australia
CGE	Computational General Equilibrium
CMS	Customer Management System
COAG	Council of Australian Governments
Commission	The Essential Services Commission of South Australia
CoPS	Centre of Policy Studies, Victoria University
COTA	Council On The Ageing South Australia
CSO	Community Service Obligation
DCSI	Department of Communities and Social Inclusion
DEWNR	Department of Environment, Water and Natural Resources
DPTI	Department for Planning, Transport and Infrastructure
DTF	Department of Treasury and Finance
ERA	Economic Regulation Authority, WA
ESC Act	Essential Services Commission Act 2002
ESCV	Essential Services Commission of Victoria
GL	Gigalitre = 1000 Megalitres
K	Potassium
kL	Kilolitre = 1000 litres
LRMC	Long-Run Marginal Cost
MDBA	Murray Darling Basin Authority
ML	Megalitre = 1000 kilolitres
NPV	Net Present Value
NRM	Natural Resource Management
NWI	National Water Initiative

OTTER	Office of the Tasmanian Economic Regulator
Public Health Act	Public Health Act 2011
PWWF	Peak Wet Weather Flow
QCA	Queensland Competition Authority
RAB	Regulatory Asset Base
Residential Tenancies Act	Residential Tenancies Act 1995
Retail and Commercial Leases Act	Retail and Commercial Leases Act 1995
ROA	Rating On Abuttal (service availability charge)
SACOSS	South Australian Council of Social Services
Sapere	Sapere Research Group
SA Water	South Australian Water Corporation
SA Water PD13	SA Water Price Determination July 2013 to June 2016
SCCA	Shopping Centre Council of Australia
South Australian Water Corporation Act	South Australian Water Corporation Act 1994
SRMC	Short-Run Marginal Cost
SS	Suspended Solids
TDS	Total Dissolved Solids
TKN	Total Kjeldahl Nitrogen
TP	Total Phosphorous
Tribunal	Residential Tenancies Tribunal
VLB	Volume and Load Based (trade waste customers)
WACC	Weighted Average Cost of Capital
Wastewater Regulations	South Australian Public Health (Wastewater) Regulations 2013
Water Industry Act	Water Industry Act 2012
WPM	Water Planning and Management
WWTP	Wastewater Treatment Plant

## EXECUTIVE SUMMARY

The Essential Services Commission has conducted this Inquiry, referred by the Treasurer, to investigate reform options for SA Water's drinking water and sewerage price structures and associated charging arrangements which might improve economic efficiency and water security for South Australia.

The Inquiry's outcomes are intended to assist the Government as it considers policy options for reform. Rather than simply reflecting a theoretical approach, the Inquiry's findings and recommendations are practical and recognise the importance to all South Australians of the many issues associated with water and sewerage pricing.

The Inquiry is particularly relevant given the significant changes that have taken place in the South Australian water sector in the past few years. The Government has put in place long-term policy measures to secure supply and protect the environment. The Adelaide Desalination Plant has removed the year-on-year supply volatility to which South Australia has historically been exposed, and now provides sufficient additional capacity to ensure water security for much of the State for the foreseeable future.

Further, at both state and national levels, the achievement of productivity improvements is becoming increasingly important to the maintenance and improvement of the community's standard of living. Reforms in the water sector, which provides inputs to other sectors of the economy, can contribute to overall productivity improvements for the South Australian economy.

It is in this context that the Inquiry was asked to consider whether existing arrangements, most of which have been in place for many years, continue to deliver the best outcomes for the community in terms of economic efficiency and water security.

In exploring this question, a longer-term view of reform has been taken. In particular, the Inquiry has affirmed the fundamental proposition that moving to cost-reflective pricing structures provides a sound means of improving the economic efficiency – and potentially the security – of water and sewerage services in this State.

Cost-reflective prices will improve economic efficiency, making clear to consumers the cost impacts of their decisions to increase or reduce consumption while also signalling the appropriateness of new investments in the sector. Current price structures, which have departed from cost-reflective levels over time:

- ▲ lead to cross-subsidies from businesses to residential customers and inflates business costs making local production less competitive
- ▲ encourage inefficient investment in alternative water sources or infrastructure, which in many cases is more expensive than the actual cost of the supply of drinking water,

diverting financial and human resources away from more productive uses and potentially constraining economic growth

- ▲ may inhibit the future development of a competitive and efficient water industry by distorting the decisions of potential new entrants to the industry and leading to sub-optimal investments by SA Water.

The Inquiry expressly acknowledges that, in establishing water-pricing structures, various forces come into play. A dominant theme in submissions was the importance of citizens' access to water and sewerage services. They are considered essential and the Inquiry understands that. Therefore, while maintaining the position that moving to more economically efficient arrangements will deliver benefits, it has outlined various transitional and implementation options which may allow the Government to address those issues while still capturing economic efficiency benefits.

The Inquiry also heard and understands community concerns that any move away from existing arrangements could compromise gains the State has made in water conservation. Its proposals therefore seek to show how economic efficiency gains can be promoted without diminishing the value of past achievements in this area. While acknowledging that work to identify the environmental costs of water usage is under way, more can be done.

Overall, the Inquiry identified opportunities for reform that would improve South Australia's productivity. They involve improving the cost-reflectivity of pricing structures and changing the nature of associated charging arrangements over time. Based on a conservative estimate, and noting that it is not possible to place a dollar value on some potential benefits, quantifiable net economic efficiency benefits of at least \$30 to \$45 million per annum could be achieved in the longer term.

Although those benefits are arguably small when considered in the broader context of South Australia's annual Gross State Product of around \$100 billion, they are nevertheless material in the context of the South Australian water sector and have the potential to provide the impetus for future investment across a range of industries.

Additional benefits, which again could be harnessed over time, include providing a rigorous platform for the implementation of reforms to support future additional structural changes in the market that would also bring benefits to the State that cannot presently be quantified. It could allow for more competition in the delivery of services through the introduction of a third-party access regime contemplated under the *Water Industry Act 2012*.

Accepting that moving immediately to a "final state" of reform would present challenges, various implementation pathways have been identified. The Inquiry does not necessarily advocate the adoption of any particular pathway but it outlines some gradual implementation approaches through which increasing levels of economic benefit could be captured over the longer term, while managing social equity and environmental impacts.

The proposed framework provides space for issues of social equity to be addressed (for example, through a robust, targeted and transparent subsidy and concessions scheme) and explicitly takes into account the environmental costs of water usage, where they are known and quantified. It can therefore underpin the delivery of economic benefits for the State – small at first, perhaps, but growing over time.

## Background

The Inquiry stems from the South Australian Government's *Water for Good* plan, which identified pricing reform as a key element in ensuring long-term water security and efficiency for South Australia to provide clearer and better signals to users about how and when they should consume water.

*Water and wastewater prices should reflect the full cost of producing and supplying those products and services (including environmental externalities where feasible and practical) so that customers are encouraged to use water and wastewater services efficiently.* (Water for Good, page 139)

Cost-reflective prices send the right signals to customers about how much water to use. Implicit in *Water for Good's* acknowledgment of the importance of moving towards cost-reflective pricing was the recognition that SA Water's current pricing arrangements, developed and implemented in an incremental manner over a long period of time, are unlikely to be fully efficient or cost-reflective.

## Scope

This Inquiry has dealt with pricing structures for drinking water and sewerage services and also with associated charging arrangements. Those associated arrangements include the possibility of replacing the current system, under which landowners are SA Water's customers, with one in which end users – including tenants, the actual consumers of the service – are the customers.

Importantly, the Inquiry's purpose was not to review the efficiency of SA Water's overall costs, or to establish SA Water's revenue requirements. While these two issues are extremely important, they are managed through a different and well-established regulatory process – periodic revenue determinations by the Commission. Those determinations are made under a legal framework established by the Parliament (including the provisions of any transitional Pricing Orders) and are conducted openly and transparently.

The next review of SA Water's revenue requirements, due to begin late in 2015, will provide an opportunity for the community to consider and comment on the efficiency of SA Water's costs and overall revenues, along with matters arising under Pricing Orders, such as the value of the regulatory asset base of SA Water.

To reiterate, this Inquiry's focus has been clear. It has asked, from the perspectives of both principle and practicality: *What are the most economically efficient pricing structures and associated charging arrangements to recover SA Water's revenue requirements?*

It has found the answer to that question remains the same irrespective of the total revenue recovered by SA Water. Arrangements that better enable consumers to understand and respond to the costs associated with their consumption decisions – and which drive better investment decisions by SA Water and its customers – will improve overall economic efficiency in the longer term. Cost-reflective pricing achieves this.

### *What are the potential improved outcomes?*

While there may be good historical reasons for factors such as social policy or environmental consideration to have underpinned the current pricing structures and charging arrangements, the Inquiry has confirmed *Water for Good's* overall proposition that there is room for improvement in terms of economic efficiency.

Indeed, the Inquiry heard arguments supporting the claim that the existing structures and arrangements could actually be impeding economic development. It has conservatively estimated overall economic benefits in the order of \$30 million to \$45 million per annum could be unlocked through the implementation of several of its recommendations. Further economic benefits of approximately \$2 million to \$3 million per annum may be available were it to prove feasible to implement location-based pricing arrangements over time.

While it is not possible to quantify the total benefit that cost-reflective pricing would produce in terms of better investment decisions by SA Water's customers, the Inquiry has been presented with evidence suggesting that this benefit may be significant.

As a direct result of current pricing structures, some South Australian businesses have invested in finding and using alternative water sources or infrastructure. Those investments have diverted their financial resources from more productive purposes, potentially inhibiting employment and growth in the local business sector and the wider economy.

In relation to water security, the Inquiry has found that recent investments in assets such as the Adelaide Desalination Plant and the North-South Interconnector have largely addressed water security issues for much of the State for the foreseeable future. However, it has also found that more work could be done to identify clear security-of-supply standards that could trigger the implementation of appropriate response mechanisms, such as scarcity pricing or other demand response measures.

Some of the benefits discussed in this report relate to value to consumers other than reduced prices. For example, there will be non-pricing benefits, such as reduced leakage, and enhanced customer protection measures. There may also be reductions in other costs outside of those inherent in customers' bills – for example, the administrative costs incurred by landlords in passing on water and sewerage charges to tenants. Ultimately, a move to

cost-reflective prices will encourage consumers to use SA Water's services more efficiently, and this will provide an overall net benefit.

Finally, many of the proposed reforms will have specific importance in the context of the proposed third-party access regime under the *Water Industry Act*. Arrangements that give special treatment to SA Water will adversely affect the ability of new providers to enter the market and effectively compete to provide services to South Australians.

### *What are the recommended reform options?*

The Inquiry has produced a suite of reform options for consideration. They are summarised below and followed by a further summary of possible pathways to implementation.

#### *End-users becoming SA Water's customers*

All users of water and sewerage services, rather than only the owner of land to which a service is provided, should have the right to be SA Water's customers. It would mean that tenants, who do not currently have a direct relationship with SA Water, would receive timely and accurate bills, understand and appreciate the costs of using the service and be able to adapt their behaviours in response to prices. They would also have access to the broad set of consumer protection rights not presently available to them under the *Water Industry Act* and the Commission's *Water Retail Code* which sets customer protection obligations on SA Water.

#### *Metering arrangements*

The Inquiry recommends that the installation of individual water meters to group-metered properties, as well as the installation of smart meters, should remain optional at this time, as there is not a financial case for departing from the status quo.

#### *Regularising SA Water's debt security and recovery arrangements*

SA Water's current statutory right to obtain a first charge over the land to which it provides a service to secure and recover debts should be removed. The change would place SA Water on a level footing with other utilities (gas, electricity, telecommunications), as well as other businesses operating in the broader economy. Other businesses do not have such special statutory rights; they must rely solely on the general law. Further, such a change would be consistent with a move to having end users (including tenants) becoming SA Water's customers. It would be an anomaly to permit SA Water to secure a debt owed by a tenant against the property of the landlord.

### *Removing “availability” or “rating on abuttal” charges*

The practice of “rating on abuttal”, whereby SA Water can charge a fee to a landowner merely because a water or sewerage main passes adjacent to the landowner’s property, should cease. Where customers are connected to a service, they should pay for it. However, if no service is wanted, a customer should not have to pay.

### *Maintaining two-part drinking water tariffs but moving towards cost-reflective pricing*

The price structure of drinking water should be continued as a two-part arrangement, with both a usage charge and a fixed charge.

Under current arrangements, while about 85 per cent of SA Water’s total drinking water costs are fixed (independent of the amount of water consumed), only 32 per cent of its drinking water revenue is derived from drinking water fixed charges, with the remaining 68 per cent of its drinking water revenue coming from drinking water usage charges. Put simply, usage charges are currently in part recovering fixed costs, and this distorts both consumption and investment decisions for drinking water.

This arrangement should be changed so that usage charges are used to recover only the costs imposed on SA Water arising from consumption – that is, the costs of putting water through the network and the future investment required to meet consumption needs. Similarly, fixed charges should be set to recover the costs that arise independently of usage (for example, mains, pumping stations and similar assets).

### *Applying the current non-residential single-tier usage charge approach to residential customers*

The current single-tier structure for drinking water usage charges for non-residential customers should be extended to apply to all residential customers. This would see the eventual abolition of the three-tiered system for residential customers.

In the long term, the single usage charge should be set to reflect the best estimate of the cost-reflective price (set at the long-run marginal cost of water supply). The Inquiry has estimated that a current statewide marginal cost could be about 65 cents per kilolitre (acknowledging, however, that other, different, estimates could also be valid). Additional, albeit small, economic benefits would arise from region-specific usage charges (based on the long-run marginal cost for each region).

Regardless of which long-run marginal cost estimate is used (or whether another figure representing a move towards that estimate is used), a single and more cost-reflective charge will be materially lower than current usage charges.

### *Setting drinking water supply charges based on capacity, not customer type*

The basis upon which drinking water fixed supply charges are set should be shifted, over time, from broad customer classes to the capacity of each customer's connection to the network. In practice, nearly all residential customers would continue to pay the same fixed charge but non-residential customers, who are more likely to have varied capacity needs, would pay based on individual capacity requirements. Underpinning this proposal is the fact that SA Water's fixed costs are generally driven by capacity, not by customer type.

### *Setting sewerage supply charges based on capacity, not property value*

SA Water's costs in providing sewerage services are largely fixed and independent of the volume of sewage produced. There is no significant benefit in charging volumetric sewerage prices for all but the largest users, and the cost of installing sewerage meters to facilitate accurate volumetric charging is likely to be much greater than any associated benefit.

Fixed sewerage charges should therefore be maintained and volumetric charging not introduced.

However, the method for calculating charges should be based not on property value, as now, but on the capacity requirements of each sewerage customer (in particular, the number and size of their sewerage connections). Once again, this is because capacity is the major cost driver for SA Water. This approach would be more cost-reflective and better promote economic efficiency. Most Australian states and territories have moved away from property-based charging for water and sewerage services. Only South Australia and Western Australia maintain this practice.

### *Ensuring that trade waste charges are cost-reflective*

Large industrial sewerage (or "trade waste") customers are charged according to the type and volume of pollutant discharged into the sewerage network. The type of pollutants discharged into the sewerage system is monitored and, for larger customers, sewage volumes are metered.

The current regime is broadly based on cost-reflective principles and should be maintained. However, it would be appropriate to review the cost inputs in more detail to ensure that prices are based on actual costs.

### *Reviewing water planning and management costs*

Various external impacts are associated with water use, including, for example, the impact on the environment of withdrawing water from natural sources. Including the cost of those external impacts in water prices, where attributable and incurred by SA Water, increases

economic efficiency, as it ensures that prices reflect all costs to the community of using water, not just those directly incurred in supplying it.

Through its drinking water charges, SA Water currently recovers amounts relating to water planning and management and this is a positive step in factoring environmental costs into prices. There would be value in conducting an independent and public review of the water planning and management costs charged to SA Water to ensure those costs are prudent and efficient.

### *What are possible implementation pathways?*

Some of the Inquiry's recommendations, if implemented, would not lead to the removal of cross-subsidies (for example, the recommendations to bill end users and regularise SA Water's debt security and recovery arrangements). However, other structural reforms proposed by the Inquiry would involve the removal of cross-subsidies currently embedded within SA Water's pricing structures. While that would be an economically efficient outcome, it could have material short-term financial impacts for many South Australian households. This highlights the challenge faced in moving to more economically efficient prices and the need to consider whether, when and how such reform might be implemented. There is a direct trade-off between promoting greater economic efficiency and limiting bill increases for some customers.

Using drinking water as an example, a movement towards more cost-reflective charges would involve the removal of cross-subsidies that have, to date, largely been borne by large (industrial) water users.

Further, usage charges are currently, in part, recovering fixed costs, and this distorts both consumption and investment decisions for drinking water. While overall usage charges would be materially lower, fixed supply charges would increase from approximately \$280 per annum to around \$840 per annum for residential customers. This would mean an average bill increase of around \$110 per annum for metropolitan residential customers and \$220 per annum for metropolitan concession customers.

Prices would also rise for many sewerage customers as the effects of cross-subsidies, inherent in the property-value-based system, were unwound. This would impact customers with low-value properties in particular.

The outcomes of a full and immediate unwinding of the cross-subsidies would be of a magnitude previously unseen in South Australia's water sector. Clearly, were such change to be introduced in the short term, there would be significant social impacts. The Inquiry has therefore explored a range of options which the Government may wish to consider as possible pathways to implementation over time, allowing benefits to be captured in the long-term while managing transitional impacts.

The options for each change outlined below unwind current cross-subsidies, but do so gradually. They allow for a measured approach to change but would nevertheless improve economic efficiency.

**Drinking water** – In the first instance, to avoid making any changes to residential fixed charges and to maintain revenue neutrality, a weighted average of the current three tiers of pricing could be adopted as a single usage charge. (It would work out at \$3.17 per kilolitre.) This would enable greater efficiency through better price signals for customers; remove inefficiencies associated with the first and third pricing tiers; and allow fixed supply charges to stay at current levels. Over time, the usage charge could be reduced to a more cost-reflective level (based on an updated estimate of long-run marginal cost).

**Sewerage** – Properties with similar values could be grouped into broad classes, and customers in each class gradually moved towards a more cost-reflective price (based on the capacity of the customer’s sewerage connection) without experiencing a large bill increase in any one year. It would be possible to do this *and* transition to cost-reflective prices over the short term, while limiting to \$100 the maximum bill increase any customer would face in one year.

**Trade waste** – If the proposed review of trade waste costs were to confirm that actual costs are above current levels, then a very small number of customers would be significantly impacted by the proposed changes. To manage this, an option could be to maintain those customers’ total bill, but increase the usage component to reflect costs. Faced with the true marginal cost of their trade waste decisions, these customers will have better information and be able to make smarter decisions about installing infrastructure or changing production methods.

## Conclusion

In conclusion, this Inquiry proposes a long-term framework for a series of changes that would replace existing arrangements that rely on price to meet multiple, and at times conflicting, objectives.

Recognising shifts in the way services are provided in the economy and the improved level of water security recently achieved in South Australia, it has proposed a system under which price better reflects cost. This is a consistent approach that should be easy to understand and it is one that meets community goals: for consumers, for business, for SA Water, and for the Government.

## SUMMARY OF RECOMMENDATIONS

### *Billing end users*

#### **Final finding**

***There are net economic benefits to be derived from SA Water having a direct contractual relationship with end users rather than landowners.***

#### **Final recommendation**

- 1. Where practicable, the end user of a retail service, rather than the owner of the premises to which that retail service is supplied, should be SA Water's customer for that retail service, regardless of whether or not that service is individually metered. However, alternative arrangements should be permitted where entered into by mutual agreement between a landlord and a tenant.***

### *Debt risk and debt security*

#### **Final finding**

***SA Water should be placed in the same position as other utilities and rely on the general law to recover and enforce its debts against customers.***

***The existing statutory rights to secure and recover debt against land granted to SA Water under the South Australian Water Corporation Act 1994 should be removed.***

#### **Final recommendation**

- 2. The current provisions in the South Australian Water Corporation Act 1994, which confer on SA Water the rights to secure debts through a statutory charge on land and sell land to satisfy a debt, should be repealed.***

### *Non-connected properties*

#### **Final finding**

***Customers who choose not to connect to SA Water's network should not be required to pay a fixed charge to SA Water.***

#### **Final recommendation**

- 3. Customers should only be charged for a water and sewerage service if they enter into an agreement with SA Water to become a customer. Likewise, customers should be able to cease being a customer of SA Water subject to providing reasonable notice and paying appropriate disconnection and account finalisation fees.***

## Individual metering

### **Final finding**

***The costs of installing water meters to all properties that are currently not metered would outweigh the associated benefits.***

### **Final recommendation**

- 4. The installation of individual water meters to group-metered properties, both retrofit and new properties, should be optional (i.e. maintain the status quo).***

## Smart metering

### **Final finding**

***The cost of mandatory smart water meters outweigh the benefits to consumers.***

### **Final recommendation**

- 5. Smart water metering should be optional (i.e. maintain the status quo).***

## Drinking water charges

### **Final findings**

***Consistent with the findings of the 2009 Water for Good plan, economic efficiency can be enhanced through setting drinking water usage charges based on the marginal cost of supply. The construction of the Adelaide Desalination Plant has reduced the marginal cost of water significantly and economically-efficient water usage charges should reflect that lower cost.***

***It is economically efficient to set a single usage charge based on the long-run marginal cost of water supply. During periods of water scarcity, economic efficiency can be further enhanced by allowing usage prices to increase to reflect the short-run marginal cost of supply.***

***If usage charges are reduced to cost-reflective levels, drinking water supply charges would need to increase significantly, assuming SA Water is to recover the same amount of revenue. This would lead to an unwinding of current cross-subsidies, with most residential customers experiencing bill increases and large water users receiving lower bills. Transitional arrangements would be necessary to address the movement to more cost-reflective prices.***

***Capacity-based charging is the most cost-reflective way to set SA Water's drinking water supply charges. Other fixed drinking water charges (e.g. connection and disconnection charges) should be cost-reflective and recovered on a user-pays basis.***

### **Final recommendation**

- 6. Consideration should be given to making SA Water's drinking water charges more cost-reflective. Any subsidies are best delivered outside drinking water prices through separate payments.***

## Regional drinking water charges

### **Final findings**

***Differentiating water usage charges by region would further enhance economic efficiency, albeit by only a small amount relative to the application of a statewide long-run marginal cost -based usage charge.***

***There is unlikely to be any net benefit in setting water supply charges on a regional basis, based on existing fixed assets, although there may be benefits in allocating future fixed costs to regional customers to promote efficient investment decisions.***

### **Final recommendations**

- 7. Consideration should be given to regional long-run marginal cost -based usage charges and moving to regional fixed charges over time, noting that the additional economic benefits are small.***

## Sewerage charges

### **Final findings**

***SA Water's sewerage costs are largely independent of sewage volumes and there is no economic basis for usage-based sewerage charges.***

***Capacity-based charging is the most cost-reflective way to set SA Water's sewerage charges. Other fixed sewerage charges (e.g. connection and disconnection charges) should be cost-reflective and recovered on a user-pays basis.***

### **Final recommendation**

- 8. Sewerage charges should reflect the "capacity requirement" a customer places on the sewerage system, not the value of the property. The most appropriate reflection of capacity is the size of the sewerage connection.***

## Regional sewerage charges

### **Final finding**

***There is unlikely to be any net benefit in setting sewerage charges on a regional basis using the value of existing fixed assets, although there may be benefits in allocating future sewerage costs on a regional basis to promote efficient investment decisions.***

### **Final recommendation**

- 9. Consideration should be given to regional sewerage charges, based on allocating future sewerage costs to each region.***

## Trade waste charges

### **Final finding**

***Unlike other sewerage customers, there is a usage cost imposed (for discharge) by trade waste customers and long-run marginal cost based charging is the most economically efficient way to set trade waste charges.***

### **Final recommendation**

- 10. Trade waste charges should continue to be based on volume and load, and set with reference to long-run marginal cost. An independent review should be undertaken to develop robust estimates of the long-run marginal cost of trade waste for flow and non-flow parameters.***

## Regional trade waste charges

### **Final finding**

***The long-run marginal cost of trade waste is likely to differ for each individual sewerage catchment and there may be net benefits in setting regional trade waste charges to reflect those cost differences.***

### **Final recommendation**

- 11. Consideration should be given to implementing regional trade waste charges where the long-run marginal cost of each trade waste parameter within a sewerage catchment is known. Until long-run marginal cost estimates have been developed for individual sewerage catchments, trade waste prices should be set with regard to the long-run marginal cost at Bolivar, which accepts 97 per cent of trade waste volume.***

## Water planning and management costs

### **Final finding**

***Current water planning and management charges paid by SA Water's customers may not be economically efficient.***

### **Final recommendations**

- 12. The Government should consider commissioning an independent public review of the prudence and efficiency of all water planning and management-related costs incurred by SA Water, including the manner in which they are recovered.***
- 13. Until such a review is conducted, SA Water should make it clear on customers' bills that a water planning and management payment is being collected through them – and that this is being done for the benefit of the wider South Australian public. Consideration should also be given to the development of a mechanism whereby SA Water's water planning and management costs are balanced or trued-up prior to the commencement of the next price determination period (1 July 2016).***

# 1. INTRODUCTION

## 1.1 Purpose of this Inquiry

The Essential Services Commission of South Australia (**Commission**) has inquired into options for pricing reform for the drinking water and sewerage services provided by the South Australian Water Corporation (**SA Water**). The Inquiry was referred to the Commission by the Treasurer, pursuant to Part 7 of the *Essential Services Commission Act 2002 (ESC Act)*.<sup>1</sup>

As with all functions under the ESC Act, this Inquiry was undertaken with the primary objective of ***the protection of the long-term interests of South Australian consumers with respect to the price, quality and reliability of essential services.***

The Commission was asked to inquire into and report to the South Australian Government on options for the reform of pricing structures and related matters that might deliver improved economic efficiency and/or water security for this State.

The Terms of Reference for the Inquiry provide that:<sup>2</sup>

- (a) *The Commission is to inquire into options for pricing reform for drinking water and sewerage retail services provided by SA Water in South Australia.*
- (b) *The Commission is to consider, in particular, the following matters:*
  - i. *approaches to drinking water supply charges for SA Water customers, including charges based on the number and size of meters, and transition arrangements for managing significant impacts on customers;*
  - ii. *alternative approaches to charging for drinking water and sewerage retail services which may improve economic efficiency and/or South Australia's water security, including analysis of the costs and benefits of such approaches for different customer classes, and in particular:*
    - A. *the likely impact of billing a consumer of such services (rather than the owner of land) and the associated elimination of rating on abuttal;*
    - B. *the likely impact of requiring the installation of individual meters for each customer;*
    - C. *the likely impact of requiring the installation of smart meters;*

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<sup>1</sup> The *Essential Services Commission Act 2002* is available at: <http://www.legislation.sa.gov.au/LZ/C/A/ESSENTIAL%20SERVICES%20COMMISSION%20ACT%202002/CURRENT/2002.14.UN.PDF>.

<sup>2</sup> The full Terms of Reference for the Inquiry are available at: [http://www.escosa.sa.gov.au/library/121207-InquiryDrinkingWater\\_SewerageRetailServicesPricing-NoticeOfReferral.pdf](http://www.escosa.sa.gov.au/library/121207-InquiryDrinkingWater_SewerageRetailServicesPricing-NoticeOfReferral.pdf).

- iii. *the impact of statewide pricing requirements on SA Water for drinking water and sewerage retail services in terms of economic efficiency, South Australia's water security, and costs and benefits for different customer classes.*

The outcomes of the Inquiry are intended to assist the Government as it considers policy options for reform. Rather than simply reflecting a theoretical approach, the Inquiry's findings and recommendations are practical and recognise the importance to all South Australians of the many issues associated with water and sewerage pricing.

## 1.2 *The case for change*

SA Water's current pricing arrangements reflect various Government decisions made over many years. As a result, these arrangements are often complex and may not reflect current Government policy objectives.<sup>3</sup>

A number of potential benefits can be achieved by introducing greater economic efficiency into SA Water's pricing and related charging arrangements. Fundamentally, there is the potential to deliver greater economic growth to the State by ensuring that one of its key resources, water, is allocated to consumers in a way that maximises its value. This Inquiry has found that current arrangements can be improved significantly in that regard. In particular, it notes that current price structures:

- ▲ lead to cross-subsidies from businesses to residential customers and inflates business costs making local production less competitive
- ▲ encourage inefficient investment in alternative water sources or infrastructure, which in many cases is more expensive than the actual cost of the supply of drinking water, diverting financial and human resources away from more productive uses and potentially constraining economic growth
- ▲ may inhibit the future development of a competitive and efficient water industry, by distorting the decisions of potential new entrants to the industry and leading to sub-optimal investments by SA Water.

It is not possible to quantify all the benefits that cost-reflective pricing would produce. However, for those that can be quantified the Inquiry has developed conservative estimates showing \$30 million to \$45 million in net benefits per annum over the longer term.

At both state and the national levels, pursuing productivity improvements of any size is becoming increasingly important as a way to maintain and potentially improve the community's standard of living. Importantly, the efficiency improvements identified in this report are likely to support other, future, structural changes in the market. They also would bring benefit to the State, although they cannot be quantified at this time. Table 1.1. summarises the main benefits identified by this Inquiry.

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<sup>3</sup> For example, over 80 per cent of all water customers are administered by two rating codes. The remaining customers (fewer than 20 per cent) are administered by 81 further rating codes, many of which apply to very few customers. A similar situation exists for sewerage customers.

**Table 1.1: Estimated net benefits arising from implementation of the Inquiry’s recommendations**

AREA WHERE REFORM IS PROPOSED	QUANTIFIABLE ESTIMATED NET BENEFITS	NON-QUANTIFIABLE BENEFITS
Billing end users and the removal of debt provision	\$5m per annum	<ul style="list-style-type: none"> <li>▲ Improved customer protection arrangements for tenants</li> <li>▲ Pre-cursor to a more competitive water market, as:               <ul style="list-style-type: none"> <li>● the service user would be able to directly exercise choice under end user billing arrangements</li> <li>● it is not appropriate for SA Water to have debt security and recovery rights over and above other market participants (as this conflicts with the principle of “competitive neutrality”)<sup>4</sup></li> </ul> </li> </ul>
Non-connected properties	Not quantified at this time	<ul style="list-style-type: none"> <li>▲ Greater consumer choice</li> <li>▲ Pre-cursor to a more competitive water market, as it is not appropriate for SA Water to be able to charge properties that are not connected when its competitors would not be able to do so</li> </ul>
Drinking water	\$30m to \$40m per annum	<ul style="list-style-type: none"> <li>▲ Reducing the misdirection of subsidies intended for vulnerable customers</li> <li>▲ A pre-cursor to greater competition in the water sector</li> <li>▲ More simplistic charging regime for customers</li> <li>▲ Less inefficient investment by SA Water, its customers and providers of alternative water supplies</li> </ul>
Sewerage	Not quantified at this time	<ul style="list-style-type: none"> <li>▲ Improved decisions about where to live, where to locate a business and the level of capital improvement to be undertaken on a property</li> </ul>

<sup>4</sup> Competitive neutrality aims to promote efficient competition between public and private businesses. Specifically, it seeks to ensure that government businesses do not enjoy competitive advantages over their private sector competitors simply by virtue of their public sector ownership. The Australian and all state and territory Governments have agreed to implement competitive neutrality policies (refer to <http://www.pc.gov.au/agcnco/competitive-neutrality>).

		<ul style="list-style-type: none"> <li>▲ More efficient competition, as property-based charging can result in “cherry picking” of customers in high property-value areas and discourage competition in low property-value areas</li> <li>▲ More simplistic charging regime for customers</li> </ul>
Trade waste	Not quantified at this time	<ul style="list-style-type: none"> <li>▲ Unwinding of cross-subsidies from sewerage customers</li> <li>▲ More efficient investment by trade waste customers</li> </ul>
Water planning and management charges	Not quantified at this time	<ul style="list-style-type: none"> <li>▲ Potential efficiency gains to water customers from reviewing whether charges are prudent and efficient</li> <li>▲ Greater transparency for customers</li> </ul>

A range of anomalies exist within the current pricing and charging arrangements. For example, SA Water has the power to charge a fee to the owner of land merely because a water or sewerage main passes adjacent to his or her property – a practice referred to as “rating on abuttal” (**ROA**). This long-standing practice is believed to have originated for public health policy objectives at a time when there were insufficient alternatives to discharging waste into the sewerage network. However, safe alternatives, such as septic tanks and other onsite wastewater treatment systems, now exist.

In an environment where there is potential for greater competition, as foreshadowed by *Water for Good* and the *Water Industry Act 2012 (Water Industry Act)*, it is timely to review and remove out-dated or anomalous provisions such as these. For example, it would not be acceptable to the community to allow other water retailers to secure and recover debt against land, or to charge a fee where their water main passed a person’s property. Nor would it be appropriate to provide SA Water with rights that other retailers do not have.<sup>5</sup>

For a number of years, Government have been considering ways to improve economic efficiency through changes to water pricing practices. For example, the Council of Australian Governments (**COAG**) *1994 Water Reform Framework* advocated that water prices should:

- ▲ be cost-reflective
- ▲ adopt consumption-based charging
- ▲ be sufficient to allow urban water providers to operate commercially

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<sup>5</sup> It is also unclear what would happen in practice if a property was to be ‘abuttal’ by more than one retailer.

- ▲ require that cross subsidies be made transparent, if not removed.<sup>6</sup>

The South Australian Government also raised a number of these matters in 1999.<sup>7</sup> In 2004, the Intergovernmental Agreement on a National Water Initiative (**NWI**), which South Australia is a signatory, also outlined pricing reform outcomes, including water pricing which promotes economic efficiency.<sup>8</sup>

More recently, the Government's 2009 *Water for Good* plan canvassed a broad range of reform options aimed at improving South Australia's water supplies and security.<sup>9</sup> Pricing reform was seen by the Government as an integral part of that plan. This Inquiry is intended to provide advice to the Government on options for reform, the benefits of those options and further information on how and when reforms could be implemented.

Three particular actions arising from *Water for Good* are identified in the Inquiry Notice of Referral:

- ▲ In consultation with SA Water customers, and over a period of five years, transition to water supply charges based on the number and size of the customers' meters, while managing any unreasonable impacts for individual customers. (Action 72)
- ▲ Request the independent regulator, in the medium term, to examine price structures that may benefit economic efficiency and water security. (Action 73)
- ▲ Require the independent regulator to monitor and report on the effect of statewide pricing. (Action 76)

The Notice of Referral notes that the findings of this Inquiry will "further inform the successful implementation" (of these actions), and will also be considered in determining the need for, or scope of, any further Pricing Orders under the *Water Industry Act*.<sup>10</sup>

### 1.3 The scope of the Inquiry

This Inquiry relates to SA Water only; it does not relate directly to other, smaller, providers of drinking water and sewerage services operating in South Australia.<sup>11</sup> While the principles

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<sup>6</sup> COAG, *Water Reform Framework*, 25 February 1994, available at <http://www.environment.gov.au/system/files/resources/6caa5879-8ebc-46ab-8f97-4219b8ffdd98/files/policyframework.pdf>.

<sup>7</sup> SA Government, *Water Pricing in South Australia – A Discussion Paper*, December 1999.

<sup>8</sup> Refer to [http://www.nwc.gov.au/\\_data/assets/pdf\\_file/0008/24749/Intergovernmental-Agreement-on-a-national-water-initiative.pdf](http://www.nwc.gov.au/_data/assets/pdf_file/0008/24749/Intergovernmental-Agreement-on-a-national-water-initiative.pdf).

<sup>9</sup> *Water for Good: A plan to ensure our water future to 2050, June 2009*; available at: <http://www.environment.sa.gov.au/about-us/our-plans>.

<sup>10</sup> Pricing Orders form part of the legislative and governance arrangements for the conduct of any price determination of SA Water's drinking water and sewerage prices, with the next determination due to take effect on 1 July 2016.

<sup>11</sup> There are 63 other licensed water and sewerage service providers in South Australia, the majority of which are operated by councils. A complete list of licensed operators is available at: <http://www.escosa.sa.gov.au/water-overview/licensing/retail-licences.aspx>.

it adopts apply generally to the water industry, its specific findings may not translate to providers other than SA Water.

Furthermore, the scope of the Inquiry is limited to only one element of the SA Water price-setting process. It has therefore investigated reform options for SA Water's drinking water and sewerage price *structures* and associated charging arrangements with a view to improving economic efficiency and water security for South Australia. Its purpose was not to review whether SA Water's overall costs are efficient, or whether its revenue is appropriate. While these two issues are extremely important, they are managed through a different and well-established regulatory process – periodic revenue determinations by the Commission.

These matters are discussed in more detail in the following sections.

### 1.3.1 About SA Water

SA Water is a vertically-integrated water and sewerage business, wholly owned by the South Australian Government and established under the *South Australian Water Corporation Act 1994 (South Australian Water Corporation Act)*. It is a public corporation subject to the *Public Corporations Act 1993 (Public Corporations Act)*.

SA Water provides drinking water and sewerage services to 1.56 million South Australians – about 95 per cent of the State's population. It provides these services to residential (household) and non-residential (commercial and industrial) customers. While 90 per cent of its customers are residential, they consume only about 65 per cent of the total drinking water supplied. Most of the drinking water supplied by SA Water is sourced from surface water (48 per cent) and the River Murray (46 per cent).

SA Water's annual revenue from drinking water and sewerage services is around \$1.1 billion (drinking water: \$780 million per annum, sewerage: \$360 million per annum). Its net profit before tax was around \$283.9 million in 2013-14, and in that year it delivered a dividend to the South Australian Government of \$196 million.<sup>12</sup>

Since 1 July 2013, SA Water's revenues have been subject to regulation by the Commission. However, it continues to be responsible for setting its own drinking water and sewerage prices, subject to compliance with the Commission's SA Water Price Determination July 2013 to June 2016 (**SA Water PD 2013**).

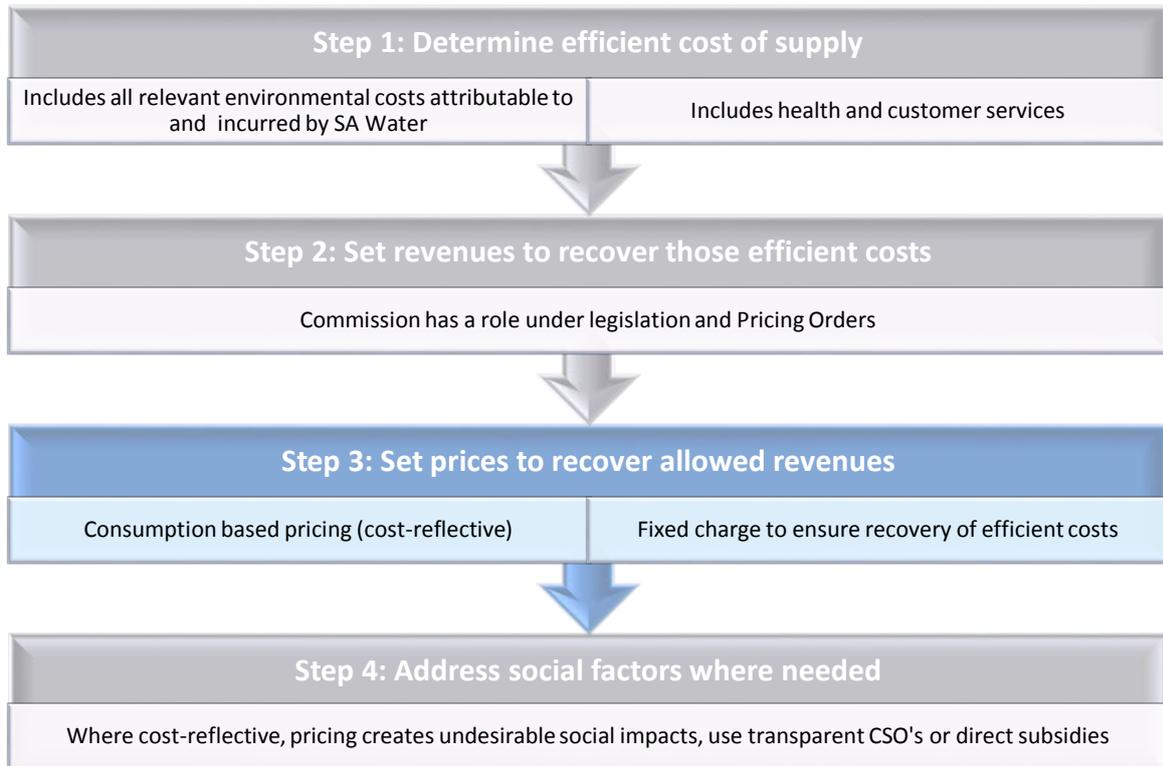
### 1.3.2 The price-setting process for SA Water

SA Water's price-setting process consists of a number of steps, as illustrated in Figure 1.1. As this Inquiry is concerned with price structures and associated charging arrangements, rather than whether SA Water's overall costs are efficient or whether SA Water's revenue is appropriate, it has focussed on step 3.

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<sup>12</sup> SA Water, *2013/14 Annual Report*, Annual Financial Statements, pp.7 and 31; available at: <http://www.sawater.com.au/nr/rdonlyres/d8272847-a88f-4d65-b7a0-d6e8410df55c/0/sawaterannualreport201314.pdf>.

**Figure 1.1: Steps in the SA Water price setting process**



It is recognised that reasons other than economic efficiency have led to the current pricing arrangements. While the focus of this Inquiry is on determining ways to maximise economic welfare for the South Australian community from reforms to water and sewerage pricing, this should not be at the exclusion of other important community objectives, such as social and equity considerations,<sup>13</sup> or promoting water conservation.<sup>14</sup>

<sup>13</sup> A number of submissions to the draft Inquiry report raised concerns that the Commission had not adequately addressed the full range of factors, such as social or equity considerations. For example, Uniting Communities argued that the adverse equity impacts would not justify the economic benefit identified by the Commission (Uniting Communities, *Submission to Enquiry into Reform Options for SA Water's Drinking Water and Sewerage Prices – Response to Draft Enquiry Report*, September 2014, p.6, available at <http://www.escosa.sa.gov.au/library/20140929-Water-ReformPricingInquiry-DraftReportSubmission-UnitingCommunities.pdf>). SA Water argued that the Commission's recommendations were heavily based on economic theory, and that there are equally valid approaches to price setting that have regard to social and environmental factors (SA Water, *ESCOSA Inquiry into Reform Options for SA Water's Drinking Water and Sewerage Prices – Draft Report*, September 2014, p.4, available at <http://www.escosa.sa.gov.au/library/20140919-Water-ReformPricingInquiry-DraftReportSubmission-SAWater.pdf>).

<sup>14</sup> Conservation Council SA argued that an economics-only approach meant that '... there is a void of social and environmental advice and standards that would enable our political decision makers to make an informed determination' and that the draft Inquiry report recommendations 'lack any social license to be implemented' (Conservation Council SA, *Draft Report – Inquiry into Drinking Water and Sewerage Retail Services Pricing Reform*, September 2014, p.3, available at <http://www.escosa.sa.gov.au/library/20140919-Water-ReformPricingInquiry-DraftReportSubmission-ConservationCouncilSA.pdf>).

Ultimately, any significant reform of water and sewerage pricing will need to consider economic, social and environmental factors.

However, in implementing reform elsewhere in the economy, it has been a common theme to avoid using one instrument – in this case pricing – to meet multiple objectives.<sup>15</sup> As a broad principle, water pricing should be used to pursue economic objectives. Where pricing cannot efficiently meet other objectives simultaneously (that is, without detracting from its primary function) then different instruments need to be found to meet those other objectives.

Section 1.4 further explains how the Inquiry considered social and environmental objectives.

### 1.3.3 Efficient costs

All aspects of a customer's bill need to be based on efficient costs, and there are a number of ways of ensuring that this occurs. For example, determining the efficient level of SA Water capital and operating costs is undertaken by the Commission routinely as part of its water revenue determination process, most recently performed for the SA Water PD 2013.

Other actions have either been taken, or could be taken, to exert additional pressure to achieve efficient costs. They include:

- ▲ permitting third party access to SA Water's infrastructure, in accordance with the Water Industry Act, with other operators potentially providing services cheaper using existing infrastructure<sup>16</sup>
- ▲ taking actions to achieve full competitive neutrality for SA Water's operations (for example, this Inquiry recommends further measures, such as the removal of bad debt protections (see Section 3.2))
- ▲ developing a competitive South Australian water market (See section 2.5)

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<sup>15</sup> As Young and McColl state '*Unfortunately governments tend to use water pricing regimes to achieve equity, environmental, revenue and economic efficiency objectives simultaneously. This approach violates a golden rule in policy development, to avoid conflicts – use separate instruments to achieve every objective and, once an instrument is assigned to an objective, don't try to use it to achieve another objective*' (2007, as quoted in National Water Commission, *Efficient Water Resource Pricing in Australia: An assessment of administered scarcity pricing in Urban Areas*, Frontier Economics, Waterlines Report Series No.44, April 2011, p. 25). Further, White notes that '*...trying to achieve the competing goals of equity and efficiency with a single instrument is likely to be ineffective as one goal is likely to compromise the other. Instead, better outcomes are likely to be achieved if separate instruments are used so that water prices are based on the scarcity of water resources to encourage efficient use of water, and subsidies are set independently of consumption to achieve equitable access*' (Chris White, 'Water Scarcity Pricing in Urban Areas', GWF Discussion Paper 1204, Global Water Forum, January 2012, p. 4, available at <http://www.globalwaterforum.org>).

<sup>16</sup> On 26 September 2013 the Minister for Water and River Murray tabled in the South Australian Parliament a consultation draft of the *Water Industry (Third Party Access) Amendment Bill 2013* and an explanatory memorandum. For more details see <http://www.treasury.sa.gov.au/economy/water-pricing/water-and-sewerage-infrastructure>.

The Government also has the ability to set the value of SA Water’s Regulatory Asset Base (**RAB**) from time to time using the pricing order powers under the *Water Industry Act*. Several submissions identified the current level of the RAB as an issue impacting the size of bills.<sup>17</sup> Under the “building block” approach adopted by the Commission in determining SA Water’s allowed revenues, a high RAB will directly flow through to higher water and/or sewerage prices and a lower RAB will have the opposite effect.<sup>18</sup>

To assist the Government in considering the Inquiry’s recommendations, the Commission has attempted to derive a best estimate for the value of a cost-reflective drinking water usage price at this point in time. However, further work would be required to determine a final value that could be adopted in practice for billing purposes.

### 1.3.4 Revenue neutrality

As illustrated in Figure 1.1, the Commission examines SA Water’s revenues periodically as a part of the Price Determination process. That is a key means of ensuring that SA Water only receives payment for expenses where they are assessed as prudent and efficient.

For the purposes of this Inquiry, which focuses on how costs are to be recovered rather than the absolute quantum of those costs, it is assumed that SA Water will recover the same revenue it currently earns from customers (as determined through the SA Water PD 2013 process).

The Inquiry has therefore considered pricing arrangements that will achieve greater economic efficiency given current revenue requirements. The economic efficiency improvements are largely driven by the removal of cross-subsidies between different types of customers. To be revenue neutral, any reduction in usage charges would need to be offset by an increase in fixed charges (after application of any Community Service Payments provided by the Government).<sup>19</sup>

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<sup>17</sup> Uniting Communities, *Submission to Enquiry into Reform Options for SA Water’s Drinking Water and Sewerage Prices – Response to Draft Enquiry Report*, September 2014, p.3. SACOSS considers that the primary issue for South Australian consumers is the RAB (South Australian Council of Social Service, *Inquiry into Reform Options for SA Water’s Drinking Water and Sewerage Prices – Draft Inquiry report*, September 2014, p.1, available at <http://www.escosa.sa.gov.au/library/20140919-Water-ReformPricingInquiry-DraftReportSubmission-SACOSS.pdf>). Business SA also has concerns about the value of the RAB (Business SA, *Submission – ESCOSA Inquiry into Reform Options for SA Water Pricing (Draft Report)*, September 2014, p.7, available at <http://www.escosa.sa.gov.au/library/20140919-Water-ReformPricingInquiry-DraftReportSubmission-BusinessSA.pdf>).

<sup>18</sup> This is because under the building block approach the Commission allows a return on capital which is applied to the RAB.

<sup>19</sup> Under the uniform statewide pricing arrangements all similar customers pay the same tariffs and charges regardless of geographical location – sometimes referred to as postage stamp pricing.

## 1.4 Non-economic matters

### 1.4.1 Equity

As stated earlier in this chapter, as a general principle, pricing should be used to pursue economic objectives.

Under this approach, issues of equitable access to essential services (water and sewerage services) should be addressed largely through the general tax and welfare system, augmented where necessary by transparent, budget-funded water and sewerage community service obligations (**CSO**) and concessions. This allows all consumers, including those receiving financial assistance, to determine their consumption patterns and needs – and the associated cost implications – based on transparent information.

There is also some evidence to suggest that water consumption is not closely linked to income.<sup>20</sup> Seeking to deliver social objectives through usage charges, such as the current inclining block tariff for residential customers, results in poorly targeted, and hence inefficient, outcomes (as discussed in Chapter 6). For example the current tier 1 water price is likely to benefit many high income people living in expensive apartments that do not have gardens. Rather than adopting a low usage charge, social welfare objectives would be better achieved through fixed subsidies on the water bill to financially stressed households. An inefficiently low usage charge provides a subsidy to all households irrespective of their level of social advantage or disadvantage.<sup>21</sup>

Some submissions argued that water is a special type of product and should be treated differently, with a component of domestic water use displaying “merit good” characteristics.<sup>22</sup> This means there is a public benefit derived from private use (for example, for cleanliness and sanitation) and that relying solely on a private decision to consume at the efficient price could result in a less than optimal consumption. There is a risk that some people might choose to “go without” and use less water for drinking and food preparation than society deems appropriate.

While, in theory, a water allowance for these “essential requirements” could be set,<sup>23</sup> because it would need to be determined individually and have regard to matters such as household size, practical difficulties could arise. Consequently, the merit good aspect is best

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<sup>20</sup> For example, refer to Walker (2009) *The Independent review of Charging for Household Water and Sewerage Services – Final Report*, p.61, and Industry Commission (1992), *Water Resources and Waste Water Disposal*, report No.26, 17 July 1992, C.278.

<sup>21</sup> See H. Sibly and R. Tooth, ‘Bringing Competition to Urban Water Supply’, University of Tasmania, School of Economics and Finance, *Discussion Paper 2007-05*, October 2007, p. 13.

<sup>22</sup> As Uniting Communities notes, a merit good displays two main characteristics (i) ...unlike a private good, the net private benefit to the consumer is not fully recognised at the time of consumption, and (ii) there are society wide benefits in addition to those captured by the individual customer (Uniting Communities, p.9).

<sup>23</sup> ‘Essential water consumption refers to the minimum amount of water required to meet basic sanitation, drinking, bathing and food preparation needs’ N. Hughes, A. Hafi, T. Goesch and N. Brownlowe, ‘Urban Water Management: Optimal Price and Investment Policy Under Uncertainty, *ABARE Conference Paper 08.1*, February 2008, p. 3.

met through financial supplements (for example, concessions) and health regulations. However, such subsidies must be independent of the amount of water consumed, and paid as a fixed amount, to avoid creating an incentive for concession recipients to overuse water.<sup>24</sup>

#### 1.4.2 Environment

The provision of water and sewerage services creates environmental impacts – for example, through the diversion of surface water (rivers and streams) or the use of natural resources, such as the sea, as a “sink” for waste products.

It is accepted that efficient water and sewerage pricing should include all quantifiable associated environmental costs. Where no current value for an environmental cost has been identified then, to the extent practical, a value needs to be determined. If environmental costs are not fully captured in the price then, in the absence of other non-price measures (see below), from a societal viewpoint too much consumption will result, and water and sewerage services will be under-priced.

Environmental costs are often not easily identified or identifiable, given the complex and interrelated nature of the environment. For example, withdrawing groundwater may have detrimental effects on the soil profile of land hundreds of kilometres away. The term “environmental externalities” is often used to describe indirect impacts that arise from an activity in the marketplace but which are not reflected in the price.

Markets are generally considered to be very efficient at allocating scarce resources<sup>25</sup> and prices should reflect the true cost of a resource, including all environmental costs.<sup>26</sup> In practice, environmental costs are usually set by resource managers or environmental regulators. They do so using “charges” or “levies” as a way of discouraging or mitigating the impacts to the environment and recovering the costs of regulation. For example, in South Australia, the Natural Resource Management (**NRM**) levy funds the delivery of activities required to maintain desired environmental conditions in a given region.<sup>27</sup>

However, some environmental decisions are likely to necessitate a choice being made “outside a market mechanism”, for example, determining the appropriate allocation of River Murray water for the environment. Generally, governments determine the level of

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<sup>24</sup> Chris White, ‘Water Scarcity Pricing in Urban Areas’, *GWF Discussion Paper 1204, Global Water Forum*, January 2012, p. 4, available at <http://www.globalwaterforum.org>.

<sup>25</sup> Sheila M. Olmstead, ‘The Economics of Managing Scarce Water Resources’, *Review of Environmental Economics and Policy*, Volume 4, Issue 2, summer 2010, pp.186-187. Olmstead also notes that ‘one of the biggest challenges to welfare improvement from water marketing is dealing adequately with externalities and public goods’ (p.188).

<sup>26</sup> As noted by Howe, a serious shortcoming in pricing water can be the failure to reflect the real opportunity cost of the raw water itself, as opposed to only seeking to recover production costs such as treatment and transport costs (Charles W. Howe, “The Functions, Impacts and Effectiveness of Water Pricing: Evidence from the United States and Canada”, *International Journal of Water Resources Development*, 21:1, 2005, p.48).

<sup>27</sup> Refer <http://www.naturalresources.sa.gov.au/samurraydarlingbasin/about-us/nrm-levy>.

environmental impact that is acceptable to society.<sup>28</sup> They then attempt to manage this impact through a combination of “market approaches” (for example, through water allocation and trading) and “non-market approaches” (for example, through establishing legislation and policy) where there is considered to be market failure. Often, environmental regulators are established to manage the frameworks created to deliver this desired environmental condition.

In the case of environmental externalities for water, the NWI recognises that these are best managed through a range of regulatory measures and market-based mechanisms, and that implementing pricing that includes externalities may not always be feasible.<sup>29</sup> *Water for Good* also recognises that such pricing should be limited to where it is feasible and practical.<sup>30</sup>

It is therefore clear that a role exists for both environmental and economic regulators to ensure that all environmental costs are taken into account when producing goods and services such as water and sewerage.

## 1.5 Inquiry process

Part 7 of the ESC Act sets out a formal regime for the conduct of Inquiries by the Commission. An Inquiry may be into any matter referred by the Treasurer, or any matter relating to a regulated industry and referred by a relevant industry Minister.

In December 2012, the Commission received a *Notice of Referral* for this Inquiry. A Public Notice, published in *The Advertiser* on 7 November 2012, set out the Terms of Reference advising of:

- ▲ the purpose of the Inquiry
- ▲ the period of the Inquiry
- ▲ the period within which, and the form in which, members of the community could make submissions to the Inquiry
- ▲ the matters on which submissions should be made.

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<sup>28</sup> For example, the Productivity Commission advocates environmental water allocations be largely determined outside the water sector by the government, noting the need for judgment in determining the value of water for environmental use relative to general consumption (Productivity Commission, *Australia's Urban Water Sector*, Inquiry Report Volume 1, 2011, pp. 59-60, available at [http://www.pc.gov.au/data/assets/pdf\\_file/0017/113192/urban-water-volume1.pdf](http://www.pc.gov.au/data/assets/pdf_file/0017/113192/urban-water-volume1.pdf)). Also, Freebairn states that ‘*The public good nature of most benefits provided by environmental flows requires direct government intervention informed by ecological assessments and non-market valuation of these services*’ (John Freebairn, “Issues in the Design of Water Markets”, *Melbourne Institute Working Paper Series*, Working Paper No. 18/05, December 2005, p. 2). Given free-riding behaviour, a competitive market would be expected to allocate too little water for the environment (Freebairn, p. 14).

<sup>29</sup> Intergovernmental Agreement on a National Water Initiative, June 2004, p.15, paragraph 73, available at [http://www.nwc.gov.au/data/assets/pdf\\_file/0008/24749/Intergovernmental-Agreement-on-a-national-water-initiative.pdf](http://www.nwc.gov.au/data/assets/pdf_file/0008/24749/Intergovernmental-Agreement-on-a-national-water-initiative.pdf).

<sup>30</sup> *Water for Good*, p.139.

### 1.5.1 Engagement

This Inquiry has been conducted in an open and transparent manner, allowing all members of the community the opportunity to consider and provide views and information on the matters raised through the Terms of Reference.

A set of Issues Papers was released in August 2013, with a draft Inquiry report released in July 2014. In total, 64 written submissions were received during the course of the Inquiry and all non-confidential submissions are published on the Commission's website.<sup>31</sup>

The Commission has also consulted directly with stakeholders, including through the conduct of public forums following release of the draft Inquiry report. The Commission acknowledges the assistance of all stakeholders who have met with it during this process, and SA Water for the significant amount of information it has provided.

All submissions received and information provided has been considered in preparing this report. Failure to reference an argument or submission does not mean it has not been taken into account as part of the Inquiry's deliberations. A comprehensive statement of issues raised in submissions to the draft Inquiry report is contained in Appendix 1.

### 1.5.2 Structure of this Final Inquiry Report

Key issues arising from the Terms of Reference have been used to form the structure of this report. It sets out all of the Inquiry's findings and recommendations (including options) and the reasons for them. Consultants' reports and other material used in the Inquiry have been separately published.<sup>32</sup>

### 1.5.3 Evaluation framework

The Inquiry's recommendations are backed by economic analysis that shows them to be welfare improving. The economic benefits of implementing the proposed reforms have been estimated in accordance with the following evaluation framework.

Standard cost benefit analysis (**CBA**) has been used to quantify, where possible, the net benefits to the South Australian community that could be achieved from adopting the recommendations. CBA is a systematic approach to estimating the benefits and associated costs of alternatives to the current arrangements or status quo. The value of benefits and costs are determined over a period of time (25 years for the purposes of this Inquiry) with future benefits and costs discounted back to current dollars to take account of the time value of money (6% factor used in the Inquiry, with sensitivity checking rates of 4% and 8%).

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<sup>31</sup> One confidential submission to the draft Inquiry report was received by the Commission and was not published. Copies of all public submissions are available at:  
<http://www.escosa.sa.gov.au/projects/projectdetails.aspx?p=69&id=189>.

<sup>32</sup> Refer to <http://www.escosa.sa.gov.au/projects/189/inquiry-into-drinking-water-and-sewerage-retail-services-pricing-reform.aspx>.

It has not been possible to derive a monetary estimate for all benefits and costs. In these cases, qualitative assessments have been made.

CBA requires a change in activity – moving from the status quo to the alternative under consideration – to be identified and measured. In other words, it is concerned with comparing the change in benefits against the change in costs. Where net benefits are positive, this indicates support for the proposed alternative (in the absence of identifying another alternative with an even higher net benefit).

There is a considerable body of research that estimates the predicted change in volume of water consumed for any given change in price. This is referred to as the “price elasticity of demand”. It has therefore been possible to derive robust estimates of the net benefits of implementing changes to water pricing (see Chapter 6).

Different types of customers (and segments within a customer group) will respond to price changes differently. However, rather than seeking to determine the response for each type of customer and then aggregating a total, a measure of -0.172 as a single price elasticity of demand for water has been used for assessing the response to a change in price.<sup>33</sup> While acknowledging that further refinement of the estimate could be undertaken, given the range of potential values identified in the literature, this is considered conservative. It should also be noted that the Inquiry has adopted the lower value of estimated net benefits from alternative modelling using the results of a Computational General Equilibrium (**CGE**) analysis undertaken specifically for the Inquiry (see discussion below on the use of alternative assessment models).

In some areas, however, suitable price elasticity of demand estimates were much more difficult to find. Accordingly, the net benefits of some proposed reforms – including adopting capacity-based water and sewerage supply charges (Chapters 6 and 7), basing trade waste charges on long-run marginal cost (**LRMC**) (Chapter 8) and removing ROA (Chapter 4) – have not been quantified.

CBA and measures of price elasticity are designed to assess the value of incremental change, but many of the changes recommended by the Inquiry involve substantial movement from the status quo (that is, they are not incremental). For example, setting drinking water usage charges at LRMC would see usage charges many times less than the current level (Chapter 6). The Inquiry has addressed this by adopting conservative estimates for inputs and, in general, conservatively estimating the resulting net benefits. While it is the nature of Inquiries such as this one to require that proposals include a demonstration of net benefits, estimates can be in terms of orders of magnitude, rather than being a precise reflection of the benefits that could be measured were the recommendations to be adopted.

CBA is undertaken at the societal level and only focuses on changes in resource costs. Any changes in who bears an existing cost is treated as a transfer, with the value reported (where

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<sup>33</sup> Essential Services Commission of South Australia, *Appendix 2: Calculating the Economic Benefits of Reform to Usage Charges – Final Inquiry Report: Inquiry into Reform Options for SA Water’s Drinking Water and Sewerage Prices*, July 2014, page 1, available at <http://www.escosa.sa.gov.au/projects/189/inquiry-into-drinking-water-and-sewerage-retail-services-pricing-reform.aspx>.

it can be quantified) but not included in the economic analysis. It is important that the value of any transfers is identified in the customer impact analysis.

A range of transfer costs has been identified in relation to the proposal to bill end users of services (including tenants) rather than landowners (including landlords). (See Chapter 3). In that case, there is a cost of billing whoever performs the function, but the cost burden will either fall on SA Water or landlords. The identified net resource saving will only be factored into the CBA where one party can be identified as able to perform the function more efficiently than the other.

Good practice supports using more than one evaluation model for recommendations critical to the approach adopted for this Inquiry. This increases confidence that a material net benefit is achievable. Because more efficient water pricing has the potential to derive the largest net benefit, it was appropriate to confirm the positive CBA result with another assessment model. It is also difficult to assess the impact of the consequential higher supply charges using CBA alone. For these reasons, CGE analysis was also used to help quantify the net benefits of the water pricing recommendations (Chapter 6).

Certain Inquiry recommendations relate to process, including the means to transition to the final recommendations. Invariably there is a trade-off between gaining the full benefits from introducing a reform in its entirety as early as possible, and doing what is feasible – and when – to gain community support. For example, rather than immediately adopting locational pricing (discussed in Chapter 6), the Inquiry recommends gradually introducing regional water supply charges. This trade-off is implicit and has not been separately valued.

Some recommendations call for scrutiny of costs to ensure they are efficient (consistent with the approach of price determinations) and to ensure that prices are set to only cover prudent costs.

The economic principles and terms underlying the Inquiry's recommendations for water and sewerage pricing reform options are discussed further in the following chapter.

## 2. PRINCIPLES OF WATER AND SEWERAGE PRICING

Before outlining the water and sewerage pricing principles underlying the recommendations made in this report, it is helpful, once again, to consider the context of this Inquiry.

The subject matter – water and sewerage service pricing – is a matter of central importance to the lives of South Australians and the state’s economy. The Government’s 2009 *Water for Good* plan stated that:<sup>34</sup>

*Water is vital for the preservation of both quality of life and the environment for all South Australians. It also underpins growth in population and the economy – these are critical to the State’s future prosperity.*

*Water for Good is a plan that ensures there will always be enough water in South Australia. Most importantly, it will enable us to diversify our supplies and reduce our reliance on the River Murray and other rain-dependent water sources.*

Since the publication of *Water for Good*, there has been much reform and change in the water sector. For example, the Adelaide Desalination Plant (**ADP**) has begun operating and the *Water Industry Act*, which resulted in the Commission becoming the economic regulator of the water and sewerage retail sectors, has come into effect.

These actions have gone a long way towards delivering on some of the fundamental concerns that prompted *Water for Good*. In particular, the construction of the ADP and associated infrastructure works has provided sufficient additional capacity to ensure water security for much of the State for the foreseeable future.

So, within a short timeframe, one of the primary concerns of *Water for Good* – the availability and security of water supply – has been addressed. Water is no longer a scarce resource for many South Australians and this represents a fundamental shift.

*Water for Good* anticipated the significance of this change and the need to build on it for the future. In particular, it identified the role that a reformed pricing regime would have in providing clearer and better signals to users about how and when they should consume water – thereby consolidating the efficiency and security gains of the ADP:<sup>35</sup>

*Water and wastewater prices should reflect the full cost of producing and supplying those products and services (including environmental externalities where feasible and practical) so that customers are encouraged to use water and wastewater services efficiently.*

As is clear from the Terms of Reference of this Inquiry and from *Water for Good*, one of the Government’s objectives is to understand the ways in which SA Water’s prices could be set on a more economically efficient basis.

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<sup>34</sup> Water for Good, p.1.

<sup>35</sup> Water for Good, p.139.

Implicit in the Government's acknowledgment of the importance of cost-reflective pricing is the recognition that the current pricing arrangements, which have been developed and implemented in an incremental manner over a long period of time, are unlikely to be fully efficient or cost-reflective.

It is acknowledged that reasons other than economic efficiency have led to the current pricing arrangements. Those reasons, which include social policy considerations and environmental and equity concerns, are not directly within scope of this Inquiry in terms of reaching findings and conclusions. To reiterate, the Inquiry is to review current arrangements and make findings and recommendations for areas of change or reform that would improve economic efficiency and water security.

However, it must be noted that more economically-efficient pricing arrangements will not necessarily include a reduction in water and sewerage bills for all consumers. While promoting the lowest sustainable prices is important, some of the benefits discussed in this report relate to value to consumers other than reduced prices. For example, there will be non-pricing benefits, such as reduced leakage, and enhanced customer protection measures. There may also be reductions in other costs outside of those inherent in customers' bills – for example, the administrative costs incurred by landlords in passing on water and sewerage charges to tenants. Ultimately, a move to cost-reflective prices will encourage consumers to use SA Water's services more efficiently, and this will provide an overall net benefit.

Therefore, it is important to specify at the outset what, in particular, this Inquiry has been asked to focus on; the matters it can – and cannot – consider in making its findings and recommendations; and the matters it needs to highlight as issues of impact and transition should its recommendations be given effect.

Its recommendations are based on maximising the net benefits to the South Australian community as a whole. Where a recommendation produces benefits to the community that outweigh the costs of pursuing it, there is a *prima facie* case for that reform to be implemented.

As discussed later in this chapter, some benefits can be quantified and some cannot. It is still important to take both types into account. It is generally easier to quantify costs, particularly monetary costs caused directly by any reform. However, there are many types of direct and indirect costs of reform, including administrative costs, costs of changing behaviour and costs caused by complexity or lack of understanding of reform measures. Where possible, all costs and benefits have been quantified.

For individual stakeholders, the costs and benefits of moving away from current arrangements may differ. For example, SA Water may bear short-term implementation costs with respect to some Inquiry recommendations; however, even taking those costs into account, there remains a net benefit to the community.

This chapter summarises the economic principles underlying the Inquiry's recommendations for water and sewerage pricing reform options and identifies specific sources of benefits to

individual customers and the broader South Australian economy. It provides practical explanations of economic terms used in this report.

## 2.1. Defining the term “efficient”

The term “economic efficiency”, which underlies the concept of an efficient price, is often cited in support of a proposed reform. In its simplest form, an economically efficient outcome is one in which resources are allocated so as to serve each person in the best way while minimising waste and inefficiency. Economic efficiency involves combining an economy’s resources to achieve the greatest possible value to the community at the lowest possible cost.

An “efficient price” is one that reflects and drives this optimal outcome. It should represent the marginal opportunity cost, being the *value of a resource in its best alternative use*.<sup>36</sup> An efficient price must be cost-reflective and so properly reflect the actual real resource cost of supply. Price provides the signal for optimally allocating resources. However, it can only do so if it reflects the true or actual underlying costs of producing the product in question – in this case the costs of supplying water and sewerage services.

Economically efficient water and sewerage prices should:

- ▲ be set to recover only the efficient costs incurred by SA Water in the delivery of its services
- ▲ signal to customers the true cost of their consumption, thereby promoting usage only where the benefits exceed the costs
- ▲ promote efficient investment by businesses that rely on water (and sewerage) services so that their investment decisions can be based on the true cost of receiving those services.

Consistent with this approach is the principle of user pays, meaning that users bear the cost of their consumption.<sup>37</sup>

Inherent in this approach is the necessity for the person or organisation that consumes the service (i.e. the end user) to be the one that faces the price. This is so the level of consumption by that party is informed by the actual costs associated with it. This has implications for current SA Water landlord/tenant arrangements, where the landlord is the customer but the tenant is the one consuming the water. This issue has been touched on earlier in this report and is explored further in Chapter 6.

It also has implications for SA Water’s current practice of ROA, which allows it to charge customers located near water and sewer mains even if they are not directly consuming the service. This issue is explored further in Chapter 7.

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<sup>36</sup> Productivity Commission, p.135.

<sup>37</sup> Macquarie Dictionary defines “user-pays principle” as *the principle that the cost of a government service should be borne at least primarily, if not entirely, by the people who benefit from it* ([www.macquariedictionary.com.au](http://www.macquariedictionary.com.au)).

## 2.2. The importance of efficient water and sewerage prices

In a market-based economy such as Australia's, price provides the signal that guides consumers in their purchase decisions and suppliers in their production and investment decisions.<sup>38</sup> Those investment decisions include whether or not to enter a market, the amount of production capacity initially required to do so and any expansion or contraction of capacity over time. Using the available pricing information, the customer determines the extent to which the benefits of consuming drinking water equals or exceeds the cost, and then purchases and consumes accordingly. The trade-off between cost and benefit will be different for different customers, depending on the value that each one places on consumption.

SA Water supplies drinking water to 1.56 million South Australians (95 per cent of the State's population) and so achieving efficient drinking water prices can potentially deliver significant benefits to users and the South Australian economy.

In water and sewerage services, costs can be described as either "variable" (or volumetric) or "fixed" (see Box 2.1). Not all SA Water's costs of operation are variable; the vast majority are invariant to levels of usage and hence are termed fixed.<sup>39</sup>

### **Box 2.1: Variable (or Volumetric Costs) and Fixed Costs Explained**

**Variable** (or usage) **costs** are those costs that vary according to the level of a firm's output (either volume or activity). In the case of SA Water, variable costs are those that vary according to a customer's level of consumption of water or sewerage services.

**Fixed costs** are those that do not vary materially with any given volume of water supplied to customers, or sewage produced by customers.<sup>40</sup> The vast majority of SA Water's total drinking water and sewerage costs (around 90%) are independent of the levels of consumption, or use, of the services and are therefore considered as fixed costs.

The Inquiry's approach to determining cost-reflective pricing, as well as estimates of the value of the benefits from adopting it, are presented in Chapters 6 to 8.

### 2.2.1. Variable or usage charges

Water is an essential service and an important input into a range of industry production processes. As a result, determining and setting the efficient price is important to facilitate a

<sup>38</sup> For a more formal presentation of the economic theory of water pricing refer to: Productivity Commission, Chapter 6.

<sup>39</sup> Infrastructure and other costs that are not linked to future consumption include distribution customer connection assets, network costs and retail costs. Refer to Appendix 6 for more discussion.

<sup>40</sup> Infrastructure and other costs that are not linked to future consumption include distribution customer connection assets, network costs and retail costs. For more detail on this point see Essential Services Commission of South Australia, *Appendix 6: Pricing to Reflect the Costs of Decisions – Final Inquiry Report: Inquiry into Reform Options for SA Water's Drinking Water and Sewerage Prices*, December 2014, available at <http://www.escosa.sa.gov.au/projects/189/inquiry-into-drinking-water-and-sewerage-retail-services-pricing-reform.aspx>.

productive economy. An efficient price is one that is equal to the opportunity costs of supply for the relevant good or service, which in turn is approximated by the suppliers' marginal cost.<sup>41</sup>

Implementing cost-reflective usage charges would align the interests of consumers with the broader public interest, as each customer would face a price that is equal to the costs to the community of supplying water and sewerage services.

If, in practice, the water usage charge is higher than the efficient price (marginal cost) then, as an input to industry, the cost of the final product is higher than it needs to be. This will make local industry less competitive to varying degrees (according to the extent to which water is an input in the production process for each company).

On the other hand, high water usage charges may encourage water-intensive businesses to change the way they operate so they are less reliant on water (this may involve expensive equipment). Household users will face higher bills than they need to for a given level of water consumption, and this particularly impacts financially vulnerable customers. Some may also forgo the gardens they would like, or potentially make larger investments in water saving devices than they might if the price was lower.

The level of water and sewerage prices will affect customers to varying degrees and will be very important for industry uses such as agriculture, horticulture and livestock, as well as for other uses such as public open spaces and community sporting facilities.<sup>42</sup>

Were the actual price to be lower than the efficient price, customers would not see the true value of the water they consume and would be likely to consume more than is socially desirable. Business SA has stated that cost-reflective water pricing would provide an incentive for businesses to change their water usage and noted that 92 per cent of its members who participated in a recent survey agreed that water prices should be made more cost-reflective.<sup>43</sup>

An efficient price should also provide SA Water with the information it needs to undertake an efficient level of investment. If prices are not efficient, there is a risk that its investment decisions will be distorted, with flow on effects on the level of future prices. For example, a higher level of consumption induced by a price lower than the efficient price puts pressure on SA Water to bring forward augmentation of the water and/or sewerage system infrastructure, resulting in a higher than efficient level of costs.

As the Productivity Commission has said:

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<sup>41</sup> South Australian Government, *Water and sewerage pricing for SA Water Corporation – a pricing oversight investigation under the Government Business Enterprises (Competition) Act 1996*, Final Report, Attachment 2, p.5, April 1997.

<sup>42</sup> South Australian Centre for Economic Studies, *Water pricing and positive externalities in respect of public open spaces and community sporting facilities*, Final Draft Report, January 2014, commissioned by the Local Government Association of South Australia, available at: <http://www.lga.sa.gov.au/webdata/resources/files/SACES%20Water%20Pricing%20and%20Open%20Space%20March%202014.pdf>.

<sup>43</sup> Business SA, *2014 Charter for a more prosperous South Australia*, February 2014, p.36-37.

*When prices unnecessarily exceed costs, they act as a tax on consumers. Households are left with less income for other uses, and the competitiveness of businesses is reduced. When prices are below costs, consumption is being subsidised. This encourages excess consumption, places pressure on existing capacity, and brings forward the need to expand capacity.<sup>44</sup>*

It is also noted that the rules for electricity network pricing have been recently amended to introduce more efficient, cost-reflective pricing. In particular, the Australian Energy Market Commission (AEMC) has approved a rule that requires all network tariffs to be based on the LRMC of the service.<sup>45</sup> Importantly, consideration has also been given to transitional arrangements that would be necessary to address the customer impacts that would result from more cost-reflective pricing. Many of the findings and recommendations of the AEMC are consistent with those of this Inquiry.

Before cost-reflective prices can be set, the true resource costs for delivering water and sewerage services must first be understood. A key focus of work for this Inquiry has been to attempt to do this.

It is important also to note that reforms could impose costs on SA Water in terms of transitioning to new billing systems and related arrangements. Those costs have been considered and quantified, with their impacts included in the assessment of the overall benefits. This inquiry has not sought to evaluate the merits of changes to SA Water's existing systems *per se*. It has only assessed the costs and benefits of incremental changes necessary to accommodate its findings and recommendations.

As noted above, economic theory supports usage prices being set at the marginal cost of supply.<sup>46</sup> That is, price should be set to equal the cost of producing an additional unit of water. That cost may include an external cost not directly incurred by the supplier. For example, there are often costs to the environment of extracting additional water from natural sources and an efficient price based on marginal cost would recognise that cost. In economic terms, it is appropriate to recognise marginal *social* costs, not just marginal *private* costs.

There can be debate over whether the appropriate marginal cost basis should be long-run or short-run, and the types of costs to be covered.<sup>47</sup>

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<sup>44</sup> Productivity Commission, p.132.

<sup>45</sup> AEMC, *National Electricity Amendment (Distribution Network Pricing Arrangements) Rule 2014: Rule Determination*, November 2014, p. iii (available at <http://aemc.gov.au/Rule-Changes/Distribution-Network-Pricing-Arrangements>)

<sup>46</sup> For example: Productivity Commission, p.137; H. Sibly, 'Efficient urban water pricing', *The Australian Economic Review*, vol. 39, no.2, pp.227-37; and Hal R. Varian, *Intermediate microeconomics a modern approach*, third edition, Norton International Student Edition, 1993, p.407.

<sup>47</sup> The Productivity Commission, for example, advocates that tariffs for water services be based on the marginal opportunity of supply, which includes the direct short-run marginal cost of supplying water, the value of any externalities and the scarcity value of water as supply and demand conditions change. Refer Productivity Commission, p.177. Sapere notes that *a commonly accepted principle for water usage pricing is that prices should be set with regard to the long-run marginal cost (LRMC) of the supply of additional water*, Sapere Research Group, *LRMC Pricing for Water Services – Background Paper on LRMC pricing*, March 2014,

### **Box 2.2: LPMC and short-run marginal cost (SRMC)**

The LPMC is the cost of supplying an additional unit of water over the long run. In the long run, growth in water usage (demand) is likely to necessitate the expansion of production, storage and transport capacity. LPMC takes into account the additional capital costs required to meet future demand and usage.

LPMC is a forward-looking measure of cost; it does not take into account the cost of past investments. Those investments are “sunk” and irrelevant to determining the marginal cost of supply.

The SRMC of supply is the cost of supplying an additional unit of water in the short run, taking existing capacity as fixed. SRMC represents the textbook definition of marginal cost.

LPMC reduces the variability in the SRMC, which can increase or decrease depending on supply and demand for water at any point in time. In general, the SRMC of water will increase well above the LPMC at times of water scarcity. When water is plentiful, the SRMC will sit below the LPMC. Over the long run, the SRMC and LPMC will, on average, equate.

A more detailed discussion of LPMC and SRMC is contained the report *LPMC pricing for water services – background paper on LPMC pricing* prepared by Sapere Research Group.<sup>48</sup>

In practical terms, the measurable benefits of adopting cost-reflective pricing for water services are estimated by placing a value on the change in consumption or production costs that follow. For example, if the cost-reflective price for water was lower than the existing price and hence led to additional consumption, then a value could be placed on the resulting additional consumption over and above the cost of producing it. If the cost-reflective price was higher than the existing price and led to lower consumption, then a value could be placed on the reduced supply costs over and above the value to the customer of the reduced consumption.

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p.vii, available at: <http://www.escosa.sa.gov.au/library/140711-WaterInquiry-LRMCPrimingWaterServicesBackground-Sapere-ConsultantReport.pdf>. A 1997 South Australian Government pricing oversight investigation found that *efficient pricing means that the prices paid by consumers should closely reflect the costs of supply. It is widely accepted that for practical purposes this is achieved by a public enterprise when prices reflect the long-run marginal cost of supply, maintaining an appropriate balance between pure economic efficiency concepts in the short term, and longer term management of its resources in a way that provides adequate returns to its shareholders* (South Australian Government, *Water and Sewerage Pricing for SA Water Corporation*, Attachment 2, p.6).

<sup>48</sup> Sapere Research Group, *LPMC Pricing for Water Services - Background Paper on LPMC Pricing*, March 2014, available at: <http://www.escosa.sa.gov.au/library/140711-WaterInquiry-LRMCPrimingWaterServicesBackground-Sapere-ConsultantReport.pdf>

### 2.2.2. Fixed charges

Setting charges that reflect the costs of usage will not cover the fixed costs of SA Water's operation. This is a typical situation for utilities with significant infrastructure (e.g. pipes and headworks in the case of drinking water). Only charging to recover marginal costs would *not* place SA Water in a financially sustainable position.<sup>49</sup>

While there are clear economic principles for the setting of usage charges, economic theory is less definitive on how fixed costs should be recouped from various customers. Economic theory advocates ensuring that the fixed charge is independent of the volume consumed.<sup>50</sup> This is necessary to ensure that the customers' consumption decisions are *only* influenced by the cost-reflective usage price, as only this reflects the true cost of the additional consumption. However, limited guidance is provided on the precise structure of an appropriate fixed-cost recovery mechanism.

Nevertheless, the level of fixed charges is important. While fixed charges should have no influence on the level of consumption (given they should be structured so as to be unrelated to usage), there is potential for them to influence a customer's decision to connect to, or disconnect from, the water supply system. Fixed charges may affect economic efficiency by influencing connection and investment decisions (such as where to locate a business) but are a far less powerful driver of behavioural change than usage charges.

In developing a fixed-cost recovery mechanism, the Inquiry has had regard to the nature of SA Water's operations. The majority of fixed costs are incurred to provide capacity to deliver water and sewerage services. Consequently, a fixed charge that reflects demonstrated capacity requirements would appear more cost-reflective, and hence efficient, than the current basis.

Those customers requiring a higher volume of water at a given point impose additional costs, and a cost-reflective price would take this into account.

Where a service is dominated by fixed costs, it may be efficient to recover them all through a fixed charge. Setting a supply charge to reflect different capacity requirements of sewerage customers is consistent with the Productivity Commission suggestion that:

*Where a usage LRMC price is not feasible (for example, where wastewater is not metered) a fixed price that varies according to the expected contribution of users to peak demand would be the most efficient solution.<sup>51</sup>*

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<sup>49</sup> In brief, this is because for such utilities marginal cost is invariably lower than average cost over the typical range of consumption and a utility needs to recover average cost in order to recover total cost. Note that LRMC includes a target rate of return on new investment (South Australian Government, *Water and Sewerage Pricing for SA Water Corporation*, Attachment 2, p.7).

<sup>50</sup> H. Sibly, *Efficient urban water pricing*, p.232.

<sup>51</sup> Productivity Commission, p.149.

### 2.2.3. Locational pricing

Currently, SA Water's water usage charges are set on a statewide basis. The Inquiry's Terms of Reference require consideration of *the impact of statewide pricing requirements on SA Water*. On the basis that individual customers should face the true costs of water supplied to them, additional efficiencies could be achieved by introducing a location-specific price. Some locations may have higher (or lower) cost structures and hence cost-reflective pricing would result in higher (or lower) prices. The customer's decision to consume, or not, would then be based on the actual costs in their location, rather than an average statewide price, which is effectively a weighted average of the cost of supply in different locations.

However, the benefits of more refined prices need to be assessed against any additional implementation costs. Further discussion can be found in Chapters 6 to 8.

### 2.3. Alternatives to cost-reflective pricing

An argument put to the Inquiry was that pricing of SA Water's drinking water and sewerage services should also have some reference to "customer value". SA Water submitted that:

*It cannot be assumed that changes in customer value will be the same for those who will be required to pay more, compared to those who will pay less. SA Water therefore believes that it will not be sufficient for the Commission to determine the matters under review by only considering the relationship between prices and cost allocations.<sup>52</sup>*

The following example was used to illustrate this point:

*The value of having sewerage connected to a property may be more in dollar terms for a high value suburb than in a lower one (e.g. the "value" of a sewerage service may be 10% of the value of a house, and it may therefore be quite appropriate for the service provider to charge a higher price to that landowner.<sup>53</sup>*

Such an approach is not cost-reflective; cost-reflectivity is a long established and generally agreed best practice principle for pricing water.<sup>54</sup> A cost of water and sewerage services can be determined independently of the value individuals will place on their use. It is that cost to which customers need to respond. As with any product or service, some customers will value its consumption higher than will others. Setting an efficient, cost-reflective, usage price enables customers to identify the level of water consumption that maximises their economic welfare.<sup>55</sup>

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<sup>52</sup> SA Water submission, p.6.

<sup>53</sup> SA Water submission, p.6.

<sup>54</sup> The principle that water prices should be cost-reflective is not new. In 1994, COAG published a strategic framework for water prices that held a view that water prices should reflect the cost of the service (Government of South Australia, *Water Pricing in South Australia – A Discussion Paper*, December 1999, p.ix).

<sup>55</sup> As Sibily states '... water used for showers (non-discretionary) would have a higher marginal benefit than water used to wash the car (discretionary). However, only consumers can identify their demand for the

Even if it were possible to demonstrate that a dollar gained results in less value to a person than the dollar lost from another,<sup>56</sup> the tax and welfare systems would be better income redistribution mechanisms than water and sewerage prices. Tax and welfare systems would produce fewer efficiency distortions (and hence fewer community welfare losses) than the adoption of non-cost-reflective water and sewerage service prices to achieve a desired income distribution outcome.

In practice it would be difficult to derive a robust estimate of such a customer value (Box 2.3). For example, the Inquiry has found no evidence to support a view that people in high value properties value essential services more than people in lower value properties, particularly where they receive the same service.

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*duration and frequency of given activities. An efficient volumetric rate allows consumers to make this choice.* (Hugh Sibley, 'Urban Water Pricing', *Agenda*, Volume 13, Number 1, 2006, p. 28).

<sup>56</sup> An alternate view is presented by Edwards (2007), who argues that there is no reason to suggest that taking a dollar from a higher income person and giving it to a lower income person adds to total utility in society. He suggests that some people value material goods more than do others, and consequently work harder to obtain income, so that there must be a strong positive correlation between the personal valuation of marginal dollars of income and the magnitudes of incomes actually earned. He adds that the very assertion, made so frequently by advocates of compulsory income redistribution, that the rich are "greedy," constitutes a tacit (if unwitting) admission of this relationship (p.7) (see Edwards, J. (2007) "The Costs of Public Income Redistribution and Private Charity", in *Journal of Libertarian Studies*, vol.21, no.2, pp.3-20.

### **Box 2.3: Setting prices based on customers' value**

After a hot day, three SA Water customers return home from work and decide to use 1 Kl of water each.

- ▲ Customer A decides to turn on the sprinkler for her child to play under to keep him happy and cool. The value she derives from this 1 Kl of water use is knowing she has a happy and comfortable child.
- ▲ Customer B notices her lawn (recently sown for \$200) is very dry, and puts on the irrigation system. The value of the 1Kl water for this customer is at least \$200.
- ▲ Customer C sees that his house (\$400,000) is catching fire and uses his hose to extinguish the flames before they spread. The value to him of this 1Kl water is \$400,000 (subject to any insurance arrangements).

SA Water has no way of knowing in advance what value each of these customers derives from the use of the water and therefore cannot accurately price the service by taking any value into consideration. In these examples, the use of a “proxy”, such as property value,<sup>57</sup> has no relationship to value, and no relationship to the actual costs of supplying the services.

To accurately measure customer value would require comprehensive annual surveys, or censuses, to be conducted on all elements of SA Water's business for all customers. This raises further practical problems, such as the following.

- ▲ What would the outcome be if the combined “customer value” for all customers, for instance, was less than the costs of providing the service? Would SA Water absorb these “unallocated” costs?
- ▲ What if certain customers determined that they did not value a service, or that they should not be required to pay for it? For example, some people in the community believe that water should be a free service for all.

This Inquiry has found no evidence that such a survey would produce clear, significant benefits for customers.

That is not to say that customer engagement does not have its place. For example, SA Water, as a monopoly service provider, is encouraged to engage with customers to determine the best price-service delivery outcome. The aim is to achieve the best trade-off between the standards of service to customers and the costs of providing them. The key point is that once service levels have been established by reference to service characteristics valued by customers, prices should be set to reflect the resulting costs.

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<sup>57</sup> In its submission, SA Water suggested that property value was a type of proxy for the value that someone derives from sewerage services.

### 2.3. *Economic efficiency and water security*

The Terms of Reference require investigation of pricing reforms that may also improve water security.

Water security means that sufficient water is available to consumers in the long term. There are two general ways in which water security can be promoted:

- ▲ by expanding water supply – for example, construction of the ADP increased the capacity of SA Water to supply water to many South Australians
- ▲ by reducing demand for water – for example, through water restrictions and measures to promote greater water conservation; water efficiency can help promote water security by ensuring that water appliances operate properly using the least amount of water.

Water security can deliver economic efficiency but an acceptable balance must be found between an appropriate level of water security and cost. For example, if the level of water security is too low (that is, there is insufficient capacity in the water and sewerage systems to meet demand at peak times), customers may not receive an essential service. If the level of water security is too high (that is, the capacity available in the system far exceeds demand, even at peak times), then consumers may pay for infrastructure that will never be required.

The challenge is to determine the optimal level of water security and the most efficient means of achieving it. This Inquiry has found that cost-reflective pricing can help to achieve this optimal level, in particular because it:

- ▲ promotes optimal consumption (which occurs only where the benefits of consumption exceed the costs)
- ▲ promotes optimal investment in supply capacity, which occurs in response to changes in demand.

An optimal level of water security is also critically dependent on the risks that communities are prepared to take in the face of unlikely, but extreme, scenarios (for example, a one-in-100-year drought). Minimising the potential for water shortages under extreme drought conditions requires additional capacity and/or the ability to reduce demand quickly.

To facilitate greater economic efficiency, water security standards should be made explicit, so that decisions about future capacity expansion and policies for water conservation can be clearly linked to security-of-supply. In the absence of a clear security-of-supply standard, it is difficult to determine the most efficient way to manage the supply/demand balance. Further work on such an objective standard should be undertaken.

## 2.4. Customer impacts and transitional arrangements

As noted above, this Inquiry was asked to review and report on pricing reform options from an economic efficiency perspective to assist the Government and members of the community in general to understand the benefits of potential reforms. This report therefore identifies customer impacts and transitional issues.

It is essential to ensure community understanding and acceptance of the benefits the recommended reforms will bring and to identify, for the Government and other stakeholders, the potential transition paths for them.

Implementation of some of the recommendations would represent a significant shift from the status quo and impact both particular customer groups and SA Water. For example, property-based charging has for many years resulted in some customers subsidising others.

The Inquiry therefore presents information to identify those members of the community who may be impacted by changes to the current arrangements, including an assessment of the financial impacts on various customer classes. This will assist in identifying those who may require transitional support through any reform process.

This task is very important. The Inquiry has identified a number of areas where pricing reform would deliver net benefits to the South Australian community. However, the transition paths for those reforms will be vital. Managing transitions, particularly in the context of Government concessions and subsidy arrangements, is discussed further in Chapters 6 to 8 and in Chapter 10.

## 2.5. Competition

While the Inquiry has not specifically considered alternative structures for the State's water industry, it is important to consider how the water industry might evolve, as efficient pricing will be central to any move towards a more competitive industry.

Although not an end in itself, competition has the potential to deliver substantial community benefits. Effective competition can lead to downward pressure on prices by providing incentives for service providers to pursue cost efficiencies and minimise costs. It may also foster innovation, providing customers with a wider range of services and tariff offerings.<sup>58</sup>

Competition could be introduced into the water industry in a number of ways and forms, but efficient, cost-reflective prices would be necessary for this to happen.<sup>59</sup>

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<sup>58</sup> For further discussion of this point refer Productivity Commission, p.333.

<sup>59</sup> For example, competition could initially be limited to the bulk water supply (Productivity Commission, p.374) and possibly more broadly over time to the end user level (for example, see H. Sibly and R. Tooth, 'Bringing Competition to Urban Water Supply', University of Tasmania, School of Economics and Finance, *Discussion Paper 2007-05*, October 2007). Were smart water meters to become cost effective over time this might open up opportunities for competing retailers to offer a range of value propositions to customers.

For example, it would be important to implement efficient pricing before allowing a significant degree of third party access to SA Water's infrastructure.<sup>60</sup> Were SA Water to face direct competition for services where it charged prices incorporating cross-subsidies for other services and/or groups of customers (that is, the prices for these other services were below true cost), it would face by-pass risk, where customers and or competitors found it profitable to by-pass SA Water's infrastructure because of the inflated prices it would need to charge. If SA Water were initially to be charging more than the true marginal cost of water for a service, competitors would run the risk that, if it moved to charge at marginal cost at some future point, their operations could then be stranded.

Similarly, any other areas where SA Water (as the incumbent retailer) had a competitive advantage or disadvantage would need to be examined, with the expectation that these would be removed.

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<sup>60</sup> On 26 September 2013 the Minister for Water and River Murray tabled in the South Australian Parliament a consultation draft of the *Water Industry (Third Party Access) Amendment Bill 2013*. A copy of this Bill can be found at <http://www.treasury.sa.gov.au/>.

## 3. BILLING END USERS OF SERVICES

Clause (b)(ii)(A) of the Terms of Reference requires an examination of the likely impact of changing current customer and billing arrangements.

Under those arrangements, SA Water's customer is the owner of land to which a water or sewerage service is provided, rather than the person who actually uses those services.

While, for the majority of cases, this means that the user of the services and the customer are the same person, in the case of tenancies (residential or commercial), which comprise 28 per cent of properties in South Australia, there is a disconnect between the customer who is billed by SA Water and the end user of the service. That disconnect may give rise to the potential dilution of the effectiveness of SA Water's pricing signals to customers, as those pricing signals may not be received by the end user.

A related aspect of those arrangements is that, under the South Australian Water Corporation Act, in the case where a bill remains unpaid, SA Water has statutory debt recovery and enforcement rights (e.g., it has a right to secure a debt through a statutory charge against the property) against the owner of land to which a service is provided. If there were to be a shift in the identity of the customer (as explained above), there would also need to be a consideration of the on-going appropriateness of those statutory rights.

This chapter discusses the billing of end users, the Inquiry's CBA finding that there is net benefit of moving to end users becoming the customers of water and sewerage services, and addresses some of the issues of practicability that may arise were that to occur.

### 3.1 Billing end users

#### **Final finding**

***There are net economic benefits to be derived from SA Water having a direct contractual relationship with end users rather than landowners.***

#### **Final recommendation**

- 1. Where practicable, the end user of a retail service, rather than the owner of the premises to which that retail service is supplied, should be SA Water's customer for that retail service, regardless of whether or not that service is individually metered. However, alternative arrangements should be permitted where entered into by mutual agreement between a landlord and a tenant.***

#### 3.1.1 Key reasons for recommendation

- ▲ The guiding economic efficiency principle is that costs associated with the provision of a service should be recovered from the users of that service.
- ▲ Under current arrangements, SA Water's customer is the owner of land to which a water or sewerage service is provided. Where a property is owner-occupied, the principle is met. However, in cases where a person other than the owner occupies the

premises and uses a water or sewerage service, the principle is not necessarily met consistently, and end users may not receive the correct price signal from SA Water.

- ▲ In some cases, bills issued by SA Water to landlords (as the landowners) are passed on, in whole or in part, to tenants. This double handling of bills imposes additional costs on the community. Were tenants to be customers, that double handling would be removed, and administrative costs reduced because SA Water would send bills directly to the end user.
- ▲ There is further potential for wider administration cost savings through a reduction in the number of disputes and legal actions between tenants and landlords over water and sewerage charges.
- ▲ Were tenants to be customers, they would also have access to the full suite of consumer protection measures under the Water Industry Act. These are currently reserved for customers (that is, landowners).
- ▲ Finally, making end users SA Water's customer may be of assistance in any future move to a competitive retail water market, as the service user would be able to directly exercise choice.

### 3.1.2 Current arrangements

Under the terms of the Water Industry Act, SA Water's customer for water or sewerage retail services is the owner of the land to which those services are provided. This is regardless of whether that person resides on that land, or receives the retail service.<sup>61</sup> SA Water's contractual relationship rests with the owner.

In the majority of cases (68 per cent of properties in South Australia are owner-occupied<sup>62</sup>) this relationship is appropriate. However, 28 per cent of properties are tenanted and the end user of the water or sewerage retail service therefore has no direct relationship with SA Water.<sup>63</sup>

#### 3.1.2.1 Residential tenancies

As SA Water's customers under the Water Industry Act, landlords are responsible for paying its water and sewerage charges.

Section 73 of the *Residential Tenancies Act 1995* (**Residential Tenancies Act**) allows landlords and tenants to agree whether water usage and/or supply charges should be directly passed through to the tenant. In the absence of an agreement, the landlord can

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<sup>61</sup> Water Industry Regulations 2012 (SA) provide that, for the limited purposes such as accessing the Energy and Water Ombudsman scheme, a tenant may be deemed to be a customer. However, this does not change the essential legal status of the owner of land to which a water or sewerage service is provided being SA Water's customer.

<sup>62</sup> ABS Census Data 2011 Quickstats at [www.abs.gov.au](http://www.abs.gov.au)

<sup>63</sup> Note: 4% of respondents to the ABS Census Data 2011 listed tenure type as other or did not respond.

request payment from the tenant where water supply is separately metered. Where it is not, the charges are borne by the landlord.<sup>64</sup>

Where water charges are passed on directly to the tenant, the landlord is not required to provide the tenant with a copy of the SA Water invoice, unless the tenant requests one. This means the tenant might not receive sufficient information to understand how his or her usage patterns drive bill outcomes and may therefore not be able to make appropriate behavioural changes.<sup>65</sup>

Despite the general rule, a tenant will not be required to pay for water charges if the landlord does not request payment within three months of the issue of the bill. Further, a tenant is not required to pay water charges if he or she has requested a copy of the account and the landlord has failed to provide one (at no cost to the tenant) within 30 days of the request.

The Residential Tenancies Act provides that sewerage charges must be paid by the landlord and cannot be directly passed through to tenants. Where charges are not passed through to tenants, it is understood that those costs are recovered by landlords indirectly, through rent.

### **3.1.2.2 Retail and commercial tenancies**

Under Section 26 of the *Retail and Commercial Leases Act 1995 (Retail and Commercial Leases Act)*, a tenant is liable to pay an amount to the landlord in respect of outgoings, including water and sewerage charges.

Landlords are required to provide a disclosure statement before a lease is entered into. This statement must include outgoings – including water and sewerage charges payable – together with an estimate of the lessee’s annual liability.

Further, any lease ultimately entered into must specify:

- ▲ the outgoings
- ▲ how the amount of outgoings will be determined
- ▲ how they will be apportioned to the lessee
- ▲ how those amounts will be recovered.

Under Section 31 of the Retail and Commercial Leases Act, landlords have an ongoing obligation to provide annual written estimates of outgoings, including an itemised list. This estimate must be for each accounting period during the term of the lease and be provided at least one month prior to the start of each period.

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<sup>64</sup> Amendments to the Residential Tenancies Act prescribing these arrangements came into force on 1 March 2014.

<sup>65</sup> Under the Water Retail Code, a tenant may request historical billing data directly from SA Water – for example, to resolve an outstanding dispute over water charges with a landlord. This applies for both residential and business customers. Refer clauses 18.11.4 and 18.11.5 of the *Water Retail Code – Major Retailers*.

### 3.1.2.3 Opportunities for improvement

The current water sector practice of billing landowners, rather than end users, does not apply in the case of other utilities, such as gas, electricity or telecommunications.

The Productivity Commission has recently suggested that, where water is separately metered, there is “*no clear justification for landlords, rather than tenants paying for water usage*”.<sup>66</sup>

Making the end user of a service the legal customer of SA Water has the potential to unlock economic efficiencies for the South Australian economy in the following three ways.

First, because tenants are not SA Water’s customers, they do not have access to most customer protection measures available to owner-occupiers. These measures include access to flexible payment arrangements and financial hardship programs, a billing dispute process, or early notification about possible concealed water leaks. Allowing full access to all end users, regardless of their land-ownership status, would be of overall benefit and lead to the consistent application and better understanding of consumer rights and obligations.

Second, current practices for passing on charges to end users are varied and inconsistent. This limits the effectiveness of SA Water’s price signals and may lead to inefficient use of services by tenants – potentially to their financial detriment. Without direct access to bills, tenants may be unable to monitor water consumption and adjust their behaviour to use water more efficiently.

While some tenants may have some, or all, charges passed on to them, they generally do not receive the full suite of bill information (such as consumption for the relevant period or comparisons over time) nor do they often receive it in the same way and in the same timely fashion as do landowner customers. Some tenants simply do not receive any separate information about bills or consumption. Any costs associated with water or sewerage supply to the premises in which they reside form an undifferentiated part of their rental payments.

An associated potential efficiency improvement, in the residential sector, would arise from removing the administrative processes and associated costs borne by landlords in passing on water charges to tenants. Those administration costs, currently ultimately passed onto tenants through rental payments, could be saved.

Third, disputes between landlords and tenants relating to water charges are currently heard by the Residential Tenancies Tribunal (**Tribunal**).<sup>67</sup>

The Tribunal submitted that the current system creates delays in water bills being provided to tenants and that recording water payments and charges on rent records adds confusion.<sup>68</sup>

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<sup>66</sup> Productivity Commission, p.159.

<sup>67</sup> The Residential Tenancies Tribunal is to be replaced by the South Australian Civil and Administrative Tribunal but the Commission does not expect this to change the issues currently experienced.

<sup>68</sup> Residential Tenancies Tribunal, submission to the 2013 Inquiry into Drinking Water and Sewerage Retail Services Pricing Reform, 2013, p.2; available at: <http://www.escosa.sa.gov.au/library/131118-WaterPricingInquiry-IssuesPaperSubmission-ResidentialTenanciesTribunal.pdf>

It stated that it routinely receives claims where the agent/landlord has not properly carried out water calculations, or kept proper records. A reduction in the number of disputes of this nature would free up Tribunal resources, enabling it to improve efficiencies broadly.

### 3.1.2.4 Arrangements in other jurisdictions

In the majority of states and territories, the owner of land is the utility’s customer, and is billed in that capacity. The Inquiry has noted, however, that the situation in Victoria differs in respect of tenants – they are responsible for water usage and sewage disposal charges where the property is separately metered.

Table 3.1 summaries the billing arrangements of each state and territory.

**Table 3.1 Summary of billing arrangements for residential and non-residential premises in each state and territory**

STATE	RESPONSIBILITY FOR CHARGES MADE TO A WATER RETAILER	
	RESIDENTIAL	NON-RESIDENTIAL
South Australia	Landowner	Landowner
Victoria	Landowner is responsible for service charges on the property. Tenants are responsible for water usage and sewage disposal charges where the property is separately metered. If there is no separate meter then all charges are billed to the property owner.	Property owner However, some retailers will send a bill to the lessee as a courtesy
New South Wales	Landowner	Landowner
Western Australia	Landowner However, Water Corp will, as a courtesy, send a copy of the water usage charges only to the tenant, where requested by the landowner	Landowner
Queensland	Landowner	Landowner
Australian Capital Territory	Landowner	Landowner
Tasmania	Landowner	Landowner

### 3.1.3 Discussion

It is proposed that, where practicable, the end user of SA Water's retail services should be SA Water's customer. This would mean that a tenant would have a contractual relationship directly with SA Water for the provision of the retail service and would receive the full suite of consumer protection outcomes (including the provision of bills and associated information). Tenants would also benefit from greater transparency with respect to sewerage charges, which are currently indirectly recovered through rental charges, although the major efficiency benefits would come from tenants responding to the efficient water price.

Property owner-occupiers' current relationship with SA Water would not change. This proposal would have a practical effect only for tenancies. That said, it is estimated that approximately one-third of all properties in South Australia are under tenancy arrangements. The potential efficiency improvements that would arise across the whole economy are not immaterial.

The Inquiry is cognisant of the fact that any structural change of this nature may have cost implications for SA Water. For example, it would need to make changes to its current billing systems and processes.

Recognising this, an assessment has been made of likely costs to SA Water were the recommended changes to be given effect. It includes the following assumptions:

- ▲ increases in the number of final meter readings and the cost of sending final accounts when a tenant moves in and out of a property
- ▲ increased costs in administering the hardship program due to an increase in the number of customers accessing it
- ▲ the cost of upgrading the billing system to enable billing to consumers and modifications to business processes.
- ▲ assumptions about the level of tenant turnover.

As explained above, the Inquiry has also considered the benefits of this proposal. They include:

- ▲ a reduction in the costs to property managers and/or landlords in passing on charges to tenants
- ▲ a reduction in the number residential tenancy disputes
- ▲ economically efficient water consumption and fewer leaks
- ▲ tenant access to SA Water's consumer protection measures.

The quantifiable benefits of residential end users becoming SA Water’s customers outweigh the quantifiable costs, with a mid-point of benefit estimated at \$53.8 million (in net present value (NPV) terms, over a 20-year period).<sup>69</sup>

While the Inquiry has estimated a significant net benefit for the South Australian community from SA Water moving to end user billing, it is acknowledged that the change would impact some parties more than others. For example, while SA Water would have increased administrative costs, landlords would incur lower administration costs in on-billing tenants and attending disputes at the Tribunal. Detailed analysis on these “distributional impacts” can be found in Appendix 2.

More detailed analysis of the various costs and benefits is set out below.

### ***3.1.3.1 Reduced costs of landlords passing on charges to tenants***

The most significant benefit of end users becoming SA Water customers is the substantial savings in administration costs currently incurred by landlords in calculating, invoicing and recovering water and sewerage charges from tenants.

This is an on-billing exercise involving, in most instances, landlords preparing invoices for tenants based on the SA Water bill received for the property. It is estimated that, across all residential premises, the proposed change would avoid \$47.3 million in costs (in NPV terms, over a 20-year period).

Several submissions raised concerns that landlords would not adjust rental prices to reflect their savings. The Inquiry accepts that those concerns are valid. However, to the extent that the South Australian rental market is competitive, rental prices should adjust over time.<sup>70</sup>

### ***3.1.3.2 Reduction in the number of residential tenancy disputes over water charges***

With end users becoming SA Water’s customers, the potential for disputes over water charges between tenants and landlords would (over time as the changes were implemented) dissipate. The Tribunal, in its submission, stated that approximately 30 per cent of the 11,000-12,000 disputes heard by it each year involve disagreements between landlords and tenants about water.<sup>71</sup>

The cost savings associated with a reduction in water dispute workload is estimated to be \$4.8 million (in NPV terms, over a 20-year period).

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<sup>69</sup> There is no comparable data for commercial and retail leases, however the net benefits are expected to be similar to those in the residential sector.

<sup>70</sup> The private rental market appears to have the relevant elements of a competitive market and the Productivity Commission has indicated that the retail store rental market is competitive (refer to Productivity Commission, *The Market for Retail Tenancy Leases in Australia*, March 2008 [http://www.pc.gov.au/data/assets/pdf\\_file/0009/82746/retail-tenancy-market.pdf](http://www.pc.gov.au/data/assets/pdf_file/0009/82746/retail-tenancy-market.pdf)).

<sup>71</sup> Residential Tenancies Tribunal, p.2.

### 3.1.3.3 Economically efficient water consumption

A persistent theme of this Inquiry is the proposition that, for price signals to be most effective, they should be received by the end user of a service. This allows users to understand both their level of consumption, and the costs associated with that consumption.

Several respondents to the Inquiry agreed that making end users SA Water's customers would create greater transparency, provide for better monitoring of water usage and increase the potential for tenants to make consequential behavioural changes.<sup>72</sup>

The Inquiry has estimated that the efficiencies that would arise from those outcomes would be \$5.0 million (in NPV terms, over a 20-year period).

#### **Box 3.1: Example of potential benefits of billing end users**

Mary and Ted have been renting their home for just over two years. Recently, Ted was informed that his working hours would be reduced due to an industry downturn.

The tenancy agreement entered into by Mary and Ted contains a term specifically requiring them to pay for water supply and usage charges.

Since they have been living at the house, the landlord's property management agency has sent Mary and Ted invoices for water on its standard invoice template and has not provided them with a copy of the SA Water invoice. The detail on the invoice has varied over the tenancy period and, at times, has not contained any information about the amount of water consumed.

The reduction in Ted's working hours has resulted in him and Mary experiencing financial difficulties and they have found it hard to pay all of their bills. They have been assessed and placed on the hardship program with their energy retailer. They have continued to pay rent on time so they can remain living in the house.

The couple received an invoice from their landlord for water charges for the last quarter and were given 14 days to pay. Ted contacted the landlord to seek to pay the bill in instalments. The landlord refused this request and said that if payment was not received by the due date, he would begin the process of eviction. Mary and Ted feel this is unfair because the landlord is entitled to ask SA Water for an instalment plan, then seek payment from them under the same provisions, and not be out of pocket.

During a conversation with the landlord, Ted requested a copy of the SA Water bill and it was subsequently provided. Mary and Ted reviewed the bill and noticed that they had

<sup>72</sup> ASM submission to Issues paper p.5; Business SA submission to Issues paper, p.1; Ceduna Council submission to Issues paper, p.9; DCSI submission to Issues paper, p.4-5; Landlords Association submission to Issues paper, p.2; Property Council submission to Issues paper p.11-12; REISA submission to Issues paper, p.5; RTT submission to Issues paper, pp. 1-3; John Croser submission to Issues paper, p.1; All submissions to the Inquiry are available at: <http://www.escosa.sa.gov.au/projects/189/inquiry-into-drinking-water-and-sewerage-retail-services-pricing-reform.aspx>

been using a large amount of water compared with like households. They believe that, had they known this, they would have been able to change their behaviours to reduce consumption, or take steps to investigate the possibility of a leaking pipe.

If end users were directly billed by SA Water, Mary and Ted would have been able to compare their water consumption with other like users and implement changes to reduce water usage promptly. They would also have been able to access SA Water's consumer protection measures and be assessed for its hardship program. Further, their tenancy would not be at risk.

#### **3.1.3.4 Improved leakage detection**

Some submissions raised concerns that making end users SA Water's customer would not have any material impact on the rate of detection or repair of leaks from water infrastructure. Those submissions argued that, under the current arrangements, there is an incentive for the landlord to fix leaks and install water efficient devices, as the landlord – as the customer of SA Water – will be “ultimately responsible” for paying bills and face the additional costs arising from water leakages.<sup>73</sup>

However, as was noted by the Real Estate Institute of South Australia in its submission, tenants do ultimately pay for water consumption, whether directly (through separate water charges) or indirectly (through rent).

Furthermore, due to recent changes to Section 73 of the Residential Tenancies Act, it is likely that more tenants will become responsible for water usage charges. (Under these changes the tenant is responsible for these charges in the absence of an agreement with the landlord.) At the same time, however, those tenants are not automatically entitled to receive a bill with full consumption details at, or near, the time the primary bill is issued by SA Water to the landlord.

The Tribunal submitted that it has seen applications for claims of up to \$2000 for one quarter of water use where a leak is detected by the tenant. Under current arrangements, the tenant must pay the bill. While landlords can apply for a leakage rebate, the Tribunal reported that they regularly refuse to do so.<sup>74</sup>

The Inquiry has estimated that a net present benefit of about \$1.2 million is likely to result from end users addressing leaks – tenants would have a greater incentive to discover or address leakage issues quickly because they receive the bills directly.

Reduced consumption and leakage detection may also result in the deferral of network augmentation by SA Water. The Inquiry estimates that this could deliver an additional net present benefit of \$5 million (in NPV terms, over a 20-year period).

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<sup>73</sup> SA Water, submission to Issues paper, November 2013, p.21, available at: <http://www.escosa.sa.gov.au/library/131118-WaterPricingInquiry-IssuesPaperSubmission-SAWater.pdf>. Also, Council On The Ageing (COTA), submission to draft Inquiry report, September 2014, p.7, available at: <http://www.escosa.sa.gov.au/library/20140919-Water-ReformPricingInquiry-DraftReportSubmission-CouncilAgeingSA.pdf>

<sup>74</sup> Residential Tenancies Tribunal, p.2.

### 3.1.3.5 Access to consumer protection rights

Submissions to the Inquiry identified the potential for better access to consumer protection measures as a benefit of any move to making end users SA Water's customers.<sup>75</sup>

Currently, under the Water Industry Act, only customers (landowners) can access those measures. For example, residential customers:

- ▲ have rights to regular bills containing detailed consumption and payment information
- ▲ have access to flexible payment plans and bill-smoothing arrangements
- ▲ have access to SA Water's financial hardship program.

Under the current arrangements, when a tenant is not able to pay water charges, the landlord can serve a Notice of Termination requiring the tenant to either pay all outstanding charges or vacate the property. If the tenant does not make the payment or vacate the property, an application may be lodged by the landlord with the Tribunal seeking either an order for vacant possession or a payment plan.

If tenants were SA Water's customers, the identification of customers experiencing financial hardship would be systematic, quicker and easier. This is because SA Water is required, as a condition of its licence, to comply with the terms of a statutory hardship program, with the terms of that program established by the Minister for Water and River Murray. Under current arrangements, there may be no formal recognition of hardship until the time of a Tribunal hearing.

An economic value for this particular benefit has not been estimated for the purposes of this Inquiry, however, it is likely to have a broad positive impact for vulnerable customers.

A change resulting in tenants becoming customers would also mean they had access to SA Water's dispute resolution process, which includes mechanisms for having bills reviewed, meters tested and adjustments made to bills for previously over- or under-charged amounts.

The processing of water concessions by Government and SA Water would also become more efficient.<sup>76</sup> Currently, to receive a water concession, an eligible tenant must attach to an application form a copy of the residential tenancy agreement and the most recent bill provided by the landlord. This adds a layer of complexity to the application process. Further, tenants who do not receive a copy of their bill may not even be aware they are able to receive a water concession.

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<sup>75</sup> Landlord's Association submission to Issues paper, p.2; REISA submission to Issues paper, p.6; COTA submission to Issues paper, p.4 and draft Inquiry report, p 7; SACOSS submission to Issues paper, p.5. All submissions to the Inquiry are available at: <http://www.escosa.sa.gov.au/projects/189/inquiry-into-drinking-water-and-sewerage-retail-services-pricing-reform.aspx>

<sup>76</sup> DCSI, p.3.

The South Australian Council of Social Services (**SACOSS**) supported the principle of giving tenants access adequate consumer protections, although it stated that it does not believe a change in billing arrangements is required.<sup>77</sup>

The Inquiry accepts that certain consumer protection mechanisms could be made to apply to tenants without them becoming SA Water's customers, although this would require changes to the Water Industry Act.

As discussed above, in Victoria, where a property is separately metered, tenants are responsible to their water and sewerage service provider for water usage and sewage disposal charges. As tenants are considered the customer for those charges, they are able to access their retailer's consumer protection measures. However, there are additional costs associated with issuing separate bills to tenants and landlords.

### **3.1.3.6 Impacts for SA Water**

Several submissions argued that having end users become SA Water's customers would increase its costs and that this would result in greater overall costs.<sup>78</sup>

The Inquiry has taken those concerns into account and concluded that even with those additional costs, the case for change is still financially positive (the net efficiency gains more than offset that transitional costs). The detailed calculations can be found in Appendix 2.

The most significant additional costs associated with this recommendation would be those incurred by SA Water for changes to its billing system and related business processes. Those costs have been estimated at \$4.6 million (in NPV terms, over a 20-year period).<sup>79</sup>

The Inquiry engaged independent expert consultants PricewaterhouseCoopers to undertake a review of all changes SA Water would have to make to its systems to deal with the proposed changes. They concluded that SA Water's existing systems would need to be modified, at an estimated cost of \$4.8 million, and that this could be achieved within a 24-month timeframe.

Some further costs would be incurred. In particular:

- ▲ given the more frequent turnover of tenants in rental premises (compared with owners of those premises), additional meter readings for account finalisation would be required and there would be costs associated with sending additional bills. The estimated total cost was \$4.4 million (in NPV terms, over a 20-year period)

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<sup>77</sup> SACOSS submissions to Issues paper, p.5, and draft Inquiry report pp.2-3.

<sup>78</sup> Department of Planning, Transport and Infrastructure (**DPTI**) submission to Issues paper, p.4; SACOSS submission to Issues paper, p.5, and draft Inquiry report, pp. 2-3; District Council of Lower Eyre submission to draft Inquiry report p. 3; SA Water submission to draft Inquiry report, pp.8, 33-34 .

<sup>79</sup> There would also be significant communications-related costs associated with moving towards billing end users. However, it has not separately attributed these to this reform option, as it would be expected that an overarching communication package would be developed for all the Inquiry- related reforms adopted. In terms of expected costs for such a communications package, the Commission notes that the *Water for Good* reform initiative, whose application and reach was broader than urban water, had a communications budget of approximately \$2 million.

- ▲ there may be additional administrative costs involved with having more customers participate in SA Water’s hardship program, as demographic evidence suggests that tenants are more likely to face financial hardship than landlords. The additional costs were estimated at \$0.5 million (in NPV terms, over a 20-year period).

### *3.1.3.7 Practical implications*

Some submissions raised concerns about how this change might be applied in practice. Those are addressed below. In summary, the Inquiry’s conclusions are that the matters raised can be addressed through implementation planning and processes.

#### *Disconnection and reconnections*

Some submissions raised issues with the practicality of disconnecting water and sewerage services when tenants move in and out of a property, particularly in light of the relatively high churn rate in residential tenancies.<sup>80</sup>

In particular, SA Water submitted that water and sewerage services are more difficult to access than energy services. SA Water provided the example of sewerage pipes being 1.5 metres below the ground and therefore difficult to disconnect.

The Inquiry agrees that SA Water would need to establish processes to deal with customers moving in and out of properties, taking into account costs, accessibility issues and risk and other existing administrative processes and arrangements. However, it notes that a physical disconnection would not necessarily be required in the case of a move-in move-out.

For example, for water retail services, meter readings could be obtained at (or as close as possible to) the time of move, with the respective tenants being charged accordingly. For any period for which the premises was unoccupied, SA Water could inspect the valuation roll (for a fee) and charge the owner of the land for any consumption not attributable to a tenant.

For sewerage services, a pro-rating (proportional distribution) system could be adopted. For example, pro-rating between the incoming and outgoing tenants (a less targeted approach) or by charging a three-part pro-rated amount, with the landowner responsible for charges incurred during any period of non-occupancy.

Issues would need to be addressed regardless of which option SA Water chose to adopt. As costs associated with these issues would be entirely hypothetical at this time, they have not been included in the Inquiry’s CBA.

#### *Shared metering arrangements*

Several submissions expressed concern that the Inquiry’s recommendation might mean that all rental properties would require individual meters.<sup>81</sup> The recommendation does not

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<sup>80</sup> SA Water submission to draft Inquiry report, p.32-33; COTA submission to draft Inquiry report, p.7.

<sup>81</sup> SACOSS submission to the draft Inquiry report p.3; COTA submission to the draft Inquiry report p.7; Uniting Communities submission to the draft Inquiry report p.7.

require this. It can apply in shared metering arrangements and stands independent of the Inquiry's separate recommendations relating to individual metering. (It does not recommend mandatory universal metering in South Australia.)

Under current arrangements, where a strata or community title corporation has a shared meter, SA Water issues a single supply charge to each property, with all water use charges raised against the body corporate's main account. However, if all property owners agree, SA Water will apportion water use charges against each individual account. If end users were to become SA Water's customers, it could continue to apportion these charges and issue an account to each tenant without any need for individual metering.

#### *Alternative arrangements*

The Inquiry acknowledges that its recommendation in this area should be considered as a general principle, and that specific circumstances may require other arrangements to be put in place – preferably by mutual consent of the relevant parties.

For example, the Inquiry accepts that tenants and landowners could agree that the landowner would remain SA Water's customer and pass on only usage charges. Under this arrangement, supply charges would continue to be incorporated into rent.

However, given the identified benefits from billing the end user directly, the Inquiry recommends that parties be required to actively "opt out" of the recommended approach. This would provide a tenant with more bargaining power than an opt-in provision.

In the case of rooming houses or other short-term accommodation premises (hotels, apartments), the Inquiry acknowledges that the owner of the land would remain the customer. In those cases, the nature of the occupancy (generally a licence to occupy rather than a leasehold interest) is such that the landowner is properly the customer. (This is also the case in the energy sector). For example, providers of community housing may remain the customer of SA Water where they are providing group housing arrangements for tenants with disabilities.

There may also be other circumstances where community housing providers remain the customer of SA Water, and pass on all or parts of their charges to tenants. In other situations, such as in caravan parks, it may not be practical for the end user to be billed directly. However, these examples represent a relatively small portion of the customer base and do not negate the overall positive value of the potential benefits that could be obtained from the recommended reforms.

#### **3.1.3.8 Other options**

In developing this recommendation, the Inquiry considered a number of options and measures, including a hybrid approach involving landowners and end users paying for separate components of the bill. This would involve the variable elements of charges being billed to tenants, while the fixed elements would continue to be billed to landlords. This billing methodology has the benefit (over the current arrangements) of providing a pricing

signal to tenants (user pays) and would therefore release some of the economic efficiency benefits identified above.

Both the hybrid approach and the recommended approach have been assessed for costs and benefits against maintenance of the status quo. The Inquiry's analysis (detailed in full in Appendix 3) shows that the hybrid approach is the second best option in terms of economic efficiency. It would, however, involve additional costs, such as sending two bills and the maintenance of an increased number of customer records. The estimated net benefit of the hybrid approach option is \$39.5 million, \$14.3 million less than the option of billing only end users.

Some parties indicated support for requiring landlords to install water efficient devices, such as water saving showerheads. CBA of such measures has not been undertaken, as it falls outside of the scope of the Terms of Reference.

Details of the CBA and calculations of alternative options can be found in Appendix 3.

### 3.1.4 Implementation

To effectively implement this recommendation, changes would need to be made to, at least, the Water Industry Act and accompanying regulations, the Residential Tenancies Act, and the Retail and Commercial Leases Act.

Further, SA Water would require a period of time (estimated at around two years) to change its systems.

Most importantly, time would be required to work with industry (landlord) groups, consumer (tenancy) groups, and the general public to educate and inform them of the changes and their implications.

## 3.2 Debt risk and debt security

### **Final finding**

***SA Water should be placed in the same position as other utilities and rely on the general law to recover and enforce its debts against customers.***

***The existing statutory rights to secure and recover debt against land granted to SA Water under the South Australian Water Corporation Act 1994 should be removed.***

### **Final recommendation**

- 2. The current provisions in the South Australian Water Corporation Act 1994, which confer on SA Water the right to secure debts through a statutory charge on land, and the right to sell land to satisfy a debt, should be repealed.***

### 3.2.1 Key reasons for recommendation

This recommendation made on the basis that:

- ▲ it is not efficient for SA Water to have debt security and recovery right over and above other market participants (as this conflicts with the principle of competitive neutrality)
- ▲ if end users are to become customers (as recommended) then, in the case of tenancies, the owner of the land to which a retail service is provided to a customer should not be required to provide security for the debts of that customer
- ▲ it may help position the water sector for any future move towards competitive water retailing.

### 3.2.2 *Current arrangements*

Under the terms of the *South Australian Water Corporation Act 1994* (**South Australian Water Corporation Act**), SA Water obtains a first-charge over a property to which a water or sewerage retail service is provided, in respect of any debts due and owing to it for the provision of that service. The charge need not be registered on the title. At the time of sale of the property (SA Water is currently advised of this through arrangements with the Lands Titles Office), it can enforce the charge.

That Act also provides SA Water with a right to effect the sale of land to which a water or sewerage retail service is provided, in the event that there is a payment default in relation to that service, and that payment has remained in arrears for two years.

### 3.2.3 *Discussion*

It is recommended that SA Water's ability to recover debts from the landowner – and use land as a security – be removed. Removing this power does not reduce risks to society but transfers the risk from landowners to SA Water.

The benefits of this proposal are not directly quantifiable, but include the following:

- ▲ In the case that the Inquiry's recommendation that all end users should be customers (not just landowners) then it will not be appropriate to require a third party (the landowner) to assume liability for the debts of an SA Water customer (although the third party may agree to do so).
- ▲ SA Water's powers to obtain first-charge on land, or sell land, are disproportionate to the risk of a customer not paying the amount due. Other avenues for the recovery of debts are available through the general law and these are effective and used by other businesses. The change would place SA Water on a level footing with other utilities (gas, electricity, telecommunications), as well as other businesses operating in the general economy.

### 3.2.3.1 Impacts to SA Water

SA Water has stated that its power of first-charge on land provides “*certainty over the tracking and recovery of debt*”.<sup>82</sup> It argues that removing this power would result in an increase in resourcing for debt recovery and debt write-offs, resulting in higher prices and costs for consumers. However, from an economic efficiency perspective, the additional cost impact on SA Water is simply a transfer from landlords to SA Water, as the cost already exists but is carried by landlords.

The Inquiry’s analysis indicates that billing tenants directly would have an impact on SA Water’s debt risk of about \$3.6 million a year (largely due to increases in bad debt write-offs). There would also be an estimated one-off step increase in the provision for bad debt of \$3.5 million (refer to Appendix 4).

SA Water expressed concern that removing its debt recovery provisions would increase the number of restrictions for non-payment.<sup>83</sup> The Inquiry is not persuaded that this outcome would necessarily result. While SA Water may need to review its commercially based debt arrangements, the level of restrictions would also be influenced by how well its hardship policies operate (noting that an outcome of the Inquiry’s recommendation would open up access to the hardship program to tenants).

### 3.2.4 Customer bill impacts

The estimated customer bill impacts that arise from this recommendation are expected to be around \$5 per customer per year. This would recoup the additional costs associated with the implementation of this recommendation, including up-front implementation costs. It has been assumed that these costs would flow through to all customers equally.

### 3.2.5 Implementation

To effectively implement this recommendation, changes would need to be made to the South Australian Water Corporation Act and accompanying regulations.

The implementation of this recommendation should be considered in conjunction with the recommendation relating to billing end users of water and sewerage services (see Recommendation 19), and the Inquiry’s recommendations relating to non-connected properties (refer to Recommendations 21 and 22).

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<sup>82</sup> SA Water submission to Issues Paper, p.21

<sup>83</sup> SA Water submission to draft Inquiry report, p.34.

## 4. NON-CONNECTED PROPERTIES

The Terms of Reference for this Inquiry (Clause (b)(ii)(A)) require an examination of the likely impact of billing the consumer of water and sewerage services (rather than the owner of land to which the service is provided) and the associated elimination of ROA (the practice under which SA Water levies a charge on land where service infrastructure passes by that land – even if that service is not connected).

This chapter discusses the removal of ROA by examining the key issues relevant to this practice, including economic efficiency, consumer choice, competition and public health.

The draft Inquiry report recommended that customers should only be charged for a water and sewerage service if they have entered into an agreement with SA Water. This would have the immediate effect of eliminating ROA “customers” from SA Water’s customer base. However, it would also likely result in other customers opting out of receiving SA Water’s services, as they have for other utility services, such as electricity. Both matters are discussed in this chapter.

### 4.1 *Non-connected properties*

#### **Final finding**

***Customers that choose not to connect to SA Water’s network should not be required to pay a fixed charge to SA Water.***

#### **Final recommendation**

- 3. Customers should only be charged for a water and sewerage service if they enter into an agreement with SA Water to become a customer. Likewise, customers should be able to cease being a customer of SA Water subject to providing reasonable notice and paying appropriate disconnection and account finalisation fees.***

#### 4.1.1 *Key reason for recommendations*

- ▲ To ensure that consumption choices are properly informed, people should be aware of, and should pay for, the private and social costs that arise from their consumption. A corollary of that proposition is that payment for water and sewerage services should only be required from a customer when they receive that service. People should be able to choose whether or not they receive a service.
- ▲ ROA entrenches monopoly supply by directly disadvantaging any potential competitive supplier with regard to cost. This is because any alternative service provider will not only need to be cheaper, but cheaper by at least the amount of the fixed charges before they stand any chance of being considered as an alternative supplier. This is a very substantial barrier to entry.

### 4.1.2 Current approach

Where its sewerage and/or water network runs past a property, SA Water recovers full drinking water supply and sewerage charges from the landowner, even if no service is connected. This practice is referred to as ROA and is allowed for under the Water Industry Act as an “availability charge” (a distinct charging arrangement for water and sewerage charges paid under contract to SA Water).

#### 4.1.2.1 Opportunities for improvement

The case study presented in Box 4.1 identifies some of the deficiencies with the current arrangements and highlights the need for reform.

##### **Box 4.1: Deficiencies of ROA**

ROA customers often pay a higher rate in the dollar charge than owners of connected properties. This is because of SA Water’s minimum rate arrangements.

For example, the current minimum rate for sewerage is \$351.40, which implies a metropolitan property value of \$276,475<sup>84</sup> or a country property value of \$206,584.<sup>85</sup>

Many ROA customers own vacant allotments which, particularly in regional areas, may be worth less than this. However, landowners still pay the minimum rate.

For example, a vacant allotment in Mt. Gambier is readily available for \$70,000. Under current arrangements, despite not being connected to the sewer system, the property owner would need to pay a ROA “availability charge” to SA Water. The property-based rate would result in a sewerage charge of \$119 per year. Instead, the \$351.40 minimum charge means this property owner is paying 125.5 cents per \$1000 of property value. This is almost three times the usual rate in the dollar – for a service that they do not receive or need.

The Inquiry has estimated that 60 per cent of all sewer ROA customers, and 86 per cent of those with vacant land, are paying the minimum rate.

### 4.1.3 Discussion

The removal of ROA would mean that:

- ▲ existing non-connected customers would no longer be levied an availability charge
- ▲ SA Water would not be able to charge a new customer for the provision of an “available” service unless that person consents to a connection to receive that service

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<sup>84</sup> Assumes the metropolitan property-based quarterly rate of 31.775 cents per \$1000 of property value, as per the 2014/15 Fees and Charges Schedule, available at <http://www.sawater.com.au/NR/rdonlyres/9EE9B2C3-4C57-4F26-AFCF-78FE7CEB706E/0/FeesandChargesScheduleRatesandSales.pdf>

<sup>85</sup> Assumes the country property-based quarterly rate of 42.525 cents per \$1000 of property value.

- ▲ existing connected customers would have the option to disconnect (for an appropriate fee) and avoid future service charges.

Submissions to the draft Inquiry report regarding ROA were mixed in their support for the proposed changes. However, on balance, the Inquiry considers that the benefits of removal of ROA will outweigh the costs.

As mentioned earlier, to ensure that consumption choices are properly informed, people should be aware of, and should pay for, the private and social costs that arise from their consumption. A corollary of that proposition is that payment for water and sewerage services should only be required from a customer when they receive that service.

People should be able to choose whether or not they receive a service. If they choose not to do so, they should not have to pay for it.

Although not within the Inquiry’s scope a number of councils were concerned that the draft recommendations could be applied to their sewerage services.<sup>86</sup> The Inquiry reiterates that its findings and recommendations have been made in the context of SA Water’s services only. In particular, the assessments of costs and benefits have been undertaken with regard to SA Water and its customers, not other service providers and their customers. The Inquiry cautions against applying its recommendations to councils or other service providers until a CBA relevant to their circumstances has been conducted.

#### 4.1.3.1 Customer numbers directly affected by ROA

Prior to the release of the draft Inquiry report, SA Water stated that it was unable to separately identify ROA customers from customers who are connected to its infrastructure but do not use its service for long periods of time. Table 4.1 shows the Inquiry’s estimates (at that time) of the number of SA Water’s ROA customers and the revenue recovered from them.

**Table 4.1: Estimated number of ROA customers and annual revenue<sup>87</sup>**

	ROA CUSTOMERS	ANNUAL REVENUE
Water	22,000	\$5.6m
Sewer	10,500	\$5.2m

<sup>86</sup> Eyre Peninsula Local Government Association, *Submission in response to the Draft Inquiry report*, Sep 2014, p.7, available at <http://www.escosa.sa.gov.au/library/20140919-Water-ReformPricingInquiry-DraftReportSubmission-EyrePeninsulaLGA.pdf>.

<sup>87</sup> The Inquiry has estimated ROA customer numbers through the SA Water customer database. For these purposes, a ROA customer for water is defined as a customer who receives a water bill but has recorded exactly zero usage for each of the four quarters of 2011/12. A ROA sewerage customer is defined for the purpose of this report, as one who appears on the database as a sewerage customer by having a non-blank sewer supply charge, yet is paying a water supply charge but recorded zero water use for each of the four quarters of 2011/12.

SA Water has estimated that eliminating ROA charges would directly benefit approximately 26,000 customers who are currently not connected and up to 15,000 customers who are connected now but who may choose to disconnect in the future. In its estimate, the revenue loss would be \$16 million to \$20 million which, when recouped from the remaining customer base, would result in price increases of 1 to 1.5% for water and 2.3% for sewerage services. The figure is higher than published in the draft report, as it includes the potential disconnections (as estimated by SA Water) and other customers who are exempt from ROA (and for which the revenue shortfall is currently recovered via a CSO of \$8.0 million per year<sup>88</sup>).

#### **4.1.3.2 Provision of water for fire fighting**

SA Water also submitted that owners of non-connected properties may gain benefits from fire fighting water that they would not be paying for if the draft recommendations were adopted.

While this may be true, the majority (nearly 70 per cent) of ROA bills relate to vacant allotments, and the minor cost of providing fire fighting water to ROA customers is far outweighed by the anti-competitive framework which is embedded in SA Water's entitlement to charge non-connected property owners. Further, all property owners are subject to the Emergency Services Levy.<sup>89</sup>

Finally, there is already legislation that might be more appropriate to deal with these matters (See Box 4.2.).

#### **Box 4.2: Water for firefighting**

The Water Industry Act (Section 98) includes provisions for "fire plugs". It states that a water industry entity must, at the direction of the Minister, provide and maintain fire plugs, maintain various standards, and comply with any other requirements relating to the provision of water for fire fighting purposes, in accordance with any scheme determined by the Minister for the purposes of this Section (Subclause 1). It also states that such a scheme may also require another person or body to make a contribution towards the costs of compliance with such a scheme (Subclause 2).

It is therefore appropriate that the recovery of costs for water supplied by water retailers (SA Water and others) for fire fighting purposes should be considered as a part of the scope of such a scheme.

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<sup>88</sup> SA Water submission to the draft Inquiry report, p.30.

<sup>89</sup> This levy funds the provision of emergency services in South Australia and applies to all fixed property and some mobile property. See <http://www.revenuesa.sa.gov.au/taxes-and-duties/emergency-services-levy>.

#### 4.1.3.3 Practice in other states and other utilities

In other utility industries (for example, energy and telecommunications), no ROA-type arrangements exist. However, some interstate water utilities do charge for ROA (Table 4.2).

**Table 4.2: ROA – Australian metropolitan water utilities**

STATE	METROPOLITAN UTILITY	CHARGE FOR PROPERTIES NOT CONNECTED, BUT AVAILABLE FOR CONNECTION
South Australia	SA Water	Yes
Victoria	City West Water	No
	South East Water	No
	Yarra Valley Water	No
	Western Water	No
New South Wales	Hunter Water	Yes
	Sydney Water	Yes
	Gosford City Council	Yes
	Wyang Shire Council	Yes
Western Australia	Water Corporation	Yes
Queensland	Urban Utilities	No
ACT	ACTEW	Yes
Tasmania	TasWater	Yes
Northern Territory	Power and Water Corporation	No

#### 4.1.3.4 The effect of ROA on competition

ROA reduces the viability of alternative supply options and its removal would encourage competition and consumer choice. For example, ROA changes the economics for consumers to become self-sufficient in water supply and/or sewerage disposal. Under ROA, only the usage charge is avoided if a consumer makes alternative supply arrangements and, as such, consumer choice is reduced.

Furthermore, in an environment where customers could choose between water retailers, ROA is likely to give SA Water an unfair advantage. Under ROA arrangements, customers may be more likely to choose SA Water's service, as they would be required to pay a fixed charge to SA Water even if they selected a different retailer – thereby reducing their incentive to do so.

The removal of ROA would reduce the holding costs for owners of unconnected land, although it would also reduce the incentive to develop the land sooner.

#### 4.1.3.5 ROA in the context of public health

SA Water<sup>90</sup> and Alano Water<sup>91</sup> argued that removing ROA might present a public health risk. However, the Inquiry was not presented with evidence to demonstrate that South Australian residents in areas not connected to SA Water, or to central sewerage schemes, have different health outcomes when compared with those residents living in areas that are connected.

This suggests that, where appropriate standards for alternative water or sewer arrangements are met, public health concerns are not central to the ROA removal argument. The Inquiry notes the role of the State's *Public Health Act 2011* (**Public Health Act**), the *Safe Drinking Water Act 2011* (**Safe Drinking Water Act**), and related regulations, in addressing those risks.

Furthermore, in the case of sewerage, the Inquiry is not persuaded by the public health arguments on the following basis.

- ▲ A large proportion of properties (67 per cent<sup>92</sup>) attracting an ROA charge are vacant blocks and do not contain a house or other structure capable of producing sewage. Those properties do not present any public health risk.
- ▲ In addition, existing legislation already addresses this risk. For example, under Section 48 of the Water Industry Act a landowner is obliged to connect to an "approved scheme" to ensure the provision of sewerage services.<sup>93</sup> This section recognises that there are alternative sewerage disposal mechanisms beyond the typical sewerage

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<sup>90</sup> SA Water submission to the draft Inquiry report, p.29.

<sup>91</sup> Alano Water, submission to the Issues Papers, November 2013, p.2, available at:

<http://www.escosa.sa.gov.au/library/131118-WaterPricingInquiry-IssuesPaperSubmission-AlanoWater.pdf>

<sup>92</sup> Based on analysis of SA Water's customer database.

<sup>93</sup> The South Australian *Public Health (Wastewater) Regulations 2013* also have a role in regulating public health risks associated with wastewater disposal.

system. This is a better way of achieving public health outcomes than changing the economics of the alternatives.

Moving away from ROA would lead to a slight increase in prices for the remaining customers (see Section 4.1.4 below).

The Department of Communities and Social Inclusion (**DCSI**) raised a concern relating to adverse customer outcomes. It stated that:

*“It should be noted that the concept of paying the fixed charge, whether a property is connected or not, may not be a valid process where several water industries may have infrastructure in the street. Further to this, rating on abuttal charges may be seen to be penalising those who elect to be self-sufficient.”<sup>94</sup>*

SA Water’s submission<sup>95</sup> and the submission from Australian Sub Meters (**ASM**)<sup>96</sup> contend that the practice of ROA captures the “option value” to the landowner of having infrastructure available to connect to, and that this is then reflected in higher property values.

This Inquiry has found that economic efficiency is enhanced when customers are faced with the cost of their decisions. It does not accept that SA Water should include an option value in its drinking water and sewerage prices. In addition, this option value is already reflected in the price of land and paid for at the time of purchase and should not, therefore, be recouped again through SA Water bills. Any further benefit to property value from remaining connected would soon be offset by the annual fixed charges the property owner is required to pay under ROA.

While there may be difficulty in identifying ROA customers at present, work by SA Water in interrogating its systems, publicising the change and inviting ROA customers to self-identify, should quickly overcome this issue.

To implement the removal of ROA, SA Water would incur costs due to changes to its billing system and related business processes. These changes are estimated to cost approximately \$555,000 and could take up to six months to implement.

#### **4.1.3.6 The potential for existing customers to disconnect**

The draft Inquiry report did not estimate the impacts to customers’ bills of existing (non-ROA) customers choosing to disconnect from SA Water. SA Water raised this issue and estimated that this would result in 15,000 customers (or 1.3%) electing to disconnect, therefore increasing costs to all remaining customers.

The Inquiry accepts SA Water’s view that it is likely that there will be some customers who choose to disconnect. Although it has not stated how it has arrived at this estimate, it does not seem an unreasonable figure. However, the Inquiry considers that impact to SA Water’s

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<sup>94</sup> DCSI submission to the Issues Papers, p.2.

<sup>95</sup> SA Water submission to the Issues Papers, p.22.

<sup>96</sup> ASM submission to the Issues Papers, p.1.

revenue would likely be less than 1.3%, as it may be expected that the types of customers that choose to disconnect would be small water users<sup>97</sup> and customers in regional areas where property values are generally lower than in metropolitan Adelaide.<sup>98</sup>

In any case, while this would mean additional costs for SA Water's remaining customers, this outcome is to be expected when cross subsidies are removed. It is not appropriate for a commercial business to block consumer choice and attempt to retain customers when, if given choice, those customers would elect not to receive those services.

#### 4.1.3.7 Practical issues surrounding the removal of ROA

SA Water raised several in relation to this proposal, including the practical implications of disconnecting properties. For example, sewerage services are buried deep underground and not easily accessible.

Current regulatory arrangements provide powers for how, and regulate the processes by which, SA Water can disconnect customer's sewerage services. These are included in the Water Industry Act, the Public Health Act, the *South Australian Public Health (Wastewater) Regulations 2013 (Wastewater Regulations)*, and the Water Retail Code established under the *ESC Act*.

Together, these instruments make it illegal for the disposal of human waste from a property without an approved sewerage treatment system. If that sewerage system belongs to SA Water, then the framework provides for certain processes to be followed to protect SA Water, its customers and public health. These powers extend to circumstances where someone elects to have an alternative sewerage system. Specifically, these legal instruments provide:

- ▲ Powers to protect SA Water infrastructure. For example, the Water Industry Act provides:
  - powers for SA Water to disconnect sewerage infrastructure if it believes that material is being discharged into this infrastructure in contravention of the Act, including a power to charge a fee for the disconnection (Section 58)
  - powers for SA Water to disconnect sewerage infrastructure where a customer has refused SA Water entry onto the premises (Section 63).
- ▲ Powers to protect customers. For example clause 26.1 of the Water Retail Code states that sewerage services cannot be disconnected for non-payment of a bill and clause 16.8 limits disconnection for specified health and safety reasons.
- ▲ Powers to protect public health and safety. For example:

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<sup>97</sup> For a customer to elect to disconnect their water supply, they would need to have an alternative water supply to cover their water use. Larger water use customers would be less likely to have this than smaller water users (which in some cases can rely solely on rainwater tanks).

<sup>98</sup> As mentioned in Section 4.1.3.7, for a customer to disconnect from a sewerage service, they must meet a range of criteria that favours large properties, generally outside of metropolitan Adelaide.

- the Public Health Act states that a person must not cause a material risk to public health (Section 57)
- the Wastewater Regulations provide technical specifications and approval processes for alternative sewerage treatment systems (Sections 11 and 12) and impose conditions relating to people operating and maintaining these systems (Sections 12 and 13)
- the Water industry Act provides the Technical Regulator with the power to set standards relating to procedures to be followed when disconnecting sewerage infrastructure (Section 66).

In addition to the above powers, the Minister responsible for the Water Industry Act has the power to issue a Ministerial Direction on matters relevant to the disconnection of a retail service (Section 40).

Under current arrangements, a customer can seek to elect to have an alternative sewerage system. In practice, this requires payment of the appropriate approval fee (approximately \$400 for a standard application) to the Department of Health or Local Government. However, for such schemes to be approved, minimum space requirements generally limit their use in highly populated or built up areas. This means that, in reality, their use will be more popular in areas where there is less of a public health risk. The cost of these schemes is between \$8000 and \$10,000 each.<sup>99</sup>

A process could be established, by using any one of the legislative instruments mentioned above, whereby a customer seeking to disconnect from SA Water’s sewerage service must demonstrate to he or she has the relevant approvals. It would be appropriate for SA Water to then charge for the recovery of the efficient costs of disconnecting (and re-connection if required at a later stage).<sup>100</sup>

#### **4.1.3.8 Other options**

In arriving at the recommendations proposed in this report, the Inquiry examined two other options for charging non-connected properties:

- ▲ Maintaining the status quo, whereby non-connected properties pay full rates for sewer and water supply
- ▲ A “concessional rate” for non-connected properties (for example, per cent of supply charges).

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<sup>99</sup> Pers. comm., Brenton James, Envirocycle SA, August 2014.

<sup>100</sup> SA Water already allows for customers to disconnect their sewerage services. In 2013/14 this charge was around \$870 for a 100/150mm connection. Refer to:  
<http://www.sawater.com.au/NR/rdonlyres/A84D7160-EF94-4536-A101-35ECE80472A4/0/201213FeesandCharges.pdf>.

The discussion above explains the reasons why the Inquiry does not support the maintenance of the status quo at this time.

#### *4.1.4 Customer bill impacts*

The estimated customer bill impacts that arise from this recommendation are estimated at approximately \$8 per water customer and \$8 per sewer customer per year for non-ROA customers, plus about \$1 per customer for first-year implementation costs. These increases arise from ROA revenue lost to SA Water that it must recover from the remaining customer base. The Inquiry has assumed these costs will flow through to all remaining customers equally. It also assumes the proportion of unconnected properties remains static, although this may change over time as new properties are connected or disconnected.

However, using figures supplied by SA Water's submission to the draft Inquiry report, (which include exempt ROA customers and expected disconnections), the cost could be approximately \$12.50 per connected customer/year for sewer and between approximately \$11.50 and \$17.50 for connected water customers. This assumes that the CSO of \$8.0 million per year that SA Water currently receives for customers exempt from ROA is not used elsewhere to reduce sewerage charges. These figures have not been verified by the Inquiry.

#### *4.1.5 Implementation*

Implementation of this recommendation would require an amendment to Section 48 of the Water Industry Act. At least a six-month timeframe is needed for SA Water to modify its billing systems. The implementation of this recommendation should be considered in conjunction with the implementation of billing end users (see Recommendation 1) and the removal of SA Water's statutory debt recovery and debt security provisions (see Recommendation 2).

## 5. METERING

The Terms of Reference for this Inquiry require an examination of:

- ▲ the likely impact of requiring the installation of individual meters for each customer (clause (b)(ii)(B))
- ▲ the likely impact of requiring the installation of smart meters (clause (b)(ii)(C))

### 5.1 Individual metering

#### **Final finding**

***The costs of installing water meters to all properties that are currently not metered would outweigh the associated benefits.***

#### **Final recommendation**

- 4. *The installation of individual water meters to group-metered properties, both retrofit and new properties, should be optional (i.e. maintain the status quo).***

#### 5.1.1 Key reasons for recommendation

- ▲ Not all water consumers currently have an individual water meter. For example, in a group-housing situation (for example, a block of flats) there is often only one water meter to record the total water consumption for all users.
- ▲ While water consumers *should* receive accurate information about their usage, the cost of moving to a situation where there is an individual water meter for each dwelling currently outweighs the benefits.
- ▲ There are, however, likely to be particular group-dwelling or occupancy situations where the benefits would outweigh the costs. In those situations, consumers should carefully consider the costs they would incur and the benefits they would receive and choose individual or group water metering on that basis.

#### 5.1.2 Current arrangements

While the majority of residential and commercial properties are individually metered, a number of sites (referred to as “group-metered properties”) are serviced by a single meter. It is estimated that about 138,000 water customers are not individually metered.

Individual users within these sites are billed in various ways, for example, through issuing single or separate bills, or apportioning use. In some Australian jurisdictions, such as Tasmania and New South Wales, water companies maintain, read, and bill where sub-meters have been installed on a group site. However, this is not the practice in South Australia.

Usage charging relies on meter readings to send price signals to drive economically efficient consumption behaviours.

### 5.1.2.1 Opportunities for improvement

For customers without an individual meter, the price signals they receive can be distorted, as the share of the group bill they are required to pay is unlikely to reflect their actual consumption. In its submission to the draft Inquiry report, Consumers SA highlighted that this has caused problems in some instances and maintained its position that it would be appropriate for individual meters to be fitted to new properties.<sup>101</sup>

As there are minimal cost savings unless all members of a group moderate their water use, there is little incentive for any one member to do so. Low water-use customers will have their saving diluted when it is shared among all customers with whom they share a meter.

### 5.1.3 Discussion

In its analysis, the Inquiry considered two options:

- ▲ Mandating individual metering for new group-metered properties.
- ▲ Mandating individual metering for new group-metered properties and retrofitting individual meters to all existing group-metered properties.

Overall, submissions received on those issues did not identify material issues that would warrant a departure from the positions reached in the draft Inquiry report. Some submissions fully supported change while others supported change on a case-by-case basis.

For example, some submissions expressed dissatisfaction with the current group metering arrangements citing, for example, equity arguments. However, SA Water argued against change from the status quo in this area. There was mixed opinion about whether individual metering should be made mandatory for all properties, or confined to new builds.

The potential benefits of individual metering include better consumption decisions and improved leakage detection (estimated at between five per cent and 15 per cent of current levels), where price signals can alert users to abnormal use. However, the Inquiry has found that the value of this ongoing benefit is far outweighed by the additional costs. These include the costs of installing individual meters and, for properties where retrofitting is required, extensive re-plumbing work. There are also ongoing costs associated with maintaining extra meters.

The Inquiry's analysis concludes that there is no financial case for mandatory individual metering, as shown in Table 5.1. These findings are consistent with the cost and benefit analysis it conducted under the Water Industry Act in respect of South Australian Housing Trust metering arrangements in 2013.<sup>102</sup> Details of the analysis for the metering reform options, including all of the key assumptions and inputs, can be found in Appendix 5.

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<sup>101</sup> Consumers SA, submission to the draft Inquiry report, September 2014, p.4, available at: <http://www.escosa.sa.gov.au/library/20140919-Water-ReformPricingInquiry-DraftReportSubmission-ConsumersSA.pdf>

<sup>102</sup> The Commission's 2013 report reviewing South Australian Housing Trust metering arrangements is available at: <http://www.escosa.sa.gov.au/Projects/ProjectDetails.aspx?id=188>.

**Table 5.1: NPV of individual metering options**

<b>INDIVIDUAL METERING OPTION</b>	<b>NPV MID CASE</b>
Mandate individual metering for all new grouped properties	-\$7.6m
Mandate individual metering for all new grouped properties and retrofit individual meters to all existing group-metered properties	-\$74.4m

The analysis shows that the mandatory retrofitting of all existing, non-individually metered properties would cost approximately eight per cent more per meter (in NPV terms over 25 years) than to ensure all new grouped properties were individually metered. The average retrofit install cost is \$542 compared to \$500 for installation at new properties.

The status quo option allows owners and occupiers of group site dwellings/occupancies to choose whether they will continue to share a water meter, or have individual water meters installed. It also allows builders and developers of new group site dwellings and occupancies the option to install a larger group meter or smaller individual water meters when building.

The continuation of the current arrangements (status quo) avoids the high costs of installing individual meters, especially for retrofit properties, where extensive re-plumbing work can often be required. There would also be ongoing costs associated with maintaining extra meters if their installation was mandated. While there would be reduced demand benefits, as described above, their value would be outweighed by the additional costs.

It is therefore recommended that individual metering for these type of properties should remain optional, a view shared by almost all that made submissions on this topic.

For new grouped properties, the costs outweigh the benefits at the whole-of-society level. However, in such cases, it may be worth considering some of the qualitative benefits that can arise from individual metering – benefits such as fewer disputes between neighbours of shared meters.

While the costs of mandatory retrofitting individual meters far outweigh the benefits at the whole-of-state level, for individual properties and property developers, in a limited number of situations, the benefits are likely to outweigh the costs. Those customers living in group-metered sites should still carefully consider the costs and benefits before proceeding with group metering or individual metering.

Individual metering is more likely to be beneficial for some properties:

- ▲ in areas where there are higher water usage costs
- ▲ with higher discretionary use (for example, private gardens or little or no common areas)
- ▲ with an existing supply pipework configuration that would readily support sub-metering

- ▲ with dwellings/occupancies of varying demographics (in a residential sense, one-bedroom, two-bedroom and three-bedroom dwellings sharing a meter; in a non-residential sense, high-use and low-use businesses sharing a meter).

However, the Inquiry nevertheless recommends that, for now, individual metering remains optional for all properties in South Australia. The submissions of the Landlords Association, DCSI, the Community Housing Council and Uniting Communities to the draft Inquiry report supported that view.

#### 5.1.3.1 Other options

In developing this recommendation, a CBA was undertaken in respect of the following new proposals:

- ▲ mandating individual metering for all properties
- ▲ mandating individual metering for new build properties only.

Neither option is supported, as the costs far outweigh the benefits at this time.

Analysis shows mandated individual metering for all properties has a net present cost of \$542 per meter, while for new-build properties only, the net present cost is \$500 per meter. (Net present cost per meter refers to the cost over the life of a single meter.) This is the sum of the costs of the meter, plumbing, meter reading, billing and customer service, minus the benefits of reduced consumption, reduced leakage and deferred capital expenditure, over the life of the meter.

Further details of the Inquiry's consideration of these options can be found in Appendix 5.

#### 5.1.4 Customer bill impacts

As this recommendation proposes retaining the status quo, there are no resulting customer bill impacts.

#### 5.1.5 Implementation

As this reform option recommends a continuation of the status quo, no consideration of implementation issues is required. However, SA Water may wish to explore the release of fact sheets and/or guidelines that more clearly articulate its preferred option of optional water meter installation to new multi-dwelling/occupancy properties, similar to that available to Victorian metropolitan water customers.<sup>103</sup>

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<sup>103</sup> For example see City West Water, South East Water and Yarra Valley Water, *Water Metering & Servicing Guidelines, Version Three, 2013*, available at: <https://www.yvw.com.au/yvw/groups/public/documents/document/yvw1003607.pdf>.

## 5.2 Smart metering

### **Final finding**

***The cost of mandatory smart water meters outweighs the benefits to consumers.***

### **Final recommendation**

**5. Smart water metering should be optional (i.e. maintain the status quo).**

### 5.2.1 Key reasons for recommendation

- ▲ Economic efficiency is maximised when all decision-makers receive price signals that reflect the true costs of their decisions. In the case of smart water metering, this means that customers receive the right price signals and are encouraged to use water efficiently.
- ▲ While the benefits of smart water metering include a greater understanding of customer water use behaviour and demand, there is currently no financial case for making the use of this technology compulsory. It is estimated that it would cost between \$48 million and \$170.5 million (NPV), depending on the installation option adopted.
- ▲ Instead, smart metering should remain optional, and customers should make choices on a case-by-case basis.

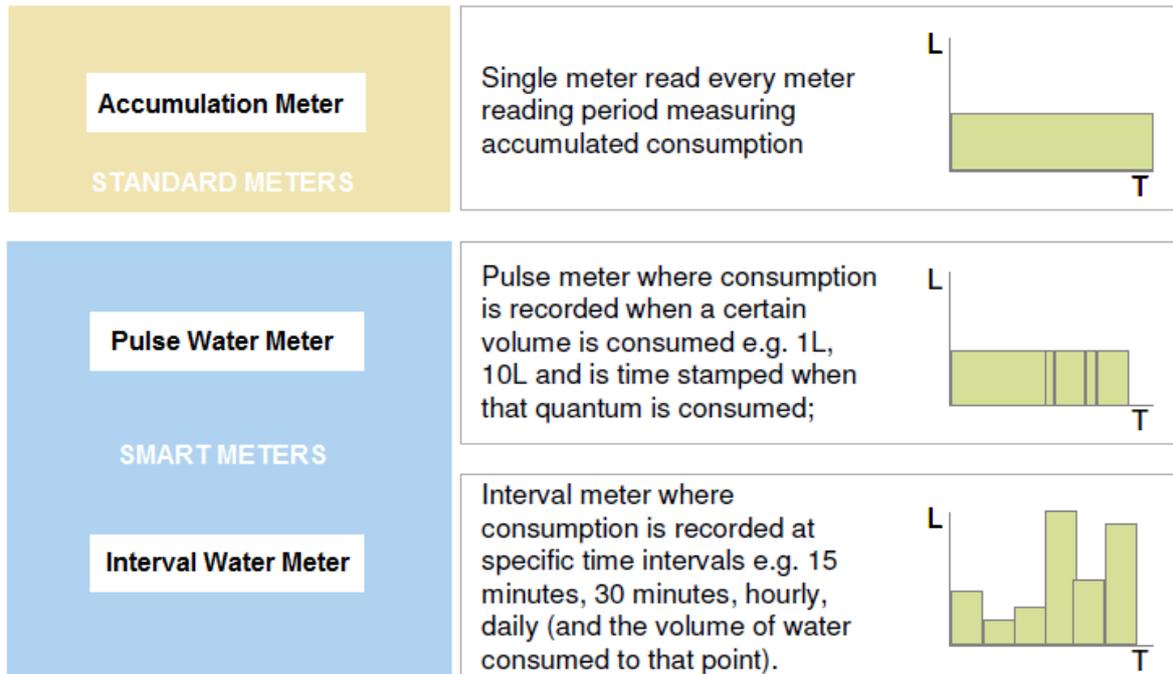
#### 5.2.1.1 Further explanation of recommendation

Smart water meters have digital communications technology that records water usage at short intervals and sends consumption data automatically to the water retailer. They differ from traditional “accumulation meters” which are single meters that measure accumulated consumption, and are manually read semi-regularly, or less frequently (refer to Figure 5.1). Accumulation meters are standard for most residential customers.

Smart meters are more expensive than accumulation meters but the potential benefits include:

- ▲ greater consumer involvement – they enable customers to see their real-time consumption and also better indicate leaks (this benefits the utility, too)
- ▲ reduced costs associated with meter reading
- ▲ more sophisticated pricing structures, potentially involving time-of-use (TOU) tariffs, for example, peak, off-peak and other levels of pricing – similar to smart electricity meters.

**Figure 5.1: Different types of meters**



Source: Marchment Hill Consulting (2010) ‘Smart Water Metering Cost Benefit Study – Final Report’, p.12

This recommendation, which maintains the status quo, gives individual customers the discretion to install a smart water meter. SA Water will continue to read and bill customers based on the accumulation meters in place. The Inquiry’s finding, that there is no financial case for making smart meters compulsory, is consistent with other, similar smart meter studies.<sup>104</sup>

### 5.2.2 Discussion

Smart meters can provide greater consumer involvement, reduce costs associated with meter reading and enable the introduction of more sophisticated pricing structures (potentially involving time-of-use tariffs). However, stakeholders are divided about whether or not smart metering should be mandated.

Smart-water-metering trials have been conducted around Australia (for example, Kalgoorlie-Boulder (Western Australia) in 2012-13, Hervey Bay (Queensland) in 2006). The benefits noted in these trials include the ability to provide a higher level of customer service when people enquire about their bills, and a greater understanding of customer water-use behaviour and demand. The trials also identified benefits arising from real-time downloading of meter data to a water service provider to enable immediate analysis and response to leaks, improved identification of water restrictions violations, and the opportunity to evaluate demand management initiatives.

<sup>104</sup> See, for example, <http://www.itnews.com.au/News/364156,wa-struggles-to-justify-smart-water-meters.aspx>, and [http://www.nera.com/extImage/PUB\\_SmartMetering\\_Overview\\_Feb2008.pdf](http://www.nera.com/extImage/PUB_SmartMetering_Overview_Feb2008.pdf).

However, as the trials concluded, those benefits were not significant enough to be cost effective. In submissions to this Inquiry, a number of organisations, including SA Water, cautioned that the benefits of a wide-scale roll out might not outweigh the costs. Another organisation said it did not support mandatory smart metering because the technology was still too unreliable.

Ceduna Council supported a phased or end-of-life replacement approach, although it acknowledged there could be cost limitations.<sup>105</sup> The Landlords Association stated that it would only support a roll out of smart metering at the end-of-life of existing meters when the benefits clearly outweighed the costs and would be fully passed on to consumers.<sup>106</sup>

Uniting Communities stated that it would only support mandatory smart metering if it was shown to produce an unequivocal saving to consumers in the medium term (i.e. a payback period of five years).<sup>107</sup>

The Inquiry’s analysis has concluded that there is no strong financial case for pursuing mandatory smart metering at this time in South Australia (Table 5.2). The full cost and benefit analysis, including all key assumptions and inputs, can be found in Appendix 5.

**Table 5.2: NPV of smart metering options**

<b>SMART METERING OPTION</b>	<b>NPV MID-POINT</b>
Mandate smart metering for all existing and new properties	-\$80.6m
Mandate smart metering for new properties and replacements (at failure or end-of-life)	-\$48.0m
Mandate smart metering for all existing, new and unmetered properties	-\$170.5m

Maintaining the status quo avoids the high costs of installing smart water meters (using even the cheapest solution) and developing the necessary data and communications networks.

Direct communication, back to the customer, can achieve the majority of benefits. Hence, it does not make economic sense for (optional) smart meters to communicate back to the utility. It is also likely that customers taking up the smart meter option will be geographically dispersed. This would exponentially increase the costs to SA Water of the communications infrastructure per smart metered customer (compared to a situation where all customers were smart metered). The potential savings in reduced manual meter reading will increase the more geographically dispersed are customers. In this case, it would be less costly to continue manual reading on site, or to have data retrieved by handheld receivers and downloaded to the utility at the same time as manual reads of non-smart meters.

<sup>105</sup> Ceduna District Council submission, p.7.

<sup>106</sup> Landlords Association submission, p.2.

<sup>107</sup> Uniting Communities submission to the Issues papers, January 2014, p.9, available at: <http://www.escosa.sa.gov.au/library/140107-WaterPricingInquiry-IssuesPaperSubmission-UnitingCommunities.pdf>

The benefits associated with providing customers with more frequent price signals are low, with consumption and leakage reduction expected to total only around four per cent of current consumption.

The reduced meter reading costs to SA Water would total \$18.3 million in NPV terms (assuming the roll out of smart meters was scheduled on a geographical basis).

The Inquiry notes that there are also important qualitative costs and benefits that should be considered by the Government if it was to adopt any change. Some qualitative benefits considered, but determined not to materially reduce the net present cost of smart metering, include reduced occupational health and safety risks (for example, from contractors not having to manually read water meters) and the potential to introduce more frequent billing and restrictions monitoring in the future.

As noted in submissions, there is some opposition to smart water meters because of concerns such as health and privacy. Some concern was also expressed in relation to the reliability of the technology, especially in the area of communications, and this has the potential to add significantly to ongoing costs. Maintaining the status quo, as recommended, avoids such concerns. Appendix 5 discusses actual and potential benefits of all options in more detail.

No costs are associated with this recommendation, as it involves a continuation of the status quo. However, while the costs of smart water metering far outweigh the benefits at the whole-of-state level, it is likely that some properties could benefit from it. Current options that enable customers to install smart meters at their own expense already cater for these situations.

#### **5.2.2.1 Other options**

In developing this recommendation, the Inquiry undertook a CBA of other options to:

- ▲ mandate smart meters for all existing and new properties
- ▲ mandate smart meters for all – existing, new and where unmetered
- ▲ mandate on a new and replacement basis only.

These options are not supported because the costs far outweigh the benefits at this time.

The analysis shows mandated smart metering has a net present cost of \$115 per meter (over a 12-year meter life). This is the sum of the costs of the meter, installation, communications, computer systems, billing and customer service, minus the benefits of reduced consumption, reduced leakage, deferred capital expenditure, cheaper meter reading and enhanced customer service over the life of the meter.

Further details of these options can be found in Appendix 5.

### *5.2.3 Customer bill impacts*

As this recommendation proposes retaining the status quo, there are no resulting customer bill impacts.

### *5.2.4 Implementation*

As this reform option recommends a continuation of the status quo, no consideration of implementation issues is required. It is recognised that SA Water has undertaken internal investigations into the possible roll out of smart metering technologies to its customers. At this time, there is no business case to support a roll out, even under a best-case scenario where communications infrastructure from an existing electricity smart meter system can be accessed (this system does not exist yet in South Australia).

Advancements in technology, as well as better data and information stemming from trials and roll outs of smart metering across other jurisdictions and industries, are expected in coming years. SA Water should keep abreast of technological advances and metering trial results, with a view to regularly reviewing the business case for a roll out of smart water metering to its customers.

## 6. DRINKING WATER

The Terms of Reference for this Inquiry require the examination of alternative approaches to charging for SA Water's drinking water retail services that may improve economic efficiency and/or South Australia's water security.

*(b) The Commission is to consider, in particular, the following matters:*

- i. approaches to drinking water supply charges for SA Water customers, including charges based on the number and size of meters, and transition arrangements for managing significant impacts on customers;*
- ii. alternative approaches to charging for drinking water and sewerage retail services which may improve economic efficiency and/or South Australia's water security, including analysis of the costs and benefits of such approaches for different customer classes;*
- iii. the impact of statewide pricing requirements on SA Water for drinking water and sewerage retail services in terms of economic efficiency, South Australia's water security, and costs and benefits for different customer classes.*

This chapter addresses the following key aspects of drinking water prices, consistent with the Terms of Reference.

- ▲ Drinking water usage charges and supply charges
- ▲ Regional versus statewide pricing.

**Usage charges** are the price/s paid for every kilolitre of water consumed. Costs incurred by a water utility that are driven by the amount of water consumed should be recovered through usage charges.

**Supply charges** recover many of the fixed costs incurred by a water utility, independent of water consumption. A supply charge is generally necessary as revenue from usage charges is usually insufficient to recover the utility's total costs.

As discussed in Chapter 1, this Inquiry is concerned with SA Water's price *structures*, not the prices it actually charges. It has reviewed the most economically efficient approach to setting drinking water usage charges and supply charges, assuming that SA Water's revenues remain fixed.

The principles for setting drinking water prices (usage charges and supply charges) that best promote economic efficiency were discussed in Chapter 2. The Inquiry has applied those principles to SA Water's drinking water prices and has found that an economically efficient structure comprises:

- ▲ a **single usage charge** based on the LRMC of water supply, with the flexibility to introduce SRMC-based prices during times of emerging scarcity

- ▲ a **fixed supply charge**, to recover fixed costs that are not recovered through the usage charge or other fixed charges (for example, connection charges)
- ▲ **region-based usage charges**, to reflect the different LRMC of supply in different parts of the State.

Under this approach, the substantial cross-subsidies that currently see large (commercial and industrial) water users subsidising small (residential) water users, mainly through fixed costs being recovered through usage charges, would be unwound.

In general, submissions to the Inquiry supported cost-reflective pricing as the approach that best promotes economic efficiency. However, many submissions commented that any movement towards an economically efficient price structure – which under current conditions, and to maintain revenues, would require a significant decrease in usage charges and an increase in supply charges – would create undesirable distribution impacts on small water users that would need to be addressed.

Those views have been carefully considered. The Inquiry has found that if the Government chose to implement cost-reflective pricing, transitional arrangements would be necessary. Those arrangements would be particularly important given the extent to which current prices are non-cost-reflective and the magnitude of the price restructure that would be required to make them so.

This Chapter explains the findings of this Inquiry into how drinking water prices can best promote economic efficiency. Options for transitioning to those economically efficient prices, which could address the impacts that many small customers would otherwise face, are discussed later in the chapter.

## 6.1 Drinking water charges

### **Final findings**

***Consistent with the findings of the 2009 Water for Good plan, economic efficiency can be enhanced through setting drinking water usage charges based on the marginal cost of supply. The construction of the Adelaide Desalination Plant has reduced the marginal cost of water significantly and economically efficient water usage charges should reflect that lower cost.***

***It is economically efficient to set a single usage charge based on the LRMC of water supply. During periods of water scarcity, economic efficiency can be further enhanced by allowing usage prices to increase to reflect the short-run marginal cost of supply.***

***If usage charges were reduced to cost-reflective levels, drinking water supply charges would need to increase significantly, assuming SA Water was to recover the same amount of revenue. This would lead to an unwinding of current cross-subsidies, with most residential customers experiencing bill increases and large water users receiving lower bills. Transitional arrangements would be necessary to address the movement to more cost-reflective prices.***

**Capacity-based charging is the most cost-reflective way to set SA Water’s drinking water supply charges. Other fixed water-related charges (e.g. connection and disconnection charges) should be cost-reflective and recovered on a user-pays basis.**

**Final recommendation**

**6. Consideration should be given to making SA Water’s drinking water charges more cost-reflective. Any subsidies are best delivered outside drinking water prices through separate payments.**

**6.1.1 Key reasons for recommendations**

Cost-reflective water prices promote economic efficiency as they:

- ▲ recover only the efficient costs incurred in supplying the water
- ▲ signal to consumers the true cost of consumption, thereby promoting usage only where the perceived benefits exceed the cost
- ▲ promote efficient investment (investment decisions by SA Water and consumers may be distorted where prices are not cost-reflective).

**6.1.2 Current approach**

SA Water’s drinking water charges currently consist of a usage charge and a fixed supply charge. Customers are generally billed quarterly based on metered water consumption.

For residential customers, there are three usage price levels (or tiers) based on consumption – the more a customer uses, the higher the per unit price of water (see Table 6.1.). This is called an “inclining block tariff” and it is applied in various forms by many Australian water utilities.

**Table 6.1: SA Water’s 2014-15 residential drinking water tariffs**

<b>WATER TARIFFS</b>	<b>WATER-USE PRICE</b>	<b>QUARTERLY USAGE THRESHOLD</b>	<b>ANNUAL USAGE THRESHOLD</b>
<b>TIER</b>	<b>\$ PER KL</b>		
Tariff Block 1	2.32	30 kL	120 kL
Tariff Block 2	3.32	30 to 130 kL	120 to 520 kL
Tariff Block 3	3.59	above 130 kL	above 520 kL

In the past, the three-tier inclining block tariff used by SA Water to charge residential customers was justified on the basis that:

- ▲ the first tier provided a subsidised price of water considered necessary for critical human needs

- ▲ the second tier was cost-reflective, to ensure appropriate price signals for discretionary usage
- ▲ the third tier was set above the cost-reflective price to promote “efficient and environmentally sustainable water consumption choices”.<sup>108</sup>

For non-residential customers (including commercial and industrial) the single usage charge is currently set at \$3.32 per kilolitre (for 2014-15).

All customers pay a supply charge, even if no water is consumed. The fixed supply charge for 2014-15 is \$282.80 a year, however some commercial customers pay more, depending on their property values.

Some customers are not subject to the standard usage and supply charges. For example:

- ▲ multiple residential properties that have only one water meter, such as those on strata or community titles, are not charged for the highest priced tier
- ▲ commercial car parking properties receive a 50 per cent reduction in the minimum supply charge
- ▲ lower water rates apply for community properties such as memorial gardens, children’s services centres, swimming pools and other community or charity facilities.

In addition, low-income customers may receive concessions, paid by the Government, on their SA Water bills.

Drinking water prices are currently set under a statewide pricing policy, which means that for each customer class prices are the same across all metropolitan and regional areas in the SA Water network. All residential customers pay the same drinking water price regardless of their location.

There are, however, some exceptions to these arrangements. For example, usage charges for charities and places of public worship are less than residential charges.<sup>109</sup>

### 6.1.2.1 Historic prices

SA Water’s prices have increased significantly over the past 10 years, largely due to the increased costs of constructing the ADP and other water security investments.

Table 6.2 shows the movements in SA Water’s residential drinking water prices since 2004-05. The third-tier price was introduced in 2008-09 to promote water conservation during the drought.

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<sup>108</sup> South Australian Government, *Transparency Statement: Water and Wastewater Prices in Metropolitan and Regional South Australia 2008-09*, p.49, available at: <http://www.escosa.sa.gov.au/projects/projectdetails.aspx?p=69&id=19#stage-list=0>.

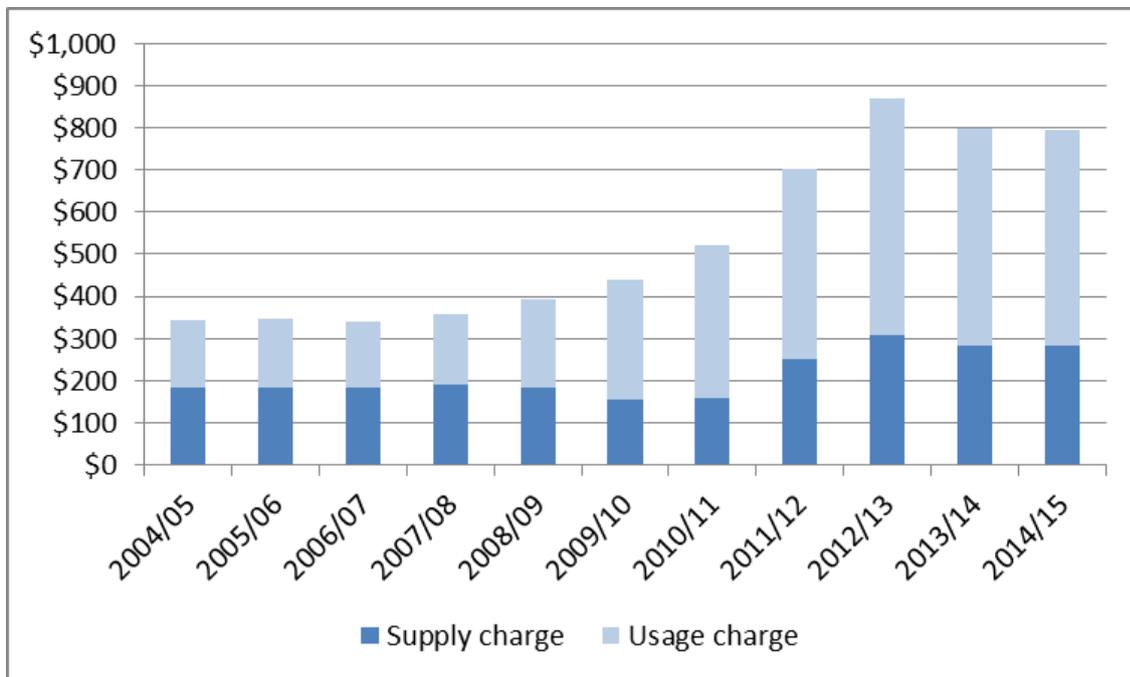
<sup>109</sup> SA Water, *2014/15 drinking water charges*; available at: <http://www.sawater.com.au/NR/rdonlyres/D5BEE0B1-12A4-481D-AB48-C01CAA654852/105445/FeesandChargesScheduleRatesandSales.pdf>.

**Table 6.2: SA Water’s drinking water prices 2004-05 – 2014-15 (2014-15 prices)**

	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15
Supply Charge (\$/p.a.)	183.88	184.98	181.98	190.21	181.88	156.60	157.42	250.00	308.50	283.40	282.80
Tier 1 usage (\$/kL)	0.57	0.59	0.58	0.60	0.82	1.10	1.42	2.06	2.55	2.33	2.32
Tier 2 usage (\$/kL)	1.34	1.35	1.34	1.40	1.59	2.14	2.75	2.93	3.63	3.33	3.32
Tier 3 usage (\$/kL)	N/A	N/A	N/A	N/A	1.91	2.57	3.30	3.18	3.93	3.60	3.59

Figure 6.1 illustrates the impacts of those price increases on a typical residential water bill, based on usage of 190kL per annum. Since 2004-05, the typical residential bill has increased 131% in real terms (above CPI). The supply charge component of the typical residential bill has increased 54% and the usage component has increased 221%.

**Figure 6.1: Typical residential drinking water bill: 2004-05 – 2014-15 (2014-15 prices)**



Through the period 2004-05 to 2007-08, the Government suggested in its annual Transparency Statements that SA Water's tier 2 usage charge (around \$1.30/kL to \$1.40/kL in 2013-14) was at the upper end of the range of LRMC estimates.<sup>110</sup> This provides a good indication of the Government's view on the LRMC of water supply prior to the construction of the ADP. As water demand has not grown since that time and total capacity to deliver water has increased significantly, it would be expected that the current LRMC estimate would have reduced to an amount lower than \$1.30/kL to \$1.40/kL since 2007-08. Current estimates of LRMC, discussed later in this chapter, support that conclusion.

### **6.1.2.2 Opportunities for greater economic efficiency**

There are opportunities to improve the structure of SA Water's drinking water prices to achieve greater economic efficiency.

- ▲ With the marginal cost of water supply now lower than it was before the construction of the Adelaide Desalination Plant (**ADP**), there is an opportunity to adjust usage prices to bring them to more cost-reflective levels. This would ensure that consumption decisions are based on the current marginal cost. As discussed in Chapter 2, marginal cost usage prices best promote economic efficiency. This Inquiry has estimated the economic benefits that would result from those better consumption decisions.
- ▲ The current drinking water price structure effectively leads to large water users (mainly businesses) cross-subsidising small users. SA Water's fixed costs are being recovered through usage charges and large users are therefore contributing more towards its costs than small users. This inhibits growth in investment and employment and reduces the competitiveness of local businesses.
- ▲ The current price structure encourages customers, particularly large water users, to incur costs that could otherwise be avoided if prices were cost-reflective. For example, the Inquiry received submissions from many SA Water customers who have installed expensive infrastructure to either minimise their usage or avoid taking their supply from SA Water entirely.

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<sup>110</sup> The Transparency Statements describe the processes that were used to set SA Water's prices prior to the commencement of the *Water Industry Act 2012* and are available at: <http://www.escosa.sa.gov.au/water-overview/retail-pricing/inquiries.aspx>.

**Box 6.1: Case study of water pricing impacts on primary producers in the State's South East**

**Background**

Submissions from primary producers and their representatives discussed the economic impacts of drinking water prices that are above cost-reflective levels. Submissions from cattle and sheep farmers in the water-abundant South East provided detailed accounts of the measures that farmers have taken to manage increasing water costs in the region. They include constructing duplicating pipelines and investing in water efficiency devices.

It is not possible to quantify the value of all investments made by customers to avoid or reduce their reliance on SA Water's supplies because of rising usage charges. However, the extensive information provided to this Inquiry by South East farmers highlights the fact that significant investments have been made and they could have been avoided if water prices were cost-reflective.

**Inefficient investment arising from water pricing**

The Inquiry held a workshop in Tintinara in August 2014. Verbal and written feedback about SA Water's water pricing structures was received from about 60 primary producers. Their activities mainly include livestock grazing (largely beef), cropping and some dairying.

It is estimated that the average landholder in the Tintinara/Coorong region pays approximately \$16,000 in water bills per year, with larger grazing properties facing annual bills in excess of \$100,000.<sup>111</sup> For many producers at the workshop, water was one of the top two input costs for their business – above fertiliser, fuel and labour.

Approximately half the workshop participants said they had recently invested in water-related infrastructure in direct response to rising water usage tariffs. Cumulatively, these customers had, in recent years, invested more than \$2 million on infrastructure including small desalination plants<sup>112</sup>, pipelines to alternative water sources and leak detection devices.<sup>113</sup>

Only 13 per cent of these customers said they would have made the same investment if the usage price was \$0.70/kL. The "breakeven point" was generally \$1.50/kL, and around half of the customers said they would have made the same investment at that price (Figure 6.2).

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<sup>111</sup> Refer to:

<http://www.coorong.sa.gov.au/webdata/resources/files/Water%20Leak%20Detection%20Article%20AGCO%20NNECT%20SE.pdf>

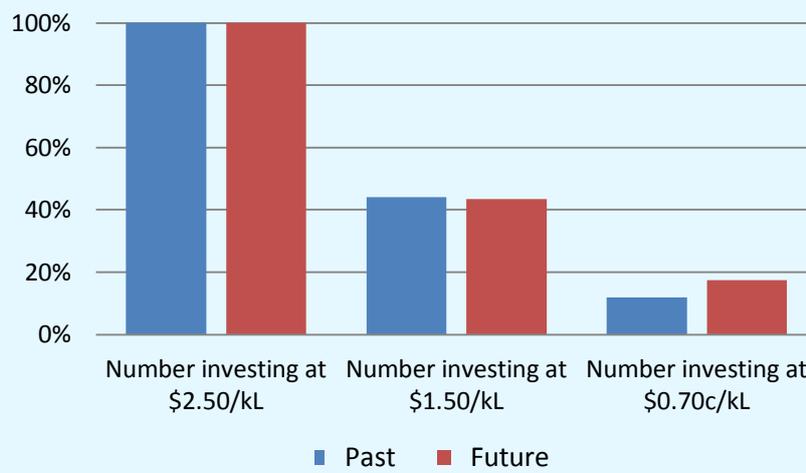
<sup>112</sup> See, for example, <http://www.coorong.sa.gov.au/webdata/resources/files/Wandoo%20-%20Desalination%20Project.pdf>.

<sup>113</sup> See a number of case studies at the following:

<http://www.coorong.sa.gov.au/webdata/resources/files/Water%20Leak%20Detection%20Article%20AGCO%20NNECT%20SE.pdf>.

In relation to future investments, around half of the farmers said they expected to make water-related investments in the near future. Their combined investment is expected to be about \$2 million. Only 17 per cent said they would do so if the usage price was \$0.70/kL. The breakeven point was again around \$1.50/kL. At this price, around half of the customers would not make these investments (Figure 6.2).

**Figure 6.2: Past and future investment in water infrastructure by primary producers**



The investment that has occurred purely as a result of high, non-cost-reflective usage charges represents an inefficient use of financial resources. Those resources could have been put to more productive uses and created greater growth, not just for the businesses in question but also for the South Australian economy.

While the Tintinara workshop participants only represent a small sample of producers from within SA Water’s customer base, these findings highlight the economic impact of maintaining a usage charge well above LRMC.

**Indirect impacts of high water charges**

The primary producers at the workshop also said that they had changed their cropping and grazing practices in response to recent increases in water prices. A number were concerned that their altered practices (which had included switching from cattle to sheep (because of the lower water demand<sup>114</sup>) were contributing to land degradation through

<sup>114</sup> Refer to: <http://www.coorong.sa.gov.au/webdata/resources/files/Livestock%20Water%20Supplies%20PIRSA%20Fact%20Sheet.pdf> and the Coorong District Council submission to the draft Inquiry report, September 2014, p.2, available at: <http://www.escosa.sa.gov.au/library/20140919-Water-ReformPricingInquiry-DraftReportSubmission-CoorongCouncil.pdf>

increased erosion and salinity.<sup>115</sup> They claimed this was having an impact on the local environment, the future production capacity of the land and, as a result, land values.

One workshop participant<sup>116</sup> also reported that Coonalpyn School no longer waters its oval because of the high cost of water. Instead, it pays to transport students by bus to alternative venues for sporting events.

While it is not possible to quantify the total benefit to the South Australian economy that cost-reflective pricing would produce in terms of better investment decisions by SA Water's customers, the examples above suggest that those benefits may be significant. The investments that could otherwise have been avoided have diverted resources away from more productive uses, and this inhibits employment and the growth of both the business sector and the overall economy.

In addition to the potential problems that current drinking water price structures may be creating for the development of a more competitive water industry (discussed in Chapter 1), they create risks for both SA Water and consumers and encourage behaviors that may not be in consumers' interests. For example, non-cost-reflective usage charges create demand risk – the risk of consumers providing SA Water with more or less revenue than it needs to recover efficient costs.

As discussed later in this chapter, for every kilolitre of drinking water that SA Water sells, it recovers over five times the cost of producing it. It therefore has the commercial incentive to sell as much as possible because many of its fixed costs are recovered through usage charges and, if water demand is low, it may not be able to recover all of them. Variability in demand can lead to price volatility to compensate for any past under- or over-recovery of revenue. If usage charges were cost-reflective, SA Water would be indifferent about selling more water, as each additional kilolitre sold would only recover marginal costs. This approach would avoid revenue variability and the need to adjust prices to compensate for that variability.

### 6.1.3 Discussion

On the basis that the Inquiry is focusing on tariff structure reform that delivers the same amount of revenue to SA Water as it currently earns, the question arises: Should price structure reform be focused on usage charges or supply charges, or both? The answer will depend on which charge delivers the greatest impact on economic efficiency. That, in turn, relies on there being some form of behaviour change. If reform brings no behaviour change, there is no economic efficiency benefit.

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<sup>115</sup> Refer to:

<http://www.coorong.sa.gov.au/webdata/resources/files/Livestock%20Water%20Supplies%20PIRSA%20Fact%20Sheet.pdf> and the Coorong District Council, p.2.

<sup>116</sup> Coorong District Council, p.2.

Usage charges influence the amount of water consumed. Supply charges are unrelated to usage and do not impact consumption decisions. However, in some cases they can influence a customer's decision to connect or disconnect from the water supply system. Supply charges may affect economic efficiency by influencing connection decisions (such as where to locate a business) but they are likely to have less of an impact on behaviour change than usage charges.<sup>117</sup> As a result, usage charges generally have a greater impact on economic efficiency than supply charges.

There is, however, an important relationship between the two types of charges that can offset economic efficiency. To maintain a given amount of revenue, any reduction in usage charges would need to be accompanied by an increase in supply charges, and vice versa. Any efficiency gain from lowering usage charges to a cost-reflective level (the "consumption effect") may be offset by an efficiency loss from increased supply charges that would decrease the amount of income consumers would have available to spend on other goods and services (the "income effect"). As discussed in the Victoria University report, the income effect on efficiency is estimated as being lower than the consumption effect, meaning that there is a net efficiency benefit from lowering usage charges and increasing fixed charges to deliver revenue neutrality.<sup>118</sup>

Based on those findings, this Inquiry has, first and foremost, examined reform options for SA Water's drinking water usage charges. It has then analysed the implications of those reforms on drinking water supply charges.

#### **6.1.3.1 Usage charges: Multiple tiers versus single charge**

The Inquiry has considered, as a preliminary matter, the current three-tier usage charge that applies to residential customers. In doing so, it notes that the Government has already transitioned commercial and industrial customers away from a multi-tiered approach and, in 2012-13, implemented a single usage charge for those customers.<sup>119</sup>

Many submissions generally accepted the view, largely on the basis of achieving equity and conservation objectives, that residential drinking water prices should be set based on an inclining block tariff structure. However, this Inquiry has found that using inclining block tariffs to pursue such objectives may be inappropriate for two key reasons.

Firstly, the "conservation case" for inclining block water tariffs assumes that usage above a certain threshold should be considered "wasteful" for all consumers. However, whether that assumption holds true is questionable, as water consumption is based on a number of

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<sup>117</sup> While the responsiveness of water demand to changes in usage charges is low relative to other goods (as discussed in Section 6.1.3.2), its impact on consumers' behaviour is still likely to be greater than changes in supply charges. This Inquiry has, however, not found any relevant empirical evidence of consumers' responsiveness to changes in supply charges. Its conclusion is drawn from the fixed nature of supply charges and the limited alternatives that are available to most customers when deciding to connect to SA Water's network.

<sup>118</sup> Victoria University, June 2014.

<sup>119</sup> South Australian Government, *Regulatory Statement – 2012-13 Drinking Water and Sewerage Prices*, July 2012, pp.5 and 6, available at: [http://www.treasury.sa.gov.au/data/assets/pdf\\_file/0017/1196/regulatory-statement-201213.pdf](http://www.treasury.sa.gov.au/data/assets/pdf_file/0017/1196/regulatory-statement-201213.pdf).

variables, including the number of people in the household and the geographical location. The point at which discretionary water usage begins will therefore be materially different for different consumers (for example, large versus small families). More importantly, if a customer is paying the full efficient cost of drinking water supply (including environmental costs), any decision to use more water, whether for discretionary or other purposes, does not impose a cost on the rest of the community. There is no benefit from discouraging consumption when a customer is meeting the full marginal cost of supply, including externalities.

Secondly, the argument that a low tier 1 price (below LRMC) helps vulnerable customers by giving them access to affordable drinking water is also unlikely to hold true.<sup>120</sup> The current tier 1 prices are above cost-reflective levels and, therefore, cannot be considered “subsidised”. However, even if the tier 1 price was below the marginal cost of supply, the subsidised tier 1 price may not be equitable. This is because *all* residential drinking water customers receive the benefit embedded in that charge, regardless of their capacity to pay, and water users who *do not* consume their full tier 1 quota do not receive the full benefit. Those who do exceed the quota, however, and move into the second tier, do receive the full benefit.

Those impacts are illustrated in the example presented in Box 6.2.

The equity impacts of inclining block tariffs was noted in a 2009 independent review of household water and sewerage charges in the United Kingdom, which stated that:

*... the general adoption of rising block tariffs is unlikely to maximise fairness within the charging structure, and would provide everyone with cheaper blocks of water, rather than targeting those who really need help.*<sup>121</sup>

This Inquiry has also found that inclining block tariffs are inconsistent with the policy intent of creating equity by providing well-targeted subsidy payments to worthy recipients. It does, however, acknowledge that some stakeholders support inclining block tariffs for equity reasons, given the current subsidy arrangements (for example, the concession scheme).

Usage charges based on the marginal cost of supply best promote economic efficiency. As the marginal cost of consumption does not differ between residential, commercial and other non-residential customers, the efficient cost-reflective usage charge will be the same for all of those groups.

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<sup>120</sup> The implicit assumption underpinning this rationale is that low water users (those consuming less than the tier 1 quota) are more vulnerable than other users.

<sup>121</sup> Walker, A. *The Independent Review of Charging for Household Water and Sewerage Services*, December 2009, p.92.

### **Box 6.2: Example: Inclining block water tariffs**

For the purposes of a simple example, assume there are only two water customers.

Customer A, a wealthy customer, consumes the full annual tier 1 quota (120 kL), while customer B, a vulnerable customer, consumes only half the annual tier 1 quota (60 kL). By gaining the full benefit of the tier 1 subsidy, Customer A receives a subsidy amount of \$120<sup>122</sup> and Customer B receives half of that subsidy amount, \$60.<sup>123</sup> The total subsidy provided to both customers is \$180.

As the fixed charge is the same for each customer and, given that the tier 1 subsidy is to be recovered through the fixed charge, the subsidy raises the fixed charge by \$90<sup>124</sup> for each of them. Overall, the tier 1 subsidy makes Customer A \$30 better off – at the expense of Customer B – despite Customer A consuming more water.

For these reasons, it is recommended that the current multi-tier approach for residential usage charges be removed and replaced with a single usage charge, as is presently the case for all other non-residential customers.

While this Inquiry has found that the marginal cost of supply is significantly below current usage charges, there are likely to be efficiency benefits from simply combining the three usage tiers into a single charge set at the weighted average of the three (currently around \$3.17/kL). A single usage charge set at \$3.17/kL for all customers would not affect supply charges. This option is discussed later in this chapter as a possible transitional step towards cost-reflective pricing, albeit one that does not maximise the potential economic efficiency benefits.

A single usage charge would have the benefit of allowing customers to more clearly understand the cost (saving) of an increase (decrease) in consumption. It would be simpler to administrate, given that all consumption would be priced at the same rate rather than having to allocate consumption across three tariffs bands in the case of residential customers.<sup>125</sup>

#### **6.1.3.2 What is the most economically efficient usage charge?**

As noted above, a single usage charge based on the marginal cost of supplying an additional kilolitre of drinking water best promotes economic efficiency.

As discussed in Chapter 2, there are two measures of marginal cost: SRMC and LRMC. Consideration has been given to the costs and benefits of using SRMC and LRMC as the basis for setting usage charges. As discussed by the Productivity Commission in its *2011 Inquiry*

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<sup>122</sup> \$1.00 (the difference between the Tier 1 tariff of \$2.32 and Tier 2 tariff of \$3.32) multiplied by 120kL per annum).

<sup>123</sup> \$1.00 (the difference between the Tier 1 tariff of \$2.32 and Tier 2 tariff of \$3.32) multiplied by 60kL per annum).

<sup>124</sup> \$180 divided by two.

<sup>125</sup> Productivity Commission, p.161.

into *Urban Water Reform*,<sup>126</sup> any departure from SRMC represents a movement away from the theoretically efficient usage charge.

The Productivity Commission has recommended the use of SRMC-based pricing, as it considers this delivers better short-term price signals to consumers, particularly during times of water scarcity.

There are, however, practical difficulties in setting SRMC-based usage charges in South Australia. The bulk water market is relatively immature and there is little publicly available information on market-based prices of wholesale water, other than for the Murray Darling Basin, where tradable entitlements exist.

Further, pricing at SRMC can lead to substantial price variation when expanding capacity involves “lumpy” (e.g. large and infrequent) investments. Given that in the water industry, expanding capacity generally involves large, infrequent investments, an SRMC price will follow a saw-tooth pattern – the price is low when there is excess capacity, increases as capacity is constrained, and then falls suddenly once additional capacity is installed.

In addition, as SRMC is more volatile than LRMC, in South Australia there would be greater administrative costs incurred in changing prices to move in line with SRMC. Those costs would need to be traded off against the efficiency benefits from the short-term price signal. It is important to recognise that LRMC can also change significantly from time to time, particularly following a significant capacity expansion (as has been the case in South Australia following construction of the ADP). However, LRMC is generally more stable and changes less often than SRMC.

Until the wholesale water market in South Australia develops to the point where the SRMC of water supply becomes transparent, the Inquiry agrees with the position taken in *Water for Good* and recommends a continuation and refinement of the implementation of LRMC-based usage charges. This is unless there is an emerging period of water shortage, where there may be additional benefits in recognising the higher SRMC (this matter is developed later in this chapter in the context of scarcity pricing).

As discussed in Chapter 2, there is strong support for adopting LRMC-based usage charges in the water industry and that approach is now being implemented in electricity network pricing.

However, the application of LRMC-based usage charges by other Australian water regulators is not consistent. As shown in Table 6.3, not all states have adopted this form of charging, partly because the regulatory frameworks that apply in some jurisdictions require considerations such as equity or environmental factors to be taken into account.

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<sup>126</sup> Productivity Commission, pp. 136-37.

**Table 6.3: Comparison of drinking water charges in other jurisdictions**

JURISDICTION	ARE USAGE TARIFFS LRMC-BASED?	MOST RECENT LRMC ESTIMATE	NOTES
Victoria	No	N/A	<p>Victorian water businesses must have regard to marginal cost pricing principles, where appropriate, but consider pricing together with other principles, including equity principles, in developing their business plans for the Essential Services Commission's approval.</p> <p>The Commission does not determine prices. Rather, it ensures that the water businesses have regard to all relevant principles in setting their prices.</p>
NSW (Hunter Water, Sydney Water, Gosford Council, Wyong Council)	Yes	\$1.95 - 2.15 (in 2013-14 prices) This reflects the range of usage charges across the water businesses, which are all based on LRMC.	Based on the respective LRMCs for each entity.
Queensland (Unity Water, Gold Coast, Logan and Redland)	No	N/A	The Queensland Competition Authority ( <b>QCA</b> ) administers a price monitoring regime limited to monitoring change in prices, revenues against costs and returns against a benchmark Weighted Average Cost of Capital ( <b>WACC</b> ).
WA (Water Corp)	Yes	\$1.90 (\$2013-14)	Increased LRMC based on the need for investment in desalination plant capacity.
Tasmania (Taswater)	No	N/A	The <i>Tasmanian Water and Sewerage Industry Act 2008</i> requires the regulator (Office of the Tasmanian Economic Regulator

JURISDICTION	ARE USAGE TARIFFS LRMC-BASED?	MOST RECENT LRMC ESTIMATE	NOTES
			(OTTER)) to consider the impact of the rate of change of prices on water users. Due to prices historically under-recovering costs, the overarching objective of the first price determination was to provide a transition path towards uniform cost-reflective tariffs using caps on annual increases in prices.

### Estimating LRMC

In its 2009 *Water for Good* plan, the South Australian Government noted the need to strengthen price signals to encourage efficient use, and highlighted the role of LRMC-based prices.<sup>127</sup>

*“Water prices provide signals to customers about their water consumption and investment decisions.*

*Prices that reflect the full cost of producing and supplying water and wastewater services (including environmental externalities where feasible and practical) encourage the efficient use of water and wastewater services. Cost-reflective prices are part of the solution for managing demand and possibly minimising the level and frequency of mandatory water restrictions.*

*Cost-reflective prices provide incentives to consume an extra unit of water only if the value the customer places on that consumption is at least as high as the expected cost of providing it in the long run.*

*Long-run marginal cost (LRMC) is a forward-looking cost benchmark incorporating estimates of long-run marginal operating costs and capital costs. It is used as a guide to setting cost-reflective prices. The latest best estimate of LRMC is in excess of \$2 per kL (2009-10 dollars).*

*Cost-reflective prices can signal the need for new investment by existing or new industry participants and potentially defer the need for supply augmentations.”*

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<sup>127</sup> Water for Good, p.143.

Consistent with the Government's position, this Inquiry has found that economic efficiency is maximised when usage charges are set based on LRMC.

If there is to be a shift for all customer classes to move to a single LRMC-based usage charge, the question becomes: What value should be adopted?

The range of values previously ascribed to LRMC (\$2.00/kL to \$2.75/kL) was calculated by SA Water prior to the commissioning of the ADP. The start of water production by that major investment has had a material impact on the value of LRMC when compared with those estimates.

As a matter of principle, while the LRMC estimates will not by their nature generally vary significantly in the short term, they should nevertheless be re-assessed prior to the commencement of a regulatory period, based on the most current information.

As part of this Inquiry, Sapere Research Group was engaged to provide a current best estimate of the LRMC of drinking water supply in South Australia. The LRMC estimates have been developed using long-term forecasts of expenditure and demand provided by SA Water, applied to the LRMC estimating methodology developed by Sapere. This Inquiry has not tested the efficiency of SA Water's forecast expenditure, which is outside of its Terms of Reference. Those long-term supply and demand forecasts were used to estimate the cost of meeting an additional and permanent increase in demand using the Turvey "perturbation" method.<sup>128</sup> The estimated LRMC takes into account the probability of needing to purchase additional permanent water allocations from the River Murray and use of the ADP.

Sapere has estimated that, for the Greater Adelaide region, the LRMC of drinking water supply by SA Water is 62c/kL. This means that it costs SA Water 62c in the long run to supply one additional kilolitre of water – about a quarter of the tier 1 (cheapest) price under the current pricing system. The statewide LRMC of water supply by SA Water is estimated at 65c/kL.

It is important to stress that the LRMCs estimated for the purposes of this Inquiry rely on forecast costs and demand that are subject to uncertainty. While they are based on the best information available at this time, the Inquiry recommends that, if LRMC-based usage charges are to be implemented, the estimates to be used should be updated for the latest information.

#### *Inclusion of environmental costs in the LRMC*

The LRMC estimate also reflects the environmental costs of meeting additional water consumption. In particular, it takes into account NRM levies that SA Water must pay for taking water from the Murray Darling Basin.

Some submissions indicated that there is uncertainty about the value of the LRMC, arguing that 65c/kL is potentially too low. Concerns were raised about the environmental costs of water supply and suggested that perhaps they had been understated in this Inquiry's LRMC

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<sup>128</sup> The Turvey "perturbation" method for calculating LRMC is described in the report from Sapere Research Group, *LRMC Pricing for Water Services - Background Paper on LRMC Pricing*, March 2014, pp.5-6.

estimates. Calls were also made for further information to be released about the inputs into the LRMC calculations, including information on costs per supply source.

In response to those concerns the Inquiry acknowledges that, as with all forecasts, there is uncertainty about the value of the estimated LRMC. However, while there is a risk of forecast error, the magnitude of that error is insignificant relative to the gap between current usage charges and the “true” LRMC of drinking water. The Inquiry has estimated the uncertainties and risks associated with each of the key LRMC inputs. That information has been taken into account in forming the view that even a conservative LRMC estimate would produce a value below \$1.00/kL, still less than a third of the current tier 2 price.

In considering the environmental concerns raised in submissions, it is noted that all environmental costs that are attributable to and incurred by SA Water have been reflected in the proposed prices, including the LRMC-based usage charge. The estimated LRMC includes the cost of various environmental levies paid to NRM boards. Those levies represent around 2c/kL of the Greater Adelaide LRMC of 62c/kL.

While there may be other environmental costs not incurred by SA Water, it would not be appropriate to include an estimate of those costs in its prices through the LRMC. This is because their inclusion would only lead to SA Water recovering excessive revenues. A key requirement of building environmental externalities into pricing is that the revenue recovered should be directly linked to the relevant environmental management activity.

The Inquiry does, however, agree with those submissions that suggested that more work could be done to identify relevant environmental costs and ensure that those costs attributable to SA Water are allocated properly. This matter is discussed further in Chapter 9, which deals with water planning and management charges.

#### *Quantifying the benefits of LRMC-based usage prices*

As explained previously, the LRMC represents forecast costs; it does not include the value of past investments, which are irrelevant to the determination of the cost of additional usage. It also includes only those forecast costs that are attributable to an increase in consumption. There may be a range of costs not driven by consumption and excluded from the LRMC. They should be recovered through fixed charges.<sup>129</sup>

Based on those estimates, under current water usage charges, consumers are likely to be paying much more per kilolitre than the cost of supply. They are, therefore, likely to be using less water than is economically efficient from a personal, business or community perspective.

As suggested above, the low cost of supplying water to meet additional demand is not surprising, given the capacity expansion resulting from the construction of the ADP. In normal weather, SA Water’s customers use about 180GL of water a year. SA Water has

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<sup>129</sup> See Appendix 6 for further detail on the economically efficient basis for setting prices to recover various types of costs, including usage costs and connection costs.

about 200GL of storage capacity in its reservoirs, 100GL in capacity from the ADP and it can also purchase unlimited water entitlements from the River Murray, depending on flows.

As the capacity to supply exceeds normal demand, the cost of meeting additional demand is relatively low. While the LRMC was likely to have been much greater during the drought and before the construction of the ADP (SA Water estimated it to be between \$2.00/kL and \$2.75/kL at that time), it was estimated at an even lower amount prior to that period.

Under current usage charges, all three tiers are well above the best current estimates of LRMC.

The lowest usage charge of \$2.32/kL does not represent a subsidised price to meet essential human needs. It is, in fact, discouraging the use of water to meet essential human needs.

The highest usage charge of \$3.59/kL is more than five times the current best estimate of LRMC. While some submissions supported a high third-tier charge to discourage discretionary water use, economic efficiency would suggest that discretionary usage should be encouraged where the benefits of that use exceed the costs, including environmental costs. Setting the price at LRMC would encourage that behaviour and maximise the net benefits to all consumers.

Even under a statewide pricing regime, the overall net benefit to the South Australian community of introducing a single usage charge – at the best current estimate of the Greater Adelaide LRMC – is approximately \$25m per annum; or an NPV of around \$420 million).<sup>130</sup> This reflects the value to all consumers of the additional water that would be consumed under lower prices, less the cost of producing that additional water and the cost to households from increased fixed charges, which would need to offset lower usage charges if current revenues were to be maintained. (See Section 6.1.3.3)

As discussed earlier, other non-quantifiable benefits are likely to result from LRMC-based usage charges, including better investment decisions by consumers and SA Water.

While the quantifiable net benefits of cost-reflective usage charges are small relative to the value of the South Australian economy (with an annual Gross State Product of about \$95 billion<sup>131</sup>), they are nevertheless real economic benefits. Each opportunity for reform of this magnitude, if pursued, would quickly add up across the whole economy. Furthermore, these benefits are material in the context of the South Australian water sector and have the potential to provide the impetus for future investment across a range of industries.

The benefits of cost-reflective pricing are most likely to accrue to high water users, such as producers of livestock, grapes and other horticultural industries.

Households may receive benefits from additional consumption, depending on the extent to which discretionary water usage can increase. Many households have, however, installed

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<sup>130</sup> Estimated by this Inquiry over a 25-year period.

<sup>131</sup> Australian Bureau of Statistics, *Australian National Accounts: State Accounts 2012/13*, p.13; available at: [http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/154DF709B44199D0CA257C3000115973/\\$File/52200\\_2012-13.pdf](http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/154DF709B44199D0CA257C3000115973/$File/52200_2012-13.pdf).

water efficient appliances and reduced the size of their gardens, and this would limit their ability to increase water usage significantly in the short to medium term.

However, under a revenue-neutral approach, fixed charges would need to increase significantly to recover the revenue that would be foregone if usage charges were reduced. An increase in fixed charges would have an impact on all consumers and reduce their capacity to buy other goods and services. This would partially offset the economic efficiency benefit from lowering usage charges, although the overall net benefit to the community would still be positive (approximately \$30 million per annum). Further detail on the setting of fixed charges is discussed in Section 6.1.3.3.

### *Price elasticity of demand*

A critical input to the calculation of an LRMC is the extent to which customers modify their consumption based on a change in price. This is called the “price elasticity of demand”. In estimating this elasticity for water in South Australia, the Inquiry has examined:

- ▲ empirical studies that have produced a wide range of estimates
- ▲ the many factors that influence elasticity, including economic and social factors
- ▲ longer-term impacts, including water efficiency improvements and changes in customer behaviour resulting from a period of water restrictions. (This may limit the extent to which demand increases in the future in response to any fall in prices.)
- ▲ the fact that price rises have often, historically, been accompanied by water restrictions. (It is difficult to separate the role of price in the demand response in these situations.)
- ▲ the time period being analysed, which can lead to varying estimates of price elasticity.

Estimates of price elasticity of demand vary substantially across empirical studies. As part of its Regulatory Business Proposal for the SA Water PD 2013, SA Water submitted a demand model that found it ranged from -0.28 to -0.37 across its customer classes.<sup>132</sup> This model was designed to be reliable for the three-year regulatory period to mid-2016, rather than the longer term, and was based on the current usage charges.

SA Water’s proposal was also based on estimates from other empirical studies, which found that price elasticity of demand from residential customers in the short term ranged from -0.1 to -0.5. It found that demand was more price-elastic in the long term and/or for outdoor usage, citing findings that ranged from -0.70 to -1.45. Additionally, it found that in a total of 32 international studies, estimates of the price elasticity of residential demand ranged between -0.03 and -1.63.

The most recent major Australian study was by Abrams et al in Sydney in 2011. They found that the short-run price elasticity of demand was -0.09 at \$2.00 per kL, moving to -0.18 in

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<sup>132</sup> SA Water, *Regulatory Business Proposal 2013, Attachment E.1 Demand Forecasting Methodology: SA Water Regulatory Business Proposal 2013*, p.56, available at: [http://www.escosa.sa.gov.au/library/121011-E1\\_SAWaterDemandForecastingMethodology.pdf](http://www.escosa.sa.gov.au/library/121011-E1_SAWaterDemandForecastingMethodology.pdf)

the long run at \$2.00 per kL.<sup>133</sup> They also found that demand became more price-elastic as prices increased.

Expert advice from Sapere on the price elasticity estimate to be used for the purposes of calculating LRMC suggests that demand is likely to be less responsive to price than that predicted through SA Water's demand model, and is at the less elastic end of the -0.03 to -1.63 range.

Sapere has assumed that a significant reduction in usage charges would lead to a 30 per cent demand increase over five years, or around a five per cent demand increase in the first year of LRMC pricing. This implies a short-run price elasticity of demand of -0.033 and a long-run elasticity of -0.172. These are relatively inelastic when compared to the empirical studies discussed above.

The Inquiry has adopted these conservative estimates to minimise the possibility of overstating the benefits that accrue from LRMC pricing. It has taken this approach noting that there do not appear to be any studies assessing the impacts of reducing usage charges by the magnitude it proposes. Furthermore, empirical studies have focused on demand changes in response to price *rises*, and there do not appear to be any comprehensive studies of demand for water after *falls* in price.<sup>134</sup>

While the Inquiry's estimates differ from the residential price elasticity figure of -0.28 used in SA Water's demand model, that modelling was undertaken based on usage charges that are much higher than the 65c/kL current best estimate of LRMC. Given the evidence that demand becomes more responsive to price changes as usage charges increase, it is reasonable to expect a more elastic estimate from SA Water's three-year model.

Based on a short-run price elasticity of water demand of -0.033, a reduction in the usage charge to 65c/kL in South Australia would lead to a short-run increase in consumption of around five per cent. This would produce a net benefit (above the short-run cost of supply) of \$11.75 million per annum.

The long-run price elasticity of demand of -0.18 reflects the increased ability of consumers to change water use behaviour over time in response to price changes. A reduction in the usage charge to 65c/kL would be expected to produce a net benefit (above the long-run cost of supply) of around \$39 million per annum (\$645 million in NPV terms). Further information on the calculation of these net benefits is provided in Appendix 2.

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<sup>133</sup> Abrams, B., Kumaradevan, S., Sarafidis, V. and Spaninks, F. *The Residential Price Elasticity of Demand for Water, Joint Research Study*, Sydney, February 2011, p.7.

<sup>134</sup> There are, however, some studies of the change in demand in response to rises and falls in oil prices that have found consumers will respond more to price rises than to price falls. For example, Gately and Huntington (2002) found that demand in OECD countries responds much more to increases in oil prices than to decreases. More recently Sentenac-Chemin (2012) found empirical evidence that for gasoline prices households are more sensitive to price increases than decreases.

### *Implications for water security and water conservation*

Various submissions raised concern about the implications of lower usage prices on water conservation. Those submissions discussed the conservation measures used during the drought and the desire to maintain a diligent approach to water management. They argued that a significant reduction in water usage prices could discourage water conservation and promote environmentally irresponsible consumption decisions.

In response to those submissions, it is reiterated that an economically efficient price is one that promotes consumption where the benefits of consumption outweigh the costs, including all environmental costs. Discouraging consumption, even where the benefits exceed the costs, is not an economically efficient outcome.

Cost-reflective water pricing promotes efficient use of water and better decision making around future capacity expansions. In that sense, it can help promote an efficient level of water security.

Ensuring that SA Water has access to secure supplies of water is important, but an acceptable balance between the level of water security and its cost must be found. For example, if the level of water security is too low (i.e. there is insufficient capacity in the water systems to meet demand at peak times), customers may not be able to receive an essential service. If the level of water security is too high (i.e. the capacity available in the system far exceeds demand even at peak times), consumers may be paying for infrastructure that will never be required.

Setting LRMC-based usage charges that can be raised during times of emerging water scarcity will promote the optimal level of water security. It sends the correct price signal to consumers about the cost of consumption and sends the right signal to SA Water about its investment in water supply infrastructure. This is because revenues from usage charges will reflect the utility's future costs.

As discussed earlier, this Inquiry has sought to ensure that all quantified environmental costs attributable to, and incurred by, SA Water are reflected in drinking water prices. Should any additional environmental costs be "internalised" within SA Water, it would be appropriate to include those costs in prices.

### *Setting a single usage charge above LRMC*

Some submissions supported setting usage charges above LRMC to promote water conservation and to give customers greater control over their bills. In the extreme, if there was only a usage charge (and no supply charge) a customer could avoid SA Water's drinking water charges entirely by not using any water.

This Inquiry has considered the option of setting a single usage charge at a level above the estimate of LRMC, including the option of an all-volumetric charge.

Setting usage charges above LRMC will result in the recovery of not just marginal usage costs, but other costs incurred in supplying drinking water. A price that comprised only a usage charge would need to recover all of SA Water's costs, including its fixed costs.

While this may be consistent with a water conservation objective, it is not consistent with the principle of economic efficiency, as the decision to consume additional water only influences marginal costs, not fixed costs. Pricing water above marginal cost would encourage consumers to reduce water consumption even though the benefit of consumption may exceed the cost of supply, including environmental costs.

In addition, while the option of an all-volumetric charge would certainly aid bill control, it would only increase the extent to which large water users cross-subsidise small users. It is therefore not surprising that many residential customers favour that approach, as it would ensure that large users continued to pay a disproportionate amount of SA Water's fixed costs. Further discussion of the bill control argument is set out in Box 6.3 below.

**Box 6.3: Pricing to achieve bill control**

Some submissions argued for high usage charges to deliver greater control of their water bills.<sup>135</sup> Some customers feel that the decisions that they have made to change their water consumption behaviour (for example, by installing water efficient devices, or by avoiding watering their garden) should be rewarded through reductions in their bills, at a level greater than they currently experience.

Under the proposal for a single tier price of around \$0.65c/kL, many of these customers concerns would be exacerbated, as the fixed charge component would be a far greater proportion of their bill than currently (assuming the same water usage).

However, there would be some significant impacts for all customers if these customers' preference for greater control was to be met. This approach to pricing would not be economically efficient, as it would allow some customers (those that were able to reduce their usage to a certain level) to receive a water supply service at a charge less than the costs of providing that service. This would entrench and promote cross subsidies and would therefore not be in the long-term interests of consumers.

Enabling greater "bill control" would require an artificial increase in the water usage charge above cost-reflective levels. This would give some customers, especially those with high discretionary water usage, greater ability to avoid costs. However, it would also allow those customers to avoid paying their fixed costs in full. In effect, this would provide them with a discount that would need to be paid for by other customers. These other customers are likely to be those who choose to use more water, or those who have low discretionary water use and cannot avoid using "high" levels of water (for example, large families or people who live in low rainfall areas).

Furthermore, under a model where the water usage component is used to recover some of SA Water's fixed costs, all customers would have an incentive to use less. Assuming

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<sup>135</sup> For example, the Commission heard this view from some customers during its public forums. Also refer to *Customer preferences in setting tariffs*, Yarra Valley Water, presentation to the ACCC/AER 2014 Regulatory Conference, available at <http://www.accc.gov.au/about-us/conferences-events/accc/aer-regulatory-conference/accc-aer-regulatory-conference-2014>.

enough customers responded to that price signal and reduced their usage, prices would need to rise from year to year to ensure that sufficient revenue was collected. Such a model for bill control could, therefore, deliver price volatility.

In conclusion, to maximise economic efficiency, fixed costs should include the (efficient) costs associated with the water supply service that cannot be avoided and do not vary according to water use. The usage component should recover the (efficient) marginal costs of supplying that water and should not include any fixed costs. This is because the decision to use, or not use, water will have no bearing on those fixed costs.

### *Implications for alternative water sources*

Some submissions raised concerns about the effect that a reduced drinking water usage charge would have on alternative water sources. It was argued that projects supplying non-potable water (for example, recycled stormwater) might become uneconomic if usage charges were reduced to cost-reflective levels. It was also suggested that it would be necessary to compensate existing alternative water providers who would no longer be viable under a cost-reflective pricing regime.

Some submissions also questioned how restructured drinking water charges would impact other arrangements, including water carting, and customers paying non-standard prices because they receive a non-standard service (for example, SA Water's "country lands" customers).

With respect to alternative water supplies, the Inquiry has found that there is a net benefit in setting cost-reflective drinking water usage charges to ensure that all investment decisions are based on the appropriate price signal. This includes investment in recycled water and other alternative water sources. If those other projects have a higher cost than the supply of drinking water, the price signals for investment should reflect that. To the extent that there are environmental benefits from promoting alternative supply sources, those projects should be pursued only if those benefits exceed the costs. Current drinking water usage prices distort the net benefit from alternative sources.

The Inquiry received submissions suggesting that existing alternative water schemes should be compensated if they became uneconomic as a result of a shift to cost-reflective pricing. While that concern does not undermine the Inquiry's position on the benefits of more cost-reflective pricing, it is acknowledged that the Government may need to consider whether or not previous investments have been made on an expectation that pricing and other water policy arrangements would support them.

Finally, a single LRMC-based usage charge should apply to all customers, if the marginal cost of supplying those customers is the same. If the marginal cost of supplying some customers differs from others, there is merit in considering a different usage charge to reflect that different marginal cost. The benefits of greater cost-reflectivity would, however, need to be considered against the administrative cost of implementing different prices for different customers.

The LRMC of supplying water used by water carters is likely to be the same as for other customers, given that the source of water is the same. It would also be appropriate for the carters to contribute to the fixed infrastructure costs through a fixed charge, as discussed later in this chapter.

### *Usage charges during times of scarcity*

While it is generally recommended that LRMC-based usage charges be implemented, there are times when it is likely to be beneficial to implement SRMC-based pricing. In particular, in times of emerging water scarcity, the SRMC of supply is likely to increase well above the LRMC. To give consumers the right price signal about usage as water becomes more scarce, the Inquiry recommends allowing usage charges to increase during those times to reflect the higher marginal cost of supply. This is consistent with the objective of economic efficiency.

The net benefit of introducing a scarcity charge will depend on the extent to which SRMC exceeds the LRMC. For example, the SRMC of supplying water from the ADP is greater than the \$0.62/kL LRMC estimate for Greater Adelaide. When the plant is required to operate to meet demand, the net benefit of increasing the usage charge to SRMC would be in the order of \$318,000 (NPV) overall, or around \$19,000 per annum.

The net benefit is small in this case, because the LRMC already incorporates an expectation of the ADP running at some time in the future and therefore the difference between the LRMC and SRMC is not large. (Further detail on calculating the net benefits from scarcity pricing is provided in Appendix 7.)

Despite the net benefits being small, the alternative approach of using demand management (for example, water restrictions) to ration demand is very expensive. The Productivity Commission has estimated that the cost of level 3a restrictions in Melbourne creates a net cost to that city of up to \$1.5 billion over a 10-year period.<sup>136</sup> Likewise, the cost to consumers in Sydney in 2004-05 from mandatory water restrictions was estimated to be \$235 million, equivalent to around \$150 per household in that year.<sup>137</sup>

Those costs arise because water restrictions target activities such as gardening, regardless of the value individuals place on their gardens. Water restrictions also carry costs associated with their implementation and enforcement. Those costs could be reduced if scarcity pricing was included in the suite of measures used by the Government to reduce demand when necessary. It would lessen the need for mandatory water restrictions.

It is possible that scarcity pricing would deliver greater benefits in regional areas where the SRMC of marginal production in times of scarcity is often much higher than in the metropolitan area. However, regional areas have fewer customers and the benefits would need to be weighed against the costs.

The implementation of a single usage charge would help customers understand the difference between the cost of using water at times of emerging scarcity and at other times.

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<sup>136</sup> Productivity Commission, p.192.

<sup>137</sup> See, for example, Grafton, Q. and Ward, M. *Prices versus Rationing: Marshallian Surplus and Mandatory Water Restrictions*, September 2008, *The Economic Record*, Vol. 84.

It may be more difficult to understand those costs when there are multiple usage charges, as is currently the case.

Some submissions argued against scarcity pricing on the basis that it is not a viable option for businesses because they have limited capacity to alter their usage in response to price increases during times of shortages.<sup>138</sup>

As discussed earlier in this chapter, the price elasticity of demand for water is generally low and for some customers (for example, industrial customers with inflexible production processes), it may be very low. However, that does not mean that there is no net benefit from scarcity pricing. An alternative is to use non-price means of restricting demand, which may be even more costly to an industrial user than scarcity prices. As stated by the Productivity Commission:

*An inelastic demand indicates that consumers place a high value on additional water consumption. This suggests that the welfare of society would be larger if supply were augmented to satisfy demand, rather than restrict demand. Indeed, the more inelastic demand is, the greater the costs to the community of restricting demand and not allowing flexible prices to signal the need for investment in supply augmentation.*<sup>139</sup>

While any scarcity price would reflect the additional cost incurred by SA Water in supplying water in times of drought, it may lead to over-recovery of revenues in the long run. This is because SA Water would earn LRMV that factors in the use of the ADP at most times, but would also earn a scarcity premium at other times.

It is therefore necessary to offset the additional revenue produced by the higher scarcity charge to ensure that SA Water recovers no more than the LRMV. The proposed means of doing that is through a reduction in the fixed charge during times of scarcity. This would provide the correct short-run price signals and achieve recovery of efficient costs in the long term. It would also provide customers with reasonably stable bills, despite the circumstances. The administrative costs of changing prices to account for scarcity has been taken into account in this Inquiry.

Various implementation issues are associated with scarcity pricing. They include defining the trigger point for introducing such a price and the communications program that would be needed to complement it. Those issues would require further detailed consideration should this recommendation be adopted.

### **6.1.3.3 Implications of usage charges for fixed charges**

This Inquiry has considered all fixed charges relevant to SA Water's supply of drinking water and sewerage services. They include:

- ▲ supply charges

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<sup>138</sup> Business SA, Submission to the Issues papers, p.2.

<sup>139</sup> Productivity Commission, p.173.

- ▲ connection/disconnection charges
- ▲ augmentation charges.

As noted in the previous section, given a fixed, prudent and efficient revenue requirement for SA Water (less CSOs paid by the South Australian Government) and assuming that usage charges are set to recover only those costs associated with the marginal cost of consuming water, supply charges should recover the difference between this revenue requirement and the revenue recovered through usage charges and other fixed charges (such as developer charges).

Supply charges do currently recover that gap, although as shown in the previous section, current usage charges are not cost-reflective.

Noting the economic efficiency benefits that would accrue from setting a single water usage charge based on a current best estimate of LRMC, it is nevertheless acknowledged that this would have profound impacts on supply charges.

In combination, usage charges and supply charges across all customers would deliver to SA Water the amount of revenue required to operate its business in a prudent and efficient manner. Assuming the required revenue amount *was* prudent and efficient – and maintained at the same level – a reduction in the amount of overall revenue recovered through usage charges would mean that the amount that had to be recovered through supply charges would increase.

Reducing the usage charges to the current best estimates of LRMC (at 65c/kL) would significantly reduce the amount of revenue earned by SA Water from usage charges. To maintain the same overall revenue, this would require a material increase in supply charges. Overall, this would generally lead to lower bills for high water users and higher bills for low water users.

This recommended reform of usage charges cannot, therefore, be considered in isolation of supply charges.

As noted in the previous section, if water usage charges were to decrease to the best estimate of LRMC (currently 65c/kL), supply charges would need to increase by more than 200 per cent (from \$274.80 per annum to around \$843 per annum for a residential customer, 2013-14 comparison).

This would have dramatic social impacts, with the majority of residential customers paying significantly higher supply charges even though their overall usage charges would fall. This could act as a major impediment to the introduction of a single LRMC-based usage charge for all customers.

### *Capacity-based supply charges*

Efficient supply charges can play an important role in the South Australian economy. As discussed in the submissions provided by Woolworths Ltd and the Shopping Centre Council

of Australia (**SCCA**), SA Water's high water prices, including high supply charges, increase the cost of doing business here relative to other states.<sup>140</sup>

Water supply charges would have some impact on the decisions of customers to connect or disconnect from SA Water's network. While it is likely to be smaller than the impact usage charges have on consumption decisions, it is nevertheless still present. The water supply charge for commercial customers is currently based on property value and is unlikely to reflect the fixed costs of providing drinking water services. For commercial customers, the case for an alternative, more cost-reflective supply charge is strong.

It is recommended that drinking water supply charges be set based on the capacity requirements of customers rather than on the value of the properties receiving the service. This would promote cost-reflective pricing and increased economic efficiency. SA Water raised the option of charging fixed costs based on meter size in its submission to the Inquiry Issues Papers.<sup>141</sup>

Connection and distribution costs depend on the capacity requirements of the customer – the greater the requirement, the more substantial the infrastructure required. As capacity is a cost driver of connection and distribution infrastructure (assets), it is consistent with the principles of cost-reflective pricing and economic efficiency to set the supply charge based on a customer's capacity requirement.

The vast majority (approximately 92 per cent) of customers have a 20mm water connection and the supply charge will therefore be the same for most of them. In circumstances where a larger connection is required (for example, up to 300mm for industrial customers), the supply charge should increase to reflect that greater requirement.

Under the proposed recommendation, a property with multiple connections would pay a supply charge for each one, as each connection provides additional capacity. The customer should pay for the provision of that additional capacity.

In relation to the proposal for capacity-based supply charges, some submissions noted that meter sizes may not be appropriate in all cases and that there should be an opportunity for customers to change meter size if necessary. It was argued that, if customers have excess capacity for their needs, they should be given an opportunity to reduce that capacity. This behavioural response is entirely consistent with the promotion of economic efficiency.

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<sup>140</sup> Both submissions are available at <http://www.escosa.sa.gov.au/projects/189/inquiry-into-drinking-water-and-sewerage-retail-services-pricing-reform.aspx>.

<sup>141</sup> SA Water, submission to the Issues Papers, p.19.

**Table 6.4: Proposed statewide meter-based annual water supply charges**

METER SIZE (MM)	CAPACITY (FACTOR RELATIVE TO 20MM) <sup>142</sup>	STATEWIDE ANNUAL WATER SUPPLY CHARGE (\$)
15	0.56	474
20	1.00	843
25	1.56	1317
32	2.56	2157
40	4.00	3371
50	6.25	5266
80	16.00	13,482
100	25.00	21,066
150	56.25	47,398
200	100.00	84,264
300	225.00	189,593

#### 6.1.3.4 Other fixed charges

Other fixed costs resulting from the decisions of customers and developers should be recovered through fixed charges. Details of those costs and their drivers are set out in Appendix 6.

The decision to develop land generally requires extension and/or augmentation to existing infrastructure (water assets). The full incremental cost of this should be borne by the developer.

Once infrastructure is in place, a customer can choose to connect to it, in which case any connection and account establishment costs can be recovered from them. When a customer decides to disconnect from the network, any disconnection and account finalisation costs can also be recovered directly from them.

All of this ensures that decision-makers incur the cost of their decisions and this promotes economic efficiency.

<sup>142</sup> The capacity factor has been calculated using the formula to determine the area of a circle (area =  $\pi r^2$ ).

### 6.1.3.5 General equilibrium modelling of efficient water prices

Noting the potential impacts described above, this Inquiry has sought to model more fully the nature and incidence of those impacts. This has been done in two ways.

First, a CBA has taken into consideration varying the water usage charge only, with incomes and prices of all other products in the economy held fixed (a partial equilibrium analysis). The CBA modelled the consumption impact of adopting an efficient water usage charge (a variable charge) significantly lower than the current level of water tariffs.

However, the requirement to achieve a similar revenue outcome for SA Water means that there would be a large increase in the value of the fixed component (supply charge) of a residential customer's bill if low usage charges were implemented. It is important to also model any impact this might have. A general equilibrium model has therefore been used to capture effects on the broader economy, including the potential income effect of a higher supply charge.

This section reports on the results of modelling undertaken to assess the potential general equilibrium outcome of changing drinking water prices and attempts to identify the impact on the efficiency or productiveness of the South Australian economy. Importantly, this analysis is designed to identify the net impact of reducing the water usage charge (recommended to be set at LRMC) and a corresponding increase in level of supply charge (to maintain the financial viability of SA Water).

The general equilibrium modelling was performed by the Centre of Policy Studies (**CoPS**) at Victoria University using its multi-regional dynamic CGE model, called TERM. A copy of the CoPs report detailing the modelling results has been released with this paper.<sup>143</sup>

The following three scenarios were modelled:

- ▲ *Non-drought scenario* – identifies the welfare impacts of the recommended LRMC pricing option (including corresponding increase in supply charge), without the requirement to run the ADP. This scenario is designed to isolate the impact of pricing at LRMC.
- ▲ *Scarcity pricing scenario* – building on the non-drought scenario to model the welfare impact of the ability to also introduce short-term price increases to deal with drought events.
- ▲ *Reduced fixed costs scenario* – building on the scarcity-pricing scenario to model the welfare impacts of maintaining the level of LRMC costs but reducing the amount of fixed costs by \$310 million. This scenario is designed to identify the extent of the welfare effect were it possible to reduce the level of non-LRMC costs through efficiencies or some other means.

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<sup>143</sup> Glyn Wittwer, *Modelling the economic impacts of changing SA Water's pricing*, CoPS, Victoria University, June 2014; available at <http://www.escosa.sa.gov.au/library/140711-WaterInquiry-ModellingEconomicImpactsChangingPricing-VicUni-ConsultantReport.pdf>.

The results of the modelling for these scenarios are provided in Table 6.5.

**Table 6.5: Welfare gains**

SCENARIO	WELFARE IMPACT – (\$M) PER ANNUM
Non-drought	25
Scarcity pricing	31
Reduced fixed costs of \$310 million	120

The results for the first two scenarios, based on the existing level of SA Water costs, show a positive welfare effect of around \$30 million per annum. This supports the positive NPV associated with the Inquiry’s CBA that provided an estimate of net benefits of around \$40 million, (based only on modelling the impact of a lower water usage charge).

The third scenario produces a higher positive welfare effect of around \$120 million, which demonstrates the potential to achieve higher benefits for the South Australian economy should it be possible to reduce the level of non-LRMC costs. The reduction in fixed costs (\$310 million) would represent a reduction of around 50 per cent on the current fixed component of revenues.

The third scenario has been included to demonstrate that significant efficiency benefits could be achieved through cost reductions, in addition to making prices more reflective of current costs. The ongoing review of the prudence and efficiency of SA Water’s costs through the price determinations conducted by the Commission is critical to promoting greater economic efficiency.

**6.1.4 Customer bill impacts**

Many submissions highlighted the need for support to be provided to lower water users and low income customers should SA Water’s drinking water usage charges be reduced and supply charges increased.

Implementing more economically efficient drinking water prices would lead to an unwinding of cross-subsidies between customer groups.

While it is common for cross-subsidies to be built into utility prices for social policy reasons, economically efficient prices would not contain cross-subsidies. This would ensure that all customers face prices that reflect the efficient cost of supply.

Table 6.6 summarises the magnitude of the cross-subsidies between different customer groups resulting from current prices. It is based on a comparison of current revenues with those that would result from LRMC-based usage charges and capacity-based supply charges. It shows that residential customers are currently being subsidised by all other customers. The amount of the cross-subsidy is around \$93 million per annum which, when allocated to

the approximately 70,000 non-residential customers, equates to an additional \$1330 per non-residential customer per annum.

In reaching that finding, assumptions have been made about the appropriate basis for allocating fixed costs between customer types. This assumes that fixed charges that were not based on capacity would lead to a cross-subsidy between customer groups. This is because those customers with greater capacity are not paying their share of the total cost of providing capacity, and this is a significant cost to SA Water.

A commonly accepted definition of a cross-subsidy is where a customer is either paying less than the incremental cost of supply, or more than the stand-alone cost of supply. It is likely that few customers would meet that definition of a cross-subsidy, given that the incremental cost of supply is generally very low (for example, the cost of a service pipe, meter and water consumed) and the stand-alone cost is likely to be very high (as it would cover all infrastructure required to supply that customer, on a stand-alone basis). That test does not involve the apportionment of existing fixed infrastructure to different consumer groups.

**Table 6.6: Cross-subsidies resulting from current drinking water prices**

	CONTRIBUTION TO TOTAL CAPACITY (%)	CONTRIBUTION TO TOTAL WATER USE (%)	CURRENT CONTRIBUTION TO TOTAL DRINKING WATER REVENUE (%)	CONTRIBUTION IF PRICES WERE COST-REFLECTIVE (%)	PERCENTAGE POINT DIFFERENCE
Residential	83	65	68	80	+12
Commercial	5	6	8	5	-2
Non-residential <sup>144</sup>	12	29	25	15	-10
Total	100	100	100	100	0

**6.1.5 Implementation**

No legislative changes would be required to implement this reform.

From a practical perspective, SA Water would need to modify its billing systems to enable capacity-based supply charges. PricewaterhouseCoopers has estimated that the implementation of the usage charge and supply charge recommendations would cost around \$650,000 and take about 33 weeks to deliver. Those inputs have been included in the CBA.

It is also suggested that, in light of the current environment where water is relatively inexpensive to produce and transport, one short-term way in which additional benefits could

<sup>144</sup> Non-residential/industrial customers including country lands customers.

be gained would be through a review of the remaining range of water conservation policies.<sup>145</sup> Those policies provide relatively costly ways of reducing reliance on mains water at a time when there is value to the community in encouraging greater use of mains water. For example, it is estimated that around \$24 million per annum is being spent on mandatory plumbed rainwater tanks for new houses and additions. Government rebates of \$200 for rainwater tanks have also led to a cost to the Government of nearly \$10 million over the life of the rebate scheme.<sup>146</sup>

The implementation of a single LRMC-based usage charge, with the scope for higher usage charges at times of emerging water scarcity, can be accommodated within SA Water's existing billing systems.

## 6.2 Regional drinking water charges

### **Final findings**

***Differentiating water usage charges by region would further enhance economic efficiency, albeit by only a small amount relative to the application of a statewide long-run marginal cost based usage charge.***

***There is unlikely to be any net benefit in setting water supply charges on a regional basis, based on existing fixed assets, although there may be benefits in allocating future fixed costs to regional customers to promote efficient investment decisions.***

### **Final recommendations**

**7. *Consideration should be given to regional long-run marginal cost -based usage charges and moving to regional fixed charges over time, noting that the additional economic benefits are small.***

### 6.2.1 Key reasons for recommendations

- ▲ The cost of supplying drinking water differs between regions of South Australia and prices should reflect those differences to promote economic efficiency.
- ▲ Relative to the option of setting a single, statewide usage charge using the best estimate of 65c/kL, applying regional LRMC-based usage charges would produce an additional net benefit to the community of around \$2.3 million per annum or \$38 million NPV in the long run. This reflects the additional value of usage that would be encouraged in low water-cost regions, as well as the value to all South Australians of reduced water usage in regions where costs are relatively high.
- ▲ Supply charges may have an impact on consumers' decisions to connect or disconnect from SA Water's network. While statewide pricing is recommended for existing assets,

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<sup>145</sup> For example, the water conservation measures prescribed in Schedule 4 of the *Water Industry Regulations 2012*; available at: <http://www.legislation.sa.gov.au/LZ/C/R/Water%20Industry%20Regulations%202012.aspx>.

<sup>146</sup> This scheme closed on 30 June 2014.

which represent sunk investments, economic efficiency is promoted by ensuring that consumers incur the costs of maintaining and replacing the new assets required to supply water to them. Those assets and costs can vary between regions.

## 6.2.2 Discussion

### 6.2.2.1 Regional usage charges

Different regions in South Australia are supplied with drinking water from different sources. The marginal cost of supplying each region will depend on each source and the costs of transport.

Submissions to this Inquiry commented on the impacts of current statewide prices on regional communities. Some expressed concern that these prices might be impacting negatively on regional communities, including schools and sporting clubs. Concerns were also raised about regional customers paying for the ADP, even though they do not directly benefit from it.

In contrast, other submissions argued that any movement away from statewide pricing to regional pricing could have undesirable impacts on regional communities. This was based on the assumption that regional prices would increase.

The Inquiry has assessed the impact of moving from statewide pricing to region-based pricing, with LRMC estimates for each region, based on information provided by SA Water, ranging between \$0.37/kL and \$2.00/kL. The estimated weighted average LRMC for the State is around \$0.65/kL, which is close to the \$0.62/kL LRMC for Greater Adelaide.

The LRMC estimates are based on long-term projections of demand and investment requirements and, as with forecasts generally, are subject to uncertainty. However, the analysis demonstrates that localised demand and supply factors drive differences in the LRMC for each region and that a cost-reflective usage charge should also differ by region.

The implementation of regional usage charges provides a much smaller economic benefit than moving to a single LRMC-based usage charge (on a statewide basis). The additional net benefit of setting regional LRMC-based usage charges (above the benefit from statewide LRMC-based usage charges) is about \$2.3 million per annum or \$38 million (NPV) in the long run. This represents the costs to the community of retaining a statewide single usage price of 65c/kL, relative to implementing regional usage prices. Those costs include the amount of inefficient water usage that occurs in each region, because usage charges do not reflect the LRMC in each region. It also takes into account an estimate of the system costs incurred by SA Water in administering regional pricing. Details of this calculation are provided in Appendix 2.

### 6.2.2.2 Regional supply charges

Currently, all customers in a particular class pay a standard supply charge, regardless of the cost of supplying that customer's region. This means that some people are not incurring the true cost of supply, and their decisions about where to locate or whether to connect to SA Water's network may be distorted.

The fixed costs of supplying drinking water to different parts of the State can vary widely due both to historical investment decisions and factors including customer density per kilometre of pipeline.

The Inquiry has considered the option of regional supply charges that reflect the different fixed costs in each region. It recommends an approach whereby regional asset values are established for new and replacement infrastructure, not for existing infrastructure (assets). New infrastructure would be added to regional asset bases and, over time, the fixed supply charges for each region would diverge from a common starting point. This approach could deliver benefits. For example, it could:

- ▲ ensure that consumers incur all future operating, maintenance and replacement costs associated with their local network assets because their decisions to remain customers drive those costs. This is consistent with the principle of economic efficiency.
- ▲ deliver pricing signals for new investment based on location – an important driver of economic efficiency. While augmentation charges would address the full incremental cost of any new connection infrastructure required, the supply charge would reinforce that price signal by recognising the ongoing fixed costs that SA Water incurs to maintain supply.

This approach does not apportion existing assets to regions: all past investments are treated on a statewide basis. As past investments have little bearing on future decision-making, there is little loss of efficiency in treating them that way.

There are practical difficulties in apportioning existing assets to different regions. SA Water's supply networks have grown over a long period of time under a regime of statewide pricing. If regional pricing had existed previously, it is quite possible that the networks would have been developed differently. For example, it may have been uneconomic to build networks to support remote townships if the costs had to be recovered from those townships. The recommended approach draws a line in the sand by spreading the existing fixed costs equally between regions, and focusing only on future costs.

The proposed approach would provide strong incentives for SA Water to consider the locational impacts of its future investments because they would be paid for by the communities benefitting from them. While this is consistent with the principle of economic efficiency, Government policy has historically been to provide regional areas either with direct subsidies or cross-subsidies, and it would need to consider whether the economic benefits from greater cost-reflectivity in regional prices outweighed the benefits of regional subsidies.

### 6.2.2.3 Impacts on competition

Statewide pricing impacts the potential for introducing greater competition to the water industry. Under the current pricing regime, any new entrant retailer may be able to cherry pick SA Water's most profitable customers, purely because prices are above locational costs. Likewise, where current prices are below the costs in a particular region, there will be a barrier to new entry.

The movement to regional pricing could facilitate competition, as it would ensure that competition was based on efficient costs, not the prevailing (non-cost-reflective) price.

Submissions have noted that the proposed "line in the sand" approach to regional supply charges initially would preserve statewide pricing of those charges and might not facilitate future competition in the water industry. While there is validity to that argument, an alternative approach considered in this Inquiry – to divide SA Water's existing RAB value into regional asset bases to deliver regional supply charges – might also either artificially encourage or discourage new entry if those regional asset values were above or below efficient levels.

Given that the development of the third-party access regime is still in its formative stages, further work will need to be done to determine how, if at all, SA Water's services and costs should be unbundled to facilitate competition. For example, it currently provides a highly secure source of water supply (through the ADP) which could either be recovered through all customers as a capacity charge or left open to competition as a bulk water charge. This matter should be considered by the Government as it pursues a state-based access regime for the water industry.

### 6.2.3 Customer bill impacts

This Inquiry has calculated the potential impacts on customer bills that would result from reducing usage charges to LRMC, establishing regional usage charges and setting supply charges based on the number and size of meter. These impacts have been calculated based on an assumption that consumption does not change. They are therefore driven solely by price changes, not changes in demand.

Table 6.7 highlights the significant bill increases that many customers, including residential and concession holders, would face. Such increases would be driven primarily by the unwinding of the current cross-subsidisation between large water users (e.g. industrial customers) and low users. Moving to economically efficient prices would produce significant social and political challenges for the South Australian Government in the short term and, if this new pricing structure were to be adopted, an essential complement would be direct assistance for financial hardship customers.

**Table 6.7: Bill impacts of combined water usage and supply charge changes, including regional usage charges**

CUSTOMER TYPE <sup>147</sup>	METROPOLITAN <sup>148</sup>			REST OF STATE <sup>149</sup>		
	Increases greater than \$50 p.a.	Decreases greater than \$50 p.a.	Average bill change \$ p.a.	Increases greater than \$50 p.a.	Decreases greater than \$50 p.a.	Average bill change \$ p.a.
Residential	63%	30%	+\$112.30	77%	18%	+\$230.13
Industrial	44%	54%	- \$1,007.82	56%	41%	-\$699.46
Commercial	43%	54%	-\$551.91	72%	25%	+\$187.97
Concession <sup>150</sup>	79%	18%	+\$219.20	85%	13%	+\$274.71
Exempt <sup>151</sup>	41%	49%	-\$211.18	61%	31%	+\$35.95

#### 6.2.4 Implementation

Regional drinking water charges would require SA Water to modify its billing systems. PricewaterhouseCoopers has estimated that the system changes needed to support regional pricing would cost SA Water around \$870,000 and take 34 weeks to deliver.

The current policy of statewide pricing is set out in a direction from the Minister for Water and the River Murray to SA Water, pursuant to Section 6 of the Public Corporations Act. To implement regional pricing, a variation to the direction, or a new direction, would be required.

The movement towards more cost-reflective drinking water charges would involve the removal of cross-subsidies that have to date largely been borne by businesses and this would have material financial impacts on most households. If prices were to be adjusted immediately, for example, the overall average impact on residential customers would be bill increases of around \$110 per annum (with more significant impacts on concession customers). Recognising the long-term benefits of the proposals as well as these transitional

<sup>147</sup> Excludes multiple metered, “country lands”, memorial gardens, swimming pools and other customers receiving individualised charges.

<sup>148</sup> Metropolitan is defined as Greater Adelaide (refer to the WIZ/WWAS areas in Appendix 8).

<sup>149</sup> Includes all LRMC regions, except Greater Adelaide, as they are outlined earlier in this chapter and depicted in Appendix 8.

<sup>150</sup> A fixed concession of \$195 p.a. has been applied to the water connection supply charge for concession customers. See Appendix 8 for more information.

<sup>151</sup> A fixed remission of \$354 p.a. has been applied to the water connection supply charge for exempt customers. See Appendix 8 for more information.

impacts, the Inquiry has considered implementation options that would ameliorate the financial impacts, avoid price shocks and allow an orderly transition over time.

As discussed elsewhere in this report, the magnitude of the financial impacts would be driven largely by the extent to which usage charges were above cost-reflective levels. Whereas about 85 per cent of SA Water's total drinking water costs are fixed, only 28 per cent of its drinking water revenue is derived from fixed charges and about 68 per cent comes from usage charges. This highlights the challenge faced by the Government in moving to more economically efficient prices.

While the majority of the resultant economic efficiency benefits would come from lowering usage charges to the current best estimate of LRMC, the associated increase in fixed charges creates the greatest impact in terms of bill increases for most customers, particularly households and concession customers. There is, therefore, a direct trade-off between promoting greater economic efficiency and limiting bill increases for small customers.

Possible options for transitioning reform are discussed in the section below. They are all based on the assumption that SA Water's revenues are not impacted. As discussed in Chapter 1, the Government also has other options, such as reviewing the value of SA Water's regulated asset base.

### *6.3 Transitional options for drinking water charges*

Of all of the Inquiry's recommendations, the recommended drinking water price reforms have the greatest economic efficiency benefits. However, they also have the greatest effect on bills.

To ameliorate those impacts, the Government could adopt more modest reductions in drinking water usage charges than this Inquiry recommends and this would result in smaller increases in supply charges. This would be a transitional approach to achieving the recommended reforms.

Three options that involve more modest reductions in drinking water usage charges have been identified:

1. Combine three residential usage charges into a single charge (e.g. \$3.17/kL, the weighted average of the current tiers), while maintaining it at the current average usage price. This would keep the supply charges at current levels.
2. Implement a single usage charge for all customers at \$2/kL. This would lead to moderate increases in water supply charges.
3. Implement a single usage charge for all customers of \$1/kL. This would lead to greater supply charge increases, but not as great as under the option of moving to the recommended LRMC.

Under each of the options above, it is assumed that the property-based commercial supply charge does not apply. By removing that charge, the revenue recovered from property-

based commercial charges would need to be recovered from other customers, if revenues were to be maintained. The options also assume that statewide pricing is maintained.

In identifying these transition options, the Inquiry has not proposed a timetable or process for their introduction. The options simply represent points along the pathway to cost-reflective drinking water prices. It is open to the Government to decide which of these, or others, it might adopt in practice, along with the associated timeframe for transition.

The options highlight the trade-off between economic and equity impacts of price reform under an assumption of revenue neutrality. There are no reform options that could unlock significant economic efficiency benefits without leading to increased bills for low users. This is because the greatest economic benefits come from unwinding the existing cross-subsidy between small and large users.

**6.3.1 Impacts on the economy**

The estimated net economic benefit of implementing cost-reflective pricing, based on an LRMC of 65c/kL, is \$30 million to \$40 million per annum. The economic impacts of moving from current prices to a single usage charge of \$3.17/kL, or \$2/kL or \$1/kL is expected to be approximately linear, given an assumed constant price elasticity of demand and constant income effect. Therefore, the estimated economic benefits arising from the alternative transition options are as follows:

**Table 6.8: Economic benefits of transition options**

USAGE CHARGE	ECONOMIC BENEFIT
\$3.17/kL	Low <sup>152</sup>
\$2/kL	\$15m-\$20m p.a.
\$1/kL	\$30m-\$40m p.a.

**6.3.2 Impacts on customers**

Figures 6.3 to 6.6 below show the bill changes that would result under each transition option. The figures show the distribution impacts across all customers. Bill impacts for particular customer groups under each option (e.g. residential customers) are presented in Appendix 9.

The figures show that the options that maintain higher usage charges (and lower supply charges) have less of an effect on customers’ bills. For example, the proportion of customers that would see a very significant bill increase is higher under option 3 (based on a single

<sup>152</sup> There may be a small economic benefit from improved consumption decisions arising from a single usage charge, even if that charge is set at the current weighted-average price of around \$3/kL. As discussed previously, inclining block tariffs may provide a confusing price signal to customers and a clearer signal about the marginal price of water may lead to more informed consumption choices.

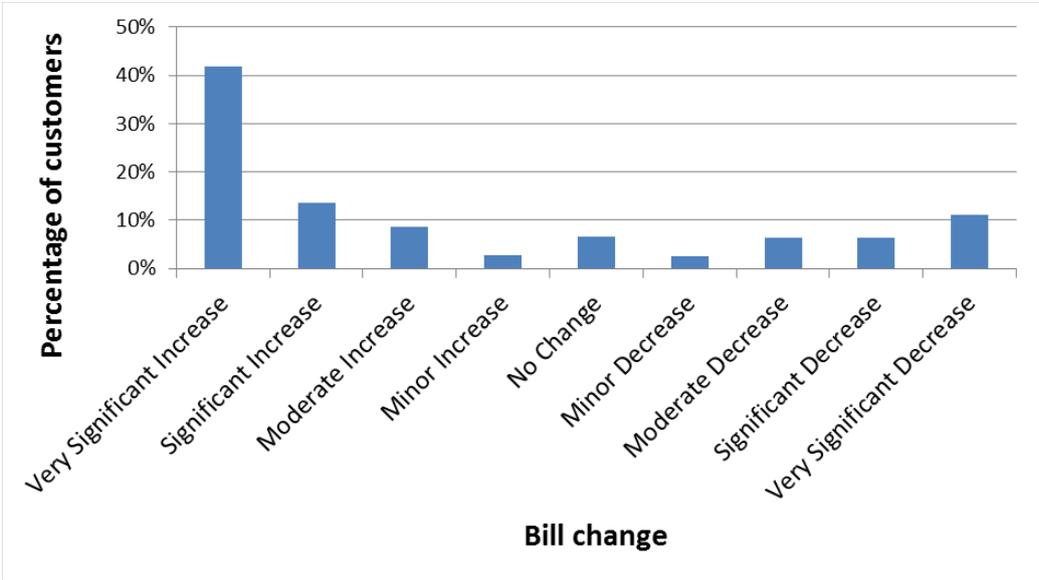
usage charge of \$1.00/kL), compared to option 2 (based on a single usage charge of \$2.00/kL).

The option that combines the three usage charges into a single usage charge of \$3.17/kL would still lead to a moderate increase in bills for many customers due to the removal of the commercial property-based charge discussed previously. The terms outlined in Table 6.9. have been used in the graphs to describe the level of bill impact.

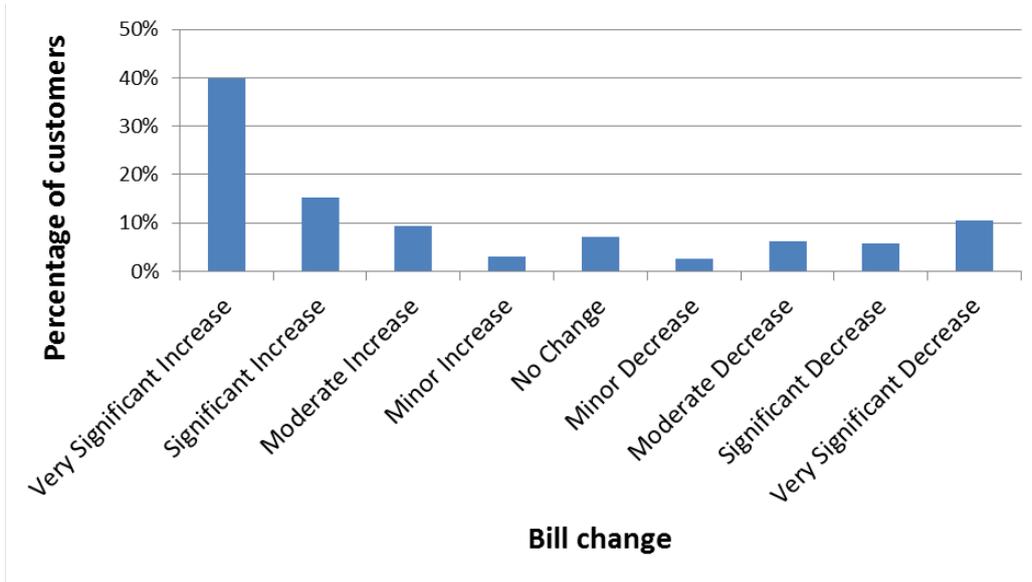
**Table 6.9: Bill impact descriptions**

BILL IMPACT	% CHANGE IN BILL
Very significant	More than 50% of previous bill
Significant	More than 25% and up to 50% of previous bill
Moderate	More than 10% and up to 25% of previous bill
Minor	More than 5% and up to 10% of previous bill
No change	Up to 5% decrease or increase from previous bill

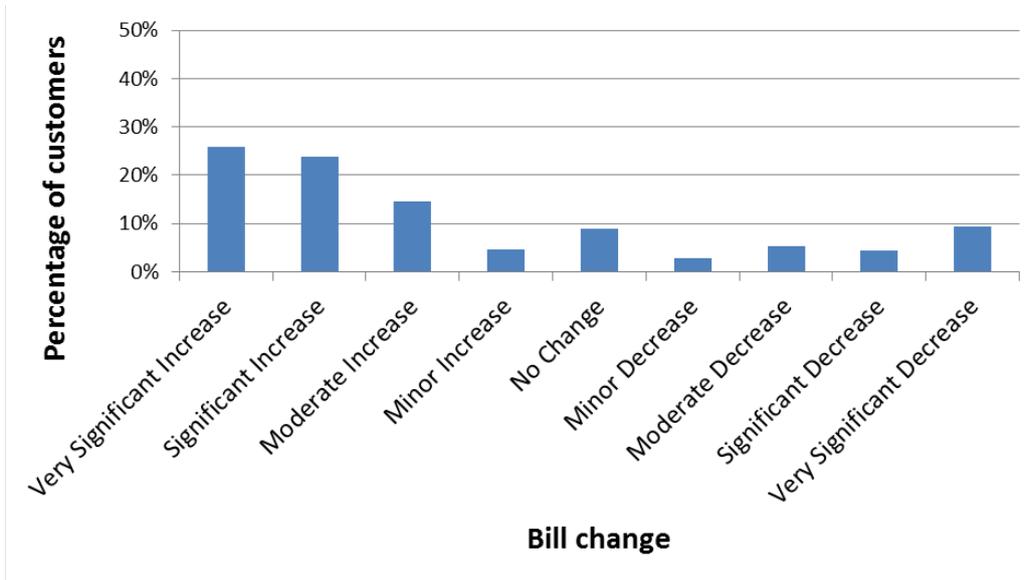
**Figure 6.3: Bill changes resulting from single usage charge of \$0.65/kL and supply charge of \$843 p.a.**



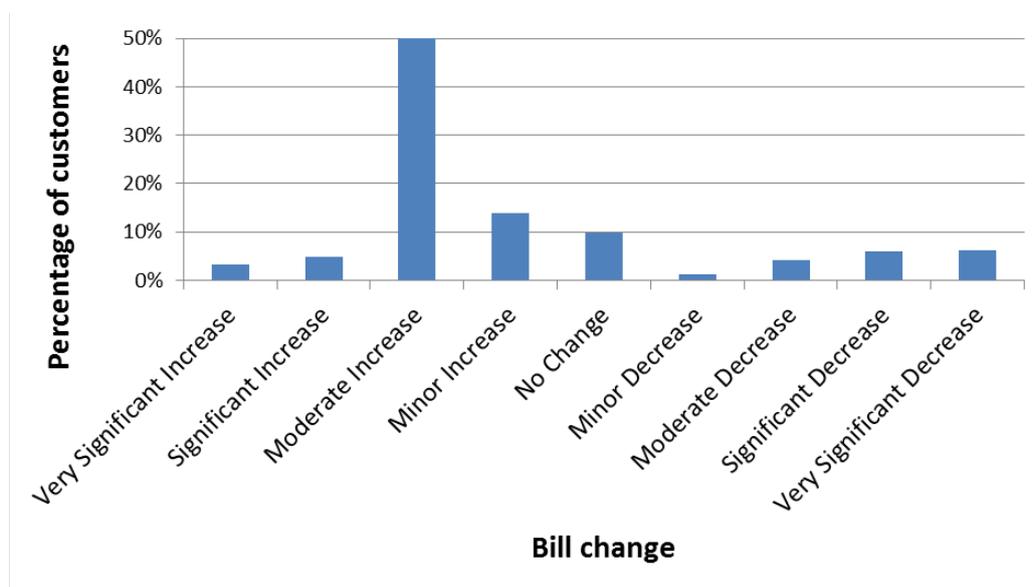
**Figure 6.4: Bill changes resulting from single usage charge of \$1.00/kL and supply charge of \$771 p.a.**



**Figure 6.5: Bill changes resulting from single usage charge of \$2.00/kL and supply charge of \$542 p.a.**



**Figure 6.6: Bill changes resulting from single usage charge of \$3.17/kL and supply charge of \$275 p.a.**



The transition options are also likely to impact the investment decisions of customers. The higher the usage charge, the greater the incentive for customers to invest in water efficiency initiatives. This Inquiry has found that, in the current environment, those incentives are over-stated, as SA Water has significant capacity to provide drinking water.

### 6.3.3 Impacts on the Government/SA Water

All options are revenue neutral to SA Water. It would be expected, however, that the more cost-reflective prices are, the better the investment signals it would receive and the greater the likelihood it would make more efficient investment decisions in the future. It may also be the case that rationalising SA Water’s tariff options and making them simpler could save it administrative costs in the longer-term. It would, however, incur an immediate cost in changing its billing systems and related processes.

### 6.3.4 Other tariff reform options considered

As discussed elsewhere, introducing competition into the water market would provide greater customer choice.

Recognising that individual customers have a range of preferences (wants and needs), providing them with a range of tariffs means there is a greater chance their preferences can be met. At the moment, there is only one “default” or “standard” tariff.

Customer preferences may vary due to individual trade-offs between the level of prices, price stability and required security of supply, and this will be influenced by factors such as the intended use of the water, the availability of alternatives (and their cost), environmental views and level of income.

Exploring ways to permit choice in tariffs to promote economic efficiency is seen as consistent with this Inquiry's Terms of Reference. The Productivity Commission also supports it.<sup>153</sup>

*Greater choice in tariff offerings should be available to water consumers. This would*

- *allow consumers to express their preferences on security of supply and price stability*
- *provide an opportunity for water utilities to improve demand management as water availability changes over time.*

It goes on to argue that:<sup>154</sup>

*Consumers are best placed to make decisions about their own consumption patterns. Governments and utilities should facilitate this by pricing efficiently, providing choice in tariff and service offerings and consulting with customers about augmentation and pricing.*

Alternative tariffs would, however, need to be consistent with the recommended efficient price. As previously discussed, volumetric-only tariffs would not be consistent.

Following are examples of alternative tariffs that could be consistent with the efficiency objective.<sup>155</sup>

- ▲ Usage tariffs set at LRMC, augmented by an additional summer tariff in times of water scarcity (for example, in a declared drought). The summer tariffs would be equivalent to adopting SRMC at times of water scarcity.<sup>156</sup>
- ▲ Defining a number of price stages, with each corresponding to a different level of scarcity.<sup>157</sup>
- ▲ A simple default (standard) fixed price tariff, with a volumetric charge fixed over the contracted period and a guaranteed supply (without any risk of restrictions). This option would likely be preferred by customers seeking stable prices and guaranteed supply.<sup>158</sup>
- ▲ A fully flexible tariff, with the volumetric charge varying from period to period to reflect the marginal cost of water. This would cause price-sensitive customers to reduce

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<sup>153</sup> Productivity Commission, p.L.

<sup>154</sup> Productivity Commission, p.252.

<sup>155</sup> The whole package of tariffs, and how they interacted, would need to be assessed before a definitive position could be made.

<sup>156</sup> This is not to suggest that the summer tariffs would necessarily be set at SRMC. In practice, any water scarcity pricing might be implemented in conjunction with water restrictions (either for all customers or those not opting to pay a premium price to guarantee unrestricted supply), not relying on price to achieve all the required reduction in water demand.

<sup>157</sup> ABARE in Productivity Commission, 2011, p.168.

<sup>158</sup> Productivity Commission, Box 6.4, p.169.

consumption when prices were higher. This option would likely be preferred by customers wanting guaranteed supply as well as the ability to respond to price.<sup>159</sup>

- ▲ A partially fixed price tariff, with a combination of the default and flexible tariff options, with a contracted quantity provided at a fixed volumetric price and any additional units priced at marginal cost. This option would likely be preferred by customers wanting price stability over a defined quantity (for example, to cover essential needs) and willing to accept price volatility for the rest.<sup>160</sup>
- ▲ Interruptible tariff, where customers would face restricted supply at trigger points they agreed to, in return receiving a discount. This option would likely be preferred by customers who do not require guaranteed supply and accept restrictions during times of scarcity.<sup>161</sup>

There is some evidence to support the view that customers generally value stability in water pricing.<sup>162</sup> Availability of alternative tariffs can test the extent to which they will opt for stability at the expense of higher prices.

Alternative tariffs would need to be reviewed for their implementation practicality. For example, one group of customers might prefer a lower-priced tariff in return for accepting water restrictions in times of drought, whereas another group might accept higher tariffs in return for avoiding restrictions. For this to work in practice, there would need to be some means of publicly identifying those customers willing to pay the higher charge, so their garden watering during restricted times would not be interpreted by neighbours or others as flouting the rules.

While the welfare costs of water restrictions can be shown to be high, the size of the impact is driven by timing and the extent of the ban. For example, the adoption of “alternative day” garden watering is likely to have a minimal impact compared with an all-summer ban. This suggests that there is potential for water restrictions and pricing to be part of an efficient, coordinated package to address water scarcity. That is, restrictions and pricing should be considered as part of a tool kit of available measures, rather than permitting only one or the other.

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<sup>159</sup> Productivity Commission, Box 6.4, p.169.

<sup>160</sup> Productivity Commission, Box 6.4, p.169.

<sup>161</sup> Productivity Commission, Box 6.4, p.169.

<sup>162</sup> Productivity Commission, p.175 refers to research undertaken by Sydney Water that *indicates that consumers value stability in water pricing.*

The Essential Services Commission of Victoria (**ESCV**) supports tariff choice, as well as:<sup>163</sup>

*... water businesses examining ways to increase choice for water tariffs and service offerings in the third regulatory period. The Commission's regulatory framework will facilitate the introduction of customer tariff choice, should businesses elect to offer choice.*

Permitting alternative tariffs could introduce an element of revenue risk for SA Water. The Inquiry suggests that if SA Water permits alternative tariffs then it should bear the risk involved, as it is the party in the best position to manage that risk. It is not appropriate for customers to fund any shortfall arising from one group of customers responding to a particular tariff offering (compared with the standard version).

Having regard to the price determination process, another approach could be for the Commission to determine regulated revenues on the basis that all customers pay a standard tariff. SA Water would then bear any revenue risk from an optional tariff not delivering the equivalent standard tariff revenues (it could actually deliver more revenue). It might then seek the approval of its owner (the South Australian Government) to offer innovative tariffs on the basis that any shortfall would impact the level of dividends it could pay.<sup>164</sup>

Given the importance of price to customers, it may be worth SA Water considering the merits of including consultation on price structures in the price setting process.<sup>165</sup>

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<sup>163</sup> ESCV, *2013 Water Price Review, Guidance on Water Plans*, October 2011, p.103, available at <http://www.esc.vic.gov.au/getattachment/3306f0d8-9c21-4574-ac3b-25002c88d9b8/Guidance-Paper-Water-Plan-guidance-for-water-price.pdf>.

<sup>164</sup> The ESCV's approach to water industry price determinations is an example of where the water utility bears the revenue risk of providing tariff choice. For more details, refer to ESCV, *2013 Water Price Review, Guidance on Water Plans*, October 2011, p.106. The ESCV also permits businesses to offer 'opt-in services', for example for promoting environmental outcomes and services beyond those regulated (akin to GreenPower in the energy sector).

<sup>165</sup> AEMC 2014, p.iv.

## 7. SEWERAGE

The Terms of Reference for this Inquiry require examination of alternative approaches to charging for SA Water’s sewerage retail services that may improve economic efficiency and/or water security:

*(b) The Commission is to consider, in particular, the following matters:*

- iv. alternative approaches to charging for drinking water and sewerage retail services which may improve economic efficiency and/or South Australia's water security, including analysis of the costs and benefits of such approaches for different customer classes ...*
- v. the impact of statewide pricing requirements on SA Water for drinking water and sewerage retail services in terms of economic efficiency, South Australia's water security, and costs and benefits for different customer classes.*

This chapter addresses the following key aspects of sewerage pricing, consistent with the Terms of Reference:

- ▲ Sewerage charges
- ▲ Regional versus statewide pricing.

The principles for setting sewerage prices that best promote economic efficiency are discussed in Chapter 2. The Commission has applied those principles to SA Water’s sewerage prices and has found that the economically efficient sewerage price structure comprises:

- ▲ charges based on the “capacity requirement” that a customer places on the sewerage system, using the size of the sewerage connection as the most appropriate reflection of capacity
- ▲ the development of regional sewerage charges, moving from an initial statewide basis as investments are made in those regions in the future.

Under this approach, the substantial cross-subsidies that currently exist from high property-value sewerage service users to low property-value sewerage service users would be unwound. Prices would also diverge between regions over time, until they reach a fully cost-reflective level on a regional basis.

The Inquiry received no submissions proposing an alternative sewerage price structure that can better promote economic efficiency. However, some submissions did suggest alternative pricing structures, and these are considered in Section 7.1.3.4.

Many submissions commented that any movement towards an economically efficient price structure would create undesirable distributional impacts on low value property owners that would need to be addressed.

The Inquiry has given careful consideration to those views. It understands that transitional arrangements might be necessary if the Government chooses to implement cost-reflective pricing. Those arrangements would be particularly important given the extent to which

current prices are non-cost-reflective and the magnitude of the price restructure that would be required to deliver cost-reflectivity.

This chapter explains the Inquiry's findings on sewerage pricing structures that best promote economic efficiency. Options for transitioning to those economically efficient structures, which could address the impacts that many lower value property customers would otherwise face, are also discussed in this chapter.

## 7.1 Sewerage charges

### **Final findings**

***SA Water's sewerage costs are largely independent of sewage volumes and there is no economic basis for usage-based sewerage charges.***

***Capacity-based charging is the most cost-reflective way to set SA Water's sewerage charges. Other fixed sewerage charges (e.g. connection and disconnection charges) should be cost-reflective and recovered on a user-pays basis.***

### **Final recommendation**

- 8. *Sewerage charges should reflect the "capacity requirement" a customer places on the sewerage system, not the value of the property. The most appropriate reflection of capacity is the size of the sewerage connection.***

### 7.1.1 Key reasons for recommendation

- ▲ Cost-reflective sewerage prices maximise economic efficiency when all decision-makers pay prices that reflect the costs of their decisions. Sewerage service customers should see the true cost of being provided with those services.
- ▲ Economic efficiency could be improved by setting SA Water's sewerage charge on a capacity basis, rather than a property-value basis. Property-based charging is not consistent with the objective of economic efficiency, as there is no strong link between the value of a property and the costs imposed on the sewerage network.
- ▲ Property-based costs may also be distorting decisions about where to live, where to locate a business, the level of capital improvement to be undertaken on a property, and may be discouraging investment and competition.
- ▲ A customer's initial capacity requirement should be recovered by appropriate augmentation charges. Customers with large capacity requirements would be expected to incur proportionally higher fixed costs on the system for repairs, maintenance and eventual asset replacement.

### 7.1.2 Current arrangements

Charges for domestic sewerage services are currently based on the capital value of an SA Water customer's property, with valuations determined by the Valuer-General each year.

SA Water calculates charges based on a percentage of the capital value of the property – the “rate in the dollar” – which differs for properties in metropolitan and non-metropolitan locations, and for residential and non-residential customers. A minimum charge has been determined, but no supporting rationale has been provided.

The current charging arrangements are not based on volumes of sewage discharged into the network.

SA Water's property-based charging practice has been justified in the past on the basis that it is a “*way of collecting money through a taxation base for what can be regarded as a system which provides general community benefit rather than immediate benefit user by user*”.<sup>166</sup>

Most Australian states and territories have moved away from property-based charging for water and sewerage services.<sup>167</sup> Only South Australia and Western Australia maintain this practice.<sup>168</sup>

#### 7.1.2.1 Historical sewerage prices

As stated above, current sewerage charges depend on a rate in the dollar, the value of a customer's property, and whether that property is in a metropolitan or country area. To provide a simple measure of how sewerage prices have moved over time, Table 7.1 presents an average cost per customer across South Australia for recent years. The figures have been derived by dividing total sewerage revenue by the number of sewerage customers.

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<sup>166</sup> Industry Commission (1992) *Water Resources and Waste Water Disposal*, report No.26, 17 July 1992, p.2.46.

<sup>167</sup> Both New South Wales and Victoria reformed water pricing in the 1990s, moving sewerage charging from property-value based, to a more cost-reflective basis.

<sup>168</sup> In 2012, the Western Australian Economic Regulation Authority (**ERA**) recommended the removal of property-based charging for the major Western Australian water provider – Water Corporation.

**Table 7.1: Average sewerage bills 2004-05 to 2013-14**

YEAR	AVERAGE SEWERAGE BILL (\$)
2004-05	467
2005-06	483
2006-07	494
2007-08	506
2008-09	516
2009-10	526
2010-11	541
2011-12	569
2012-13	586
2013-14	595

### **7.1.2.2 Opportunities for improvement**

Table 7.2 summarises the cross-subsidies resulting from current prices, based on a comparison of current revenues with revenues that would result from the recommended sewerage price reforms. The table shows that residential customers are currently being subsidised by all other customers by around 8% of total revenue (approximately \$30 million per annum).

While it is common for cross-subsidies to be built into utility prices for social policy reasons, economically efficient pricing structures would not include cross-subsidies, and would ensure that all customers face prices that reflect the efficient cost of supply.

**Table 7.2: Cross-subsidies resulting from current sewerage prices**

CUSTOMER TYPE	% OF ALL SA WATER CUSTOMERS	CURRENT CONTRIBUTION TO TOTAL SEWERAGE REVENUE (%)	CONTRIBUTION IF PRICES WERE COST-REFLECTIVE (%)	PERCENTAGE POINT DIFFERENCE
Residential	95	80	88	+8
Commercial	4	12	4	-7
Non-residential	2	7	3	-4
Trade Waste <sup>169</sup>	0.02 <sup>170</sup>	1	4	+3
Total	100	100	100	0

Note: Table may not total due to rounding

The case studies presented in Boxes 7.1 and 7.2 highlight some specific examples of deficiencies with the current arrangements and further highlight the need for reform.

**Box 7.1: Case study of sewerage charges based on property value.**

A family home in an inner Adelaide suburb, valued at **\$500,000**, is supplied with both water and sewerage services by SA Water via a standard/typical 20mm domestic supply water meter.

The current annual sewerage charge is based on the property value, as determined by the Valuer General, and levied by SA Water at a level of 31.525 cents per \$1000 of property value per quarter (for 2013-14). The annual sewerage bill is, therefore, currently **\$630.50**.

If the owner were to improve his/her property by building an additional room, and increased its assessed value to **\$600,000**, the annual sewerage bill would increase to **\$756.60**.

Clearly, it remains the same property with the same connection to the sewerage network, generating the same costs for SA Water. However the annual charge has increased by 20 per cent.

Under the recommended reforms, the property would receive a cost-reflective charge of **\$507.00**, based on its estimated sewer capacity requirement.

<sup>169</sup> Trade Waste customers pay an additional usage charge because of the nature of the sewage they put into the system.

<sup>170</sup> There are around 100 metered trade waste customers.

### **Box 7.2: Case study of efficiency impacts of current sewerage charges**

In its submission to the Productivity Commission’s study into the costs of doing business in the retail trade industry, Woolworths Ltd highlighted (using the example shown in Table 7.3 below) that linking water and sewerage charges to capital value acts as a disincentive to investment, and that this is ultimately detrimental to living standards and economic growth.<sup>171</sup> As can be seen, the charges for water and sewerage in South Australia are several times higher than for an equivalent retail outlet in NSW.

**Table 7.3: Differences in water and sewerage costs between South Australia and New South Wales – Woolworths example**

<b>CHARGE</b>	<b>MURRAY BRIDGE MARKETPLACE (SA)</b>	<b>BEGA MARKETPLACE (NSW)</b>
Annual water supply charge	\$51,000 p.a.	\$3000 p.a.
Annual sewerage charge	\$126,000 p.a.	\$15,000 p.a.

### **7.1.3 Discussion**

#### **7.1.3.1 Property-based versus capacity-based charging**

Property-based charging for sewerage services is considered by some as a fair way of sharing the costs of sewerage services. That is, it attempts to redistribute income from businesses to households, and from wealthy to poor households.<sup>172</sup> However, there is only a limited relationship between property value and household income<sup>173</sup> and so the current approach may not be efficiently targeting those it is aiming to help.

It is noted that some stakeholder submissions supported the continuation of this approach, citing equity as the reason for continuing to use property-based charging as a means of sharing the costs of providing sewerage services.<sup>174</sup>

The Inquiry’s Terms of Reference require consideration of pricing structures that seek to improve economic efficiency. As stated in Chapter 2, social equity matters are best considered by the Government as it is best placed to address them.

<sup>171</sup> Woolworths Limited, Submission to the Productivity Commission Relative Costs of Doing Business in Australia: Retail Trade Industry, p.7; available at: [http://www.pc.gov.au/\\_data/assets/pdf\\_file/0004/136453/sub013-retail-trade.pdf](http://www.pc.gov.au/_data/assets/pdf_file/0004/136453/sub013-retail-trade.pdf).

<sup>172</sup> Industry Commission (1992), *Water Resources and Waste Water Disposal*, report No.26, 17 July 1992, C.278.

<sup>173</sup> For example, refer to Walker (2009) *The Independent review of Charging for Household Water and Sewerage Services – Final Report*, p.61, and Industry Commission (1992), *Water Resources and Waste Water Disposal*, report No.26, 17 July 1992, C.278.

<sup>174</sup> For example, Uniting Communities, *Response to Draft Enquiry Report*, p.7.

The current approach has the benefits of familiarity in the community, and maintaining it would avoid any costs associated with change (for example, to information systems). However, this does not mean that it is well supported. Furthermore, this Inquiry is focused on maximising economic efficiency, which is realised only when prices are based on the costs of the services provided.

Clearly, with the current approach, the prices charged are likely to bear little relation to the actual cost of providing sewerage services to a property. As a result, property-based charges may not be efficient or reflect true costs, and may be discouraging investment and stifling competition.<sup>175</sup>

Setting a cost-reflective sewerage price would improve economic efficiency, as it would provide customers with a signal to connect to SA Water's sewerage system where the benefits to them outweighed the costs of the connection. Likewise, it would encourage disconnection from the sewerage system where the costs of the connection were greater than the customer benefits. (Customers could, for example, choose to connect to alternative sewage treatment units, such as septic tanks.)<sup>176</sup>

Property-based costs may distort decisions about where people live and the level of capital improvement they undertake on a property.<sup>177</sup> For example, such costs may encourage development and over-population in low property-value areas, encouraging urban sprawl. Property-based costs may also distort decisions about where businesses locate<sup>178</sup> and have been linked to deterring employment growth.<sup>179</sup>

Cost-reflective pricing is necessary for efficient competition in the sewerage market. Property-based charging can result in cherry picking of customers in high property-value areas and discourage competition in low property-value areas.

Prospective and existing sewerage customers can make various decisions that incur associated costs and have various cost-recovery pathways, as outlined in Appendix 6 (for example, the decision to connect to sewerage infrastructure, which is best achieved through a one-off connection charge to the customer).

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<sup>175</sup> For example, refer to:

<http://tigger.uic.edu/cuppa/gci/publications/workingpaperseries/pdfs/Property%20Taxes.pdf>.

<sup>176</sup> Chapter 4 (Non-connected properties) discusses issues relating to disconnecting sewerage services in more detail.

<sup>177</sup> For example, refer to Johnson, E. and Walsh, R. (2009) "The effect of property taxes on location decisions – evidence from the market for vacation homes", *NBER Working Paper*, Cambridge MA, p.21., and Carlton D. (1981) "The spatial effects of a tax on housing and land", in *Regional Science and Urban Economics 11*, pp.509-527, and <http://tigger.uic.edu/cuppa/gci/publications/workingpaperseries/pdfs/Property%20Taxes.pdf>.

<sup>178</sup> For example, refer to Carlton D. (1981) "The spatial effects of a tax on housing and land", in *Regional Science and Urban Economics 11*, p.522.

<sup>179</sup> For example, refer to Luce, T. (1994) "Local taxes on public services, and the intrametropolitan location of firms and households" in *Public Finance Quarterly*, vol. 22 no. 2, pp.139-167.

Because the capacity requirement of a sewerage customer is the main (customer-based) cost driver of sewerage services, charging based on that capacity is the most cost-reflective way of setting prices.

This Inquiry has also recommended that end users of water and sewerage services, rather than the owner of the land/premises, should become SA Water's customer for those retail services. This reform, which breaks the link of sewerage costs being considered as a land holding cost, further weakens the case for continuing with property-based charging.

### 7.1.3.2 Structure of capacity-based charges

This Inquiry concludes that a usage component should not be applied for sewerage services.<sup>180</sup> There is minimal benefit from setting a sewerage usage charge, as sewerage flows do not significantly affect SA Water's costs. Based on data provided by SA Water, in the short run its sewerage costs are 97 per cent fixed, with only three per cent varying according to volumes received into its treatment plants.

Furthermore, the volume of sewage produced by customers has very little impact on that remaining three per cent of its costs for treatment and disposal. It is estimated that the variable cost of treating sewage is in the order of 5 to 10 cents per kL of billed water use. However, these variable costs are largely independent of consumer behaviour, because:

- ▲ during wet weather, approximately two-thirds of variable costs for sewerage flow are attributable to infiltration and stormwater<sup>181</sup>
- ▲ with respect to the remainder, customers will have little ability to control how much discharge makes its way into the sewerage network, as most emanates from non-discretionary water-using activities (for example, water use for personal hygiene).<sup>182</sup>

Even in the long run, most of the costs of serving existing customers remain fixed because of the requirement for long-life fixed assets (for example, sewerage pipe networks and wastewater treatment plants (**WWTP**)). Because of the inelastic characteristics of demand, long-run cost increases relating to capacity constraints are, generally, the result of population increases or a change in the nature of the customer base (for example, more trade waste customers). The costs associated with this are best dealt with by fixed charges.

Were there to be any benefits of sewerage usage (discharge) charging, the costs of implementing it are likely to be significant. Measurement of sewage volumes is not practical

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<sup>180</sup> This is consistent with the Productivity Commission's *Australia's urban water sector, inquiry report, Volume 1, No.55, 31 August 2011*, findings (refer p.143).

<sup>181</sup> Per GHD submission to the draft Inquiry report, available at: <http://www.escosa.sa.gov.au/library/20140919-Water-ReformPricingInquiry-DraftReportSubmission-GHD.pdf>

<sup>182</sup> This view is shared by the Productivity Commission, p.143.

or cost effective, except in the case of a limited number of large (trade waste<sup>183</sup>) customers.<sup>184</sup>

An alternative to direct metering of sewage is the use of water consumption as a proxy measure of sewage volumes. That approach would also impose high costs, because such regimes are also complex and may be confusing. (This view is shared by the ESCV.<sup>185</sup>)

In addition, it is likely that water consumption is, in many cases, not a good measure of sewage flows. This is because:

- ▲ water consumption may include water used outdoors that does not enter the sewerage system and this varies considerably between individual customers.
- ▲ sewage may enter the network from a source other than SA Water's drinking water network (for example, from plumbed rainwater tanks).<sup>186</sup>

The capacity requirements of sewerage customers are the primary drivers of the cost of providing sewerage services. In particular, sewerage networks are designed to provide capacity and it is, therefore, appropriate that sewerage customers contribute towards the cost of providing and maintaining infrastructure based on their connection capacity. This is most easily measured using the sewerage connection size, which, for around 97 per cent of customers, is 100mm diameter pipe.

Under this approach, nearly all residential customers would receive the same sewerage bill, given that they place the same capacity requirement on the sewerage network. Large sewerage customers requesting a connection of greater capacity would pay a higher amount, reflecting their greater demand on the network. This approach is simple, easy to implement, and meets the principle of cost-reflective pricing.

The Inquiry, therefore, recommends a move to cost-reflective sewerage charges, based on customer capacity requirements.

### ***7.1.3.3 Methodology for setting the capacity-based charges***

SA Water's data linking customer accounts to the size of sewerage connections is currently of poor quality. The billing system review has estimated that it could cost about \$700,000 to include sewerage connection information in the SA Water billing system, and the process could take up to seven months.

However, water meter size information is currently linked to customer accounts. The billing review has estimated that changes based on using water meter size as a proxy would cost

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<sup>183</sup> The economically efficient charging mechanism for trade waste customers is considered separately in Chapter 8 of this report.

<sup>184</sup> See, for example, Productivity Commission, p.142, and the Essential Services Commission of SA at: [http://www.escosa.sa.gov.au/library/101031-PotableWaterSeweragePricingProcessesInquiry\\_2010-11-FinalReport.pdf](http://www.escosa.sa.gov.au/library/101031-PotableWaterSeweragePricingProcessesInquiry_2010-11-FinalReport.pdf), p.59.

<sup>185</sup> Refer to [http://www.esc.vic.gov.au/getattachment/b1e2e093-1401-42eb-90d9-8cff7c760655/Executive-summary-\(1\).pdf](http://www.esc.vic.gov.au/getattachment/b1e2e093-1401-42eb-90d9-8cff7c760655/Executive-summary-(1).pdf), pp. 191-195.

<sup>186</sup> Productivity Commission, p.142.

around \$550,000 and take up to six months to implement. Given the similar cost and timeframe to implement both of these alternatives, it is recommended that SA Water implement sewerage connection size as the basis of charging.

As SA Water does not currently have data linking sewerage connection diameters to customer accounts, the Inquiry has, for the purposes of estimating sewerage charges, used water meter size as a proxy for sewerage capacity requirement.

Based on an extract from its billing system, SA Water provided the following information on the number of sewerage connections at each water meter size (Table 7.4).

**Table 7.4: Water meter volumes by size**

<b>WATER METER SIZE (MM)</b>	<b>NUMBER OF SEWERAGE CONNECTIONS</b>
15	3257
20	591,181
25	23,961
32	9034
40	6812
50	5372
80	350
100	231
150	87
200	3
300	1

SA Water was also able to extract the following information on sewerage connection sizes from its asset information systems (Table 7.5).

**Table 7.5: Sewerage connections by size**

<b>SEWERAGE CONNECTION SIZE (MM)</b>	<b>100</b>	<b>150</b>	<b>225</b>	<b>300</b>	<b>375</b>
Number of Sewerage Connections	630,000	21,000	85	10	5

By analysing these two data sets, and taking account of the potential capacity requirements on the sewerage system of the different connections sizes, the Inquiry has produced a set of indicative sewerage charges by water meter size (Table 7.6).

In determining the impact of the sewerage pricing reforms on customers, it is assumed that SA Water will recover the same total revenue as it currently earns from its customers (less CSOs), so that it can pay its costs, including fixed costs. As there are more connections (approx. 640,000) than land assessments (approx. 590,000) across which to recover this revenue, the average charge for the great majority of customers (who have only one sewerage connection) would reduce.

**Table 7.6: Estimated sewerage fixed charge by water meter size 2013-14 (statewide)**<sup>187</sup>

<b>METER SIZE (MM)</b>	<b>≤25</b>	<b>32 TO 100</b>	<b>150</b>	<b>200</b>	<b>300</b>
Annual supply charge	\$507	\$1140	\$2564	\$4559	\$7123

These indicative charges have been used for the purposes of assessing the customer bill impacts of this proposed reform, as discussed in Appendix 8.

There may be instances where a customer has a larger sewerage connection than required. For example, there may be situations where a large connection was required in the past (such as for a multi-dwelling property), but changes to the property (including subdivisions) mean that requirement no longer exists. In these situations, customers should be able to request SA Water to down size the connection, for a fee. If, for any reason that does not directly benefit the customer, there should be some process for compensation to ensure the he or she does not pay more than the capacity requirement. This could occur, for example, where there is a requirement for a customer to have a larger sewerage connection for future proofing the network but that extra capacity is not needed for several years.

#### **7.1.3.4 Other options considered**

The Inquiry examined other options for charging for sewerage services and these are discussed briefly below. However, these options are not recommended, as they produce

<sup>187</sup> SA Water provided five sizes of sewerage connections, and 11 sizes of water meters. For the purposes of assessing customer impacts, the Commission has grouped water meter sizes according to those in this table, based on the profile of SA Water's customers.

fewer benefits than the option discussed in Section 7.1.3.1 above. Further discussion about these other options is included in Appendix 10.

*a) Retaining the current property-value based arrangements*

Retaining the current property-value based arrangement is not supported on the basis that it is not cost-reflective, and leads to inefficient customer decisions about location and investment (for example, connecting or disconnecting to the sewerage network).

*b) Pricing according to a fixed charge (flat rate)*

Pricing according to a fixed charge (flat rate) is not supported on the basis that, while it is partially cost-reflective, it does not take account of the differing levels of system capacity required to serve different customers.

*c) Pricing according to estimated sewage discharged into the network (consumption-based charge)*

Envirofriendly, in its submission to the Draft report, stated that *“The most appropriate reflection of a customer’s demand is the amount, and strength, of wastewater discharged into the sewer network.”*<sup>188</sup> It proposed that this could be best achieved by charging households using a polluter pays variable cost mechanism, using a base load volume of winter sewage discharge, factored for the strength of the effluent discharge, to recover the sewerage revenue requirement. This methodology, however, does not address the fact that economic efficiency is maximised when charges are cost-reflective and allow consumers to make informed choices about where the value of a service exceeds the cost of providing it.

As stated above, the costs of operating the sewerage network are 97 per cent fixed, with volumes driving only the remaining three per cent of costs.<sup>189</sup> Moving to Envirofriendly’s methodology would create a new set of cross-subsidies between customers. For example, a low volume user would fail to cover the fixed costs of providing a sewerage connection, and would then be subsidised by a high volume user, who would pay far more than the cost-reflective price of providing a connection.

Furthermore, there are practical issues in accurately measuring sewage volumes, given that metering of sewage flows is not practical, except in the case of the largest customers. As stated in Section 7.1.3.2, water consumption is, in many cases, not a good measure of sewage flows. In all likelihood, the costs and complexity of estimating and billing for variable sewage costs would exceed the benefits gained from any behavioural changes it would drive.

Further reasons for not supporting a consumption-based charge include:

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<sup>188</sup> Envirofriendly submission to the draft Inquiry report, p.7, September 2014, available at <http://www.escosa.sa.gov.au/library/20140919-Water-ReformPricingInquiry-DraftReportSubmission-Envirofriendly.pdf>

<sup>189</sup> SA Water has confirmed on p.22 of its submission the Draft Report that the costs of providing sewerage services are largely fixed, with variable costs being relatively minor in the scope of total costs.

- ▲ the volume of water supplied is not always a good indicator of the volume of sewage produced, and the available methods of correcting for this (i.e. using periodically reviewed, industry specific, discharge factors with an associated review and exemption regime) is administratively complex and potentially confusing for customers
- ▲ a charge based on water use would lead to inefficiencies in water use decisions
- ▲ it is unlikely that a variable cost element would drive customer behavior because only three per cent of SA Water’s sewerage services are based on volume. Therefore, the costs of this option would almost certainly outweigh any benefits.

#### d) Pricing according to a combination of variable and fixed charging

The Conservation Council of South Australia (**CCSA**), in its submission to the Draft Report, suggested a hybrid approach to sewerage charging, using both the size of the connection and the metered water consumption as the basis for charges.<sup>190</sup>

This approach is attractive in terms of economic efficiency, as it attempts to match charges to both the fixed and variable costs of providing a sewerage service. However, due to SA Water’s sewerage costs being 97 per cent fixed, there is likely to be minimal benefit in setting variable, usage-based sewerage charges to collect the (three per cent) variable costs of service provision. This option is likely to be even more administratively complex and possibly confusing for customers.

#### e) Other pricing methods considered

Pricing according to the level of occupancy or, for example, the number of bathrooms/pedestals, is not supported. This is because no database of such information exists, and the establishment and ongoing maintenance of such a database has the potential to be both expensive and administratively complex. It may also be open to the potential for gaming, with customers incentivised to under-declare the number of occupants or bathrooms/pedestals on their property to minimise their sewerage bill.

SA Water stated, in its response to the draft Inquiry report that *“It is common practice for interstate utilities to charge non-residential customers more than residential customers.”*<sup>191</sup> The Inquiry recognises that there is a wide variety of sewerage charging mechanisms in use across Australian jurisdictions, and that it is not uncommon for non-residential customers of sewerage services to be charged different rates, or on a different basis, from residential customers.

For example, Water Corporation in Western Australia charges for residential sewerage based on the rateable value of the property served, while it charges non-residential customers a service charge based on the number of fixtures (for example, toilets and urinals) at individual premises, with a further volume-based charge applying above a usage threshold. This may

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<sup>190</sup> CCSA submission to the draft Inquiry report, p.5.

<sup>191</sup> SA Water submission to the draft Inquiry report, p.23.

result in non-residential bills for sewerage services being either higher or lower than residential bills for the provision of the same service.

However, the Inquiry maintains the proposition that, to maximise economic efficiency, the charges for sewerage services should reflect the costs of providing those services. Since it costs the same to provide a standard sewerage service to non-residential premises as it does to residential premises, the charges should be the same.

#### 7.1.4 Customer bill impacts

Moving from property-based to connection-based sewerage charges would, on average, reduce the bills of those with higher property values and increase the bills of those with lower property values. Charging according to connection size also removes the current cross-subsidisation (explained further in Appendix 10) by industrial or commercial customers to residential customers. This would result in residential customers, on average, experiencing a bill increase. However, as described in Section 7.1.3.3, the move to connection-based charging would reduce the average charge to land assessments with a single connection.

The recommendations that follow for trade waste charging (see Chapter 8) also impact the bill changes that would be experienced by all customers receiving a sewerage service. The Inquiry has, therefore, outlined its considerations of the customer impacts of sewerage pricing reform as a whole in Section 8.1.3.7.

#### 7.1.5 Implementation

This recommendation would not require any immediate changes to legislation. However, DPTI's submission to the Issues Paper stated that any move away from using capital values would require legislative change to the *Valuation of Land Act 1971*, and that the Valuer General has no discretion in charging SA Water (via the Minister) the current statutory fee. Its view is that the timeframe for any change to legislation should be several years.<sup>192</sup>

Moving away from property-based charging would have some significant distributional effects. However, other water authorities have been able to accomplish this reform in a relatively short time.<sup>193</sup>

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<sup>192</sup> DPTI submission to the Issues Papers, p.1.

<sup>193</sup> Industry Commission (1992) *Water Resources and Waste Water Disposal, report No.26, 17 July 1992*, p.6.98.

## 7.2 Regional sewerage charges

### **Final finding**

***There is unlikely to be any net benefit in setting sewerage charges on a regional basis utilising the value of existing fixed assets, although there may be benefits in allocating future sewerage costs on a regional basis to promote efficient investment decisions.***

### **Final recommendation**

**9. Consideration should be given to regional sewerage charges, based on allocating future sewerage costs to each region.**

### 7.2.1 Key reasons for recommendation

The Inquiry has used the following guiding principles in making its recommendation:

- ▲ Economic efficiency is maximised when all decision-makers pay prices that reflect the costs of their decisions. In the case of sewerage services, customers should see the true cost of being provided with those services.
- ▲ The cost of supplying sewerage services in South Australia differs between regions and cost-reflective pricing should reflect those differences to promote economic efficiency.
- ▲ Supply charges may have an impact on consumers' decisions to connect or disconnect. Economic efficiency is promoted when consumers incur the costs of maintaining and replacing the assets required to supply them. Those assets and costs can vary between regions.

### 7.2.2 Current arrangements

SA Water has 24 distinct catchment regions for collecting and treating sewage. It refers to them as "wastewater asset systems" (refer to Appendix 8).

The pricing methodology for sewerage customers across these regions is exactly the same (i.e. property-based charging). However, each of these regions has a discrete cost profile. As a result, fixed costs per customer per year range considerably (there is a ten-fold difference between some regions) and this results in a cross-subsidy between the regions.

### 7.2.3 Discussion

The cost of supplying sewerage services in South Australia differs between regions and economic efficiency can be enhanced by setting sewerage prices with reference to regional costs. However, as discussed in Chapter 6, the efficiency benefits are likely to be small.

Consistent with its approach of considering drinking water supply charges, the Inquiry has distinguished between the recovery of the fixed sewerage costs already incurred and those that will be incurred in the future. On the basis that past investments do not significantly impact future decision-making, there is little efficiency gain in recovering existing (and

therefore sunk) investments from regional customers. Past investments have occurred under a statewide pricing regime, and some of those investments may not have occurred if those costs had only been recovered from customers in a particular region.

Case study 7.3 is an example of the cost impact that one significant sewerage investment decision could make on a group of customers if it were recovered under regional pricing. In this example, the costs of the decision to upgrade the plant may have not been supported by consumers. (For example, some of the customers may not have been willing to pay for the increased visual amenity of the nearby creek.) It is, therefore, not appropriate for those customers to now be required to pay for those costs.

### **Case Study 7.3: Bird in Hand WWTP**

The Bird in Hand WWTP is located near Woodside, approximately 35 km east of Adelaide. The plant treats sewerage from Lobethal, Woodside and Inverbrackie. It was originally an anaerobic and aerated lagoon plant, commissioned in 1965.

The plant was upgraded to an activated sludge plant in late 2011. The primary aim of the upgrade was to improve the quality of treated wastewater to a standard that would minimise impacts on the nearby creek aquatic environment.<sup>194</sup> Other benefits identified by SA Water were that it would:

- improve the visual amenity of the nearby creek
- expand the reuse of treated wastewater through increased usage for irrigation
- support economic growth in the region through increased capacity to provide sustainable wastewater treatment services to the catchment.<sup>195</sup>

The plant has a capacity of 2.5 megalitres (ML) per day. The upgrade cost approximately \$60 million<sup>196</sup>, and the plant now provides treatment services for about 830 SA Water sewerage connections<sup>197</sup> (a cost of around \$72,000 per connection).

However, there is a stronger argument for treating all *future* costs on a regional basis, to ensure that new investment decisions take into account the beneficiaries of those investments and their preparedness to pay for them.

Consistent with its approach to regional drinking water supply charges, sewerage charges would initially be set on a statewide basis but be allowed to diverge between regions as new investments were made. Charges levied on developers would provide a strong locational

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<sup>194</sup> Refer to “Public Works Committee - 367th Report - Bird in Hand Wastewater Treatment Plant Upgrade”, p.12; available at: <http://www.parliament.sa.gov.au/HOUSEOFASSEMBLY/BUSINESSOFTHEASSEMBLY/RECORDSANDPAPERS/TABLEDPAPERSANDPETITIONS/Pages/TabledPapersandPetitions.aspx?TPDocName=Ilgowxyi&TPSelectedView=1&TPProperties=P&TPParliamentSession=52%2C1&tpso=p&tpsd=1>, p. 12.

<sup>195</sup> Refer to “Public Works Committee - 367th Report - Bird in Hand Wastewater Treatment Plant Upgrade”, p.12.

<sup>196</sup> SA Water, *Bird in Hand Wastewater Treatment Upgrade*; available at: <http://www.sawater.com.au/sawater/whatsnew/majorprojects/birdinhand.htm>.

<sup>197</sup> Based on information provided to the Commission, by SA Water, as a part of this Inquiry.

signal, assuming those charges reflected the costs of providing sewerage infrastructure in the region in question.

However, those charges would only recover the cost of providing new infrastructure. The ongoing cost of maintaining and replacing existing infrastructure should be borne by the customers who benefit from that infrastructure.

The costs associated with this recommendation are limited to SA Water's billing system changes to allow for regional pricing (see Section 6.2), estimated at approximately \$870,000. This cost covers the implementation of regional pricing across both water and sewerage (including trade waste) services.

#### **7.2.3.1 Other options**

The Inquiry examined another option of charging for sewerage services at a regional level. As explained in Section 6.2, this option is not supported, mainly because past investments have little bearing on future decision-making and there would be little efficiency gain in moving to sewerage charges based on location and existing assets.

#### **7.2.4 Customer bill impacts**

No additional customer bill impacts would result from the Inquiry's recommendation on regional sewerage charges, given that it supports a continuation of statewide pricing in the short-term. It is not possible to forecast the future impacts on bills that would result from a gradual movement towards regional pricing. Only the immediate system costs that SA Water would need to incur can be considered; these are estimated to be around \$1.30 per customer in the first year of implementation.

#### **7.2.5 Implementation**

This recommendation would not require any immediate changes to legislation.

## 7.3 Transitional options for sewerage charges

A move to cost-reflective pricing for sewerage would result in an unwinding of cross-subsidies that currently benefit residential customers with low-value properties. The following sections (7.3.1. to 7.3.2.) present two transition options that seek to improve economic efficiency while mitigating the impact of price changes on these customers in the short term.

In summary, these options are based on a hybrid approach to pricing according to property-values and cost-reflective pricing.

### 7.3.1 Option 1: Remove the cross subsidy between businesses and residential customers

The current property-based sewerage charging regime entrenches cross subsidies from business (commercial and industrial) customers to residential customers and also attempts to redistribute income from wealthy households to poor households.

One method for transitioning to full cost-reflective pricing would be to unwind only one of these cross subsidies at a time. An option could be to remove the existing cross subsidy from the business sector to residential customers, before seeking to move to cost-reflective pricing within each sector.

One way to implement this would be to reduce the annual revenue requirement from business customers by the current cross-subsidy amount of approximately \$30 million per year. This would give rise to two sewerage revenue groups – one for businesses and one for residential customers. Property values could continue to be used to determine sewerage bills within each of the two revenue groups.

#### 7.3.1.1 Impacts on the economy

Removing the \$30 million annual cross subsidy from the business sector would result in economic benefits in the form of reduced operating costs – improving both profitability and competitiveness.

However, as property-based charging would still be in use *within* the sector, there would be fewer economic efficiency gains than would otherwise arise under a fully cost-reflective model.

#### 7.3.1.2 Impacts on customers

To remove the \$30 million cross-subsidy, yet maintain SA Water's revenue, residential bills would rise and business bills would fall. Assuming that property-based charging continued once this cross subsidy was removed, two different rates in the dollar would arise – one for business and one for residential customers.

Because property-based charging would remain under this option, the effects on customers, in absolute terms, would vary significantly. However, the rate in the dollar, and therefore

bills, would drop 42 per cent for business customers. Referring to Case Study 7.2, for example, this would reduce Woolworths' annual sewerage charge from \$126,000 to \$70,560.

To compensate for this, the rate in the dollar, and therefore bills, would have to rise for residential customers. As there are many more residential customers, this increase would be much smaller (approximately 11 per cent). This would mean the sewerage bill for an average value property of \$410,000 would be \$57.32 more per year.

### *7.3.1.3 Impacts on the Government/SA Water*

This option assumes that the same revenue is collected from sewerage customers as is currently collected under property-value based charging. Therefore, with the exception of any administrative costs that may be needed to implement it, there are no foreseeable cost impacts to SA Water or the Government.

### *7.3.2 Option 2: Create property-based value bands*

An alternative methodology could be to group properties with similar values into bands or categories. These bands could then be further grouped together, over time, so that customers would move towards the cost-reflective price, without experiencing a bill shock price change in any one year.<sup>198</sup>

The three options presented below use this approach – the adoption of eight, four, or two bands. Government could choose to immediately adopt any of these options, or could, over time, reduce the number of bands, gradually transitioning all customers to the single, cost-reflective charge. In reality, any number of bands could be considered, although the greater the number, the greater the gap between what customers' pay and what they should be paying under cost-reflective pricing – and the lower the benefits resulting from economic efficiencies.

This methodology has the advantage of being simple to administer and easy for customers to understand.

A further advantage is a reduced reliance on property valuation data (which costs SA Water approximately \$4 million per year) and the potential for flow-on cost savings. Under this methodology, there is less need to keep up-to-date valuations for all properties, as the accuracy of the data becomes less important when property values are grouped.<sup>199</sup> Once a property has been assigned into a band, it would remain in that band until such time as the bands changed. A similar system exists for council tax (rates) in the UK, where over 20

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<sup>198</sup> This methodology was supported by John Standingford, p.2, available at:

<http://www.escosa.sa.gov.au/library/20140919-Water-ReformPricingInquiry-DraftReportSubmission-JohnStandingford.pdf>.

<sup>199</sup> That is, the number of customers that will be unfairly charged higher (or lower) prices than their actual property value decreases once a banded system is in place. The fewer the bands, the lower the likelihood that such inaccuracies will exist. Such examples could be mitigated through existing complaint resolution processes that exist for land valuation disputes.

million properties continue to be charged based on property values calculated as at 1 April 1991.<sup>200</sup>

Information on bill impacts, for the majority of customers, is presented for each option in Table 7.7.<sup>201</sup>

**Table 7.7: Profile of customers in scope of the analysis used in the transitional arrangements for sewerage**

CONNECTION SIZE	NO OF CUSTOMERS (% OF ALL SEWERAGE CUSTOMERS)	RESIDENTIAL	OTHER <sup>202</sup>
100mm	618,000 (97%)	93%	7%

### 7.3.2.1 Setting the bands

The bands could be calculated so that the middle level/s were generally centred around a median property-value band which pays the cost-reflective price. The bands above or below the median would pay a percentage higher or lower than the median band.

Table 7.8 illustrates how this could work, using an eight band option as an example. At this time, the median house value in South Australia, as determined by the Valuer-General, is currently in the range \$300,001 to \$400,000. This band is therefore set as the mid-range, and those on it would pay a broadly cost-reflective charge.<sup>203</sup> The bands above and below this median band are then set to collect a percentage above or below the cost-reflective value, all set with reference to the median band. In this option, it is suggested that no band should pay less than 70 per cent of the cost-reflective charge (which broadly reflects the current minimum sewerage charge), and that no band should pay more than double the cost-reflective charge.

<sup>200</sup> Refer to <http://www.voa.gov.au/corporate/CouncilTax/howYourHomelsbanded.html>.

<sup>201</sup> Technical note: Under the proposed pricing recommendations, sewerage prices would be determined according to the capacity of a customer's sewerage connection. The analysis in this section focuses on customers with a connection size of 100mm (using water meter size as a proxy). This group of customers makes up 96 per cent of all sewerage customers. Of these 100mm customers, 93 per cent are residential customers, and are those most impacted by bill increases that arise from cost-reflective charging for sewerage services. Customers with sewerage connections larger than 100mm would immediately move to cost-reflective prices, as per Table 7.6.

<sup>202</sup> Consistent with the recommendations in this report, non-residential properties (except trade waste customers) would be treated in exactly the same way as residential properties, reflecting the similar costs of treating discharged waste from these properties.

<sup>203</sup> The mid-range charge required to generate the required revenue is slightly lower, at \$482, than the cost-reflective charge of \$507.

**Table 7.8: Estimated sewerage charge under an eight band property value approach**

BAND	PROPERTY VALUE <sup>204</sup> (\$)	RATIO (%)	PROPOSED CHARGES (\$)
1	200,000 and below	70	337
2	200,001-300,000	80	386
3	300,001-400,000	100	482
4	400,001-500,000	120	578
5	500,001-600,000	140	675
6	600,001-800,000	160	771
7	800,001-1,500,000	180	868
8	Above 1,500,000	200	964

### 7.3.2.2 Impacts on the economy

As there are still customers not paying the cost-reflective price under this option (approximately 74 per cent), this represents a lower economic efficiency case than immediately moving to cost-reflective pricing. The greater the number of bands, the greater the number of customers who will not be paying the cost-reflective price, and the greater the loss in economic efficiency. However, as this option partially moves towards cost-reflective pricing, it does provide a level of improved economic efficiency.

### 7.3.2.3 Impacts on customers

Customer bill impacts arising from this option are presented in Table 7.9 and Charts 7.1 to 7.3. The bands have been set to maintain SA Water’s required revenue, while providing a possible path for charges to converge towards a single cost-reflective charge over time.

As can be seen, under an eight-banded approach, most customers would see no material change in their sewerage charge. No customers would experience a bill increase above \$104, and approximately 25 per cent of customers’ bills would reduce.

Moving from eight bands to four would see no customer experiencing a bill increase of more than \$71, with 34 per cent of customers seeing a bill reduction.

<sup>204</sup> For the purposes of this example, a single set of statewide value bands has been developed for all properties, both residential and non-residential. Recognising that country property values are typically lower than metropolitan property values, differential value bands for each would have to be developed prior to any implementation.

Moving from four bands to two would see no customer experiencing a bill increase of more than \$67, with 60 per cent of customers seeing a bill reduction.

Finally, moving from two bands to a single cost-reflective charge would see no customer experiencing a bill increase of more than \$32, with 19 per cent of customers seeing a bill reduction.

By progressively moving from individual property-based charging to eight bands, then to four bands, two bands, and finally a single cost-reflective price, the benefits of increased economic efficiency can be realised while avoiding any bill shock for customers.

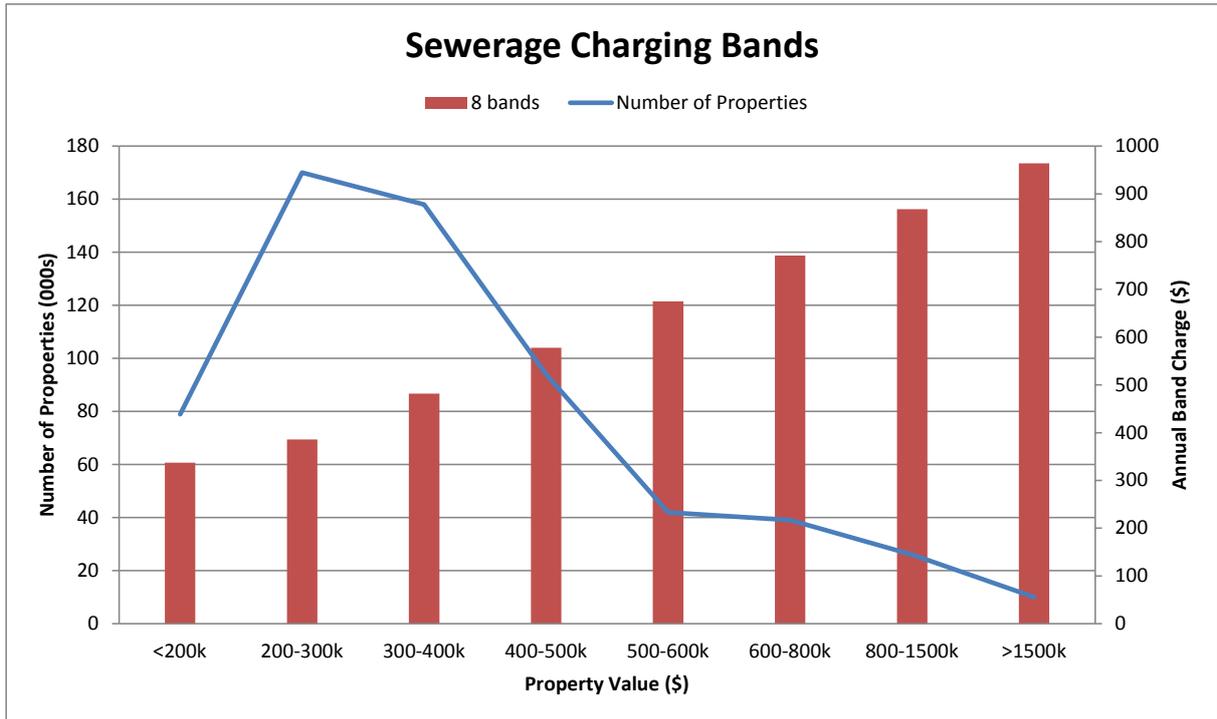
**Table 7.9: Bill impacts for sewerage customers under a banded property value approach**

PROPERTY VALUE (\$)	NO. OF CUSTOMERS	2013-14 CHARGE (\$)	POSSIBLE SEWERAGE CHARGE (\$)			
			8 BANDS	4 BANDS	2 BANDS	1 BAND
200,000 and below	79,000	341 <sup>205</sup>	337	408	475	507
200,001-300,000	170,000	341-378	386			
300,001-400,000	158,000	378-504	482	520		
400,001-500,000	94,000	504-631	578			
500,001-600,000	42,000	631-757	675	644		
600,001-800,000	39,000	757-1,009	771			
800,001-1,500,000	26,000	1,009-1,892	868	792		
Above 1,500,000	10,000	1,892+ <sup>206</sup>	964			

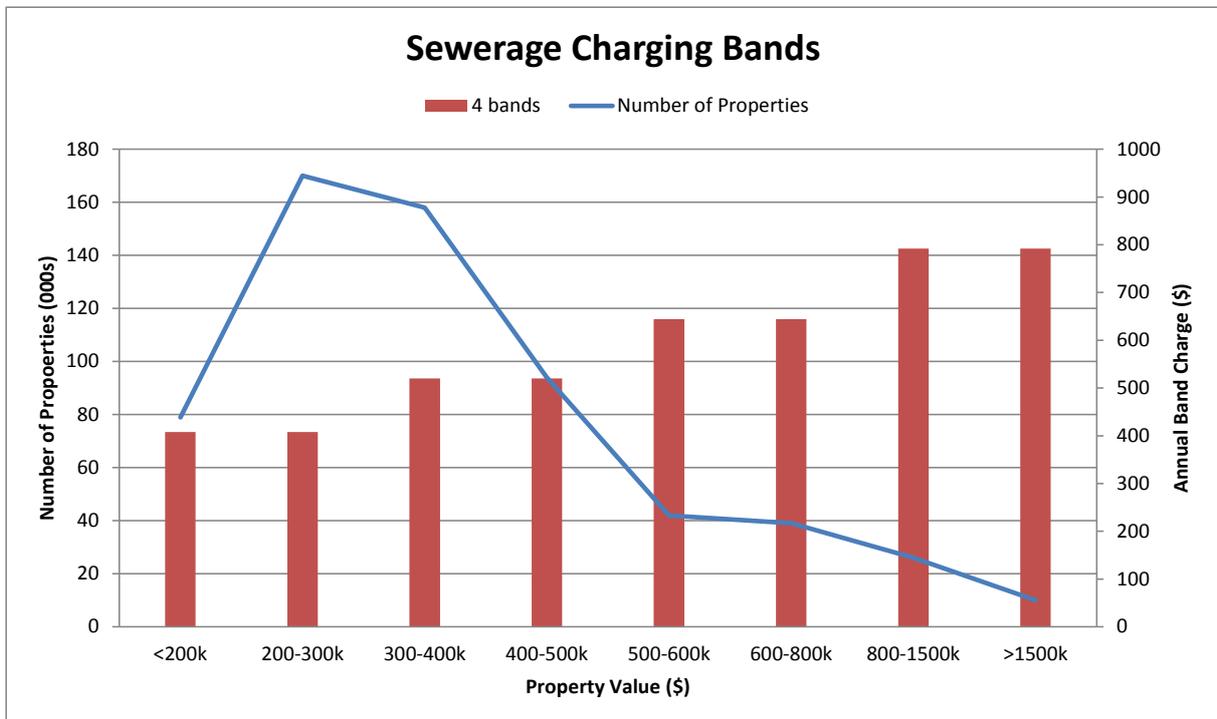
<sup>205</sup> The 2013/14 minimum charge was \$341 per annum, for all metropolitan properties valued up to \$271,000 and country properties valued up to \$206,000.

<sup>206</sup> Currently, there is no upper limit on sewerage charges (e.g. a metro property valued at \$5 million paid sewerage charges of \$6305 in 2013/14)

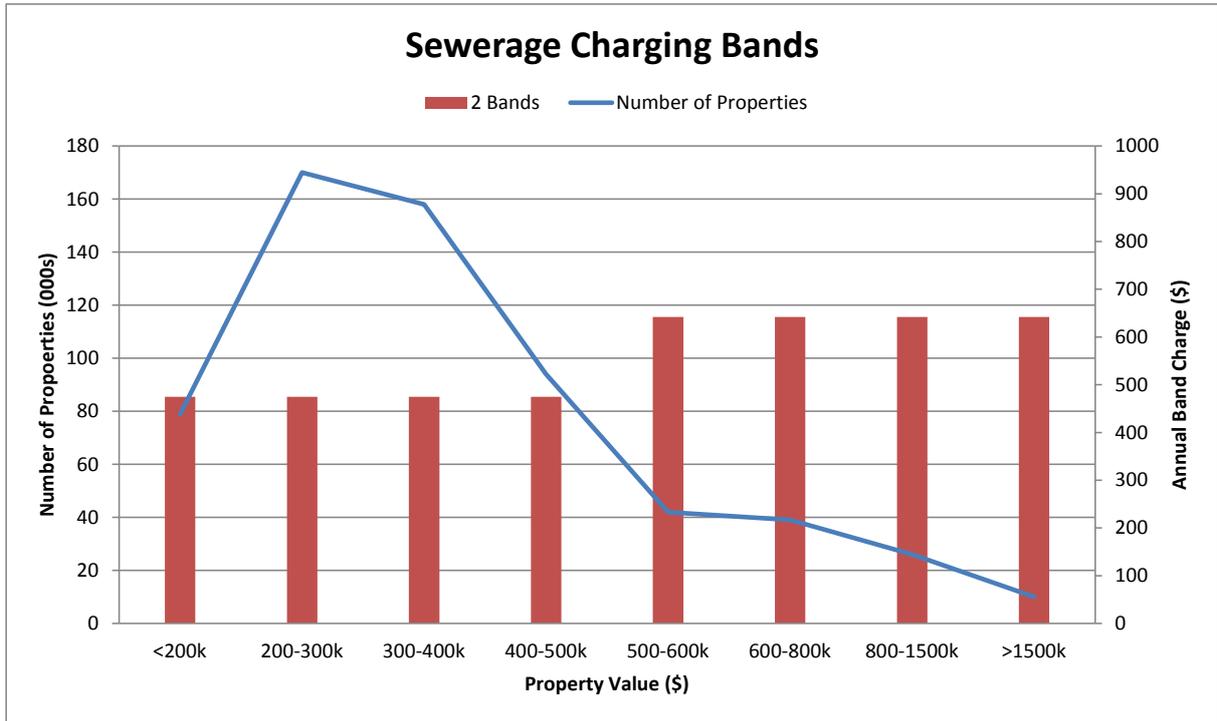
**Chart 7.1: Bill Impacts – Eight Charging Bands**



**Chart 7.2: Bill Impacts - Four Charging Bands**



**Chart 7.3: Bill Impacts - Two Charging Bands**



**1.4.1.1. Impacts on the Government/SA Water**

As with Option 1, the bill impacts presented in Table 7.9 assume that the same revenue is collected from sewerage customers as is currently collected under property-value based charging. Therefore, with the exceptions of any administrative costs needed to implement this option, there are no foreseeable cost impacts to SA Water or the Government.

## 8. TRADE WASTE

Trade waste is a form of sewage discharged by certain businesses (for example food and beverage producers) into the sewerage system. As it is a type of retail sewerage service, the Inquiry has considered alternative approaches to charging for it in ways that would promote greater economic efficiency.

### 8.1 Trade waste charges

#### ***Final finding***

***There is a usage cost (for disposal) imposed by trade waste customers on SA Water which it does not incur for other sewerage customers. Long-run marginal cost based charging is the most economically efficient way to set trade waste charges.***

#### ***Final recommendation***

**10. Trade waste charges should continue to be based on volume and load, set with reference to long-run marginal cost. An independent review should be undertaken to develop robust estimates of the long-run marginal cost of trade waste for flow and non-flow parameters.**

Eleven submissions to the draft Inquiry report related to trade waste. While none of them disputed the principles of cost-reflective pricing *per se* – indeed all of them supported it<sup>207</sup> – comments from affected industries and their representatives expressed concern at the impact of the recommendations on their businesses,<sup>208</sup> and the wider South Australian economy.<sup>209</sup> Noting this, the Inquiry has included some options for transitioning to cost-reflective trade waste charges.

Several submissions also questioned the LRMC prices proposed in the draft Inquiry report, with some suggesting they may be too high.<sup>210</sup> The Inquiry acknowledges this, however as discussed in Chapter 1, it has not examined in detail the various trade waste LRMC estimates, other than for flow. It is, however, recommended that these LRMC estimates be independently reviewed.

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<sup>207</sup> e.g. City of Pt. Lincoln submission, p.1, available at <http://www.escosa.sa.gov.au/library/20140919-Water-ReformPricingInquiry-DraftReportSubmission-CityPortLincoln.pdf>

Australian Industry Group (AIG), p.1, available at <http://www.escosa.sa.gov.au/library/20140919-Water-ReformPricingInquiry-DraftReportSubmission-AustralianIndustryGroup.pdf>

<sup>208</sup> For example, see submissions from Coca Cola Amatil, p.1, available at <http://www.escosa.sa.gov.au/library/20140919-Water-ReformPricingInquiry-DraftReportSubmission-Coca-ColaAmatilLtd.pdf>

Cooper's Brewery, p.2, available at <http://www.escosa.sa.gov.au/library/20140919-Water-ReformPricingInquiry-DraftReportSubmission-CoopersBrewery.pdf>

Food SA, p.7, available at <http://www.escosa.sa.gov.au/library/20140919-Water-ReformPricingInquiry-DraftReportSubmission-FoodSA.pdf>

<sup>209</sup> See Food SA, p.4; Coopers Brewery; Coca Cola Amatil; Business SA, p.6.

<sup>210</sup> See AIG, p.2; Coca Cola Amatil, p.1; Coopers Brewery, p.3; Food SA, p.13; Pt. Lincoln Seafood Processors Action Group, p.1, available at <http://www.escosa.sa.gov.au/library/20140919-Water-ReformPricingInquiry-DraftReportSubmission-PtLincolnSeafoodProcessorsActionGroup.pdf>

### 8.1.1 Key reasons for recommendation

- ▲ Economic efficiency is maximised when all decision-makers pay prices that reflect the costs of their decisions. In the case of trade waste services, customers should expect to pay the true cost of being provided with those services.
- ▲ LRMC-based pricing for trade waste services sends efficient price signals, promotes economic efficiency, and is the most appropriate pricing mechanism where a cost is associated with levels of usage or disposal.
- ▲ As noted by SA Water, the current prices for trade waste parameters are set well below LRMC estimates. Based on SA Water's LRMC estimates, this indicates that full cost recovery from trade waste customers is not being achieved and is resulting in other sewerage customers subsidising them by around \$14 each. The presence of cross-subsidies and the lack of full cost recovery are inconsistent with economic efficiency.
- ▲ The adoption of reliable LRMC estimates for trade waste would address these issues. Given the large impact on some customers through LRMC pricing, the Inquiry recommends that all LRMC estimates should be independently reviewed before being implemented.
- ▲ In its submission to the draft Inquiry report, SA Water expressed concern that movement to LRMC for trade waste would result in over-recovery of revenue.<sup>211</sup> If this is the case, the fixed charge component of the sewerage bill should be adjusted as far as necessary to avoid this. It remains important that the marginal decision for a firm to dispose of waste should be based on the LRMC associated with that decision.
- ▲ SA Water's proposed LRMC estimates for at least one trade waste parameter (flow) to be implemented gradually from July 2014 appears to be set too high. If this LRMC estimate was to be adopted, the effect would be the opposite to that discussed above. That is, it would result in an *over-recovery* of costs from trade waste customers and lead to those customers subsidising sewerage customers by approximately \$5 million per year, or approximately \$50,000 per larger volume and load-based (**VLB**) trade waste customer.

### 8.1.2 Current arrangements

SA Water collects and treats trade waste through its sewerage system.<sup>212</sup> The vast majority of trade waste customers discharge only small volumes and are not charged on the basis of particular waste parameters.

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<sup>211</sup> See SA Water submission to the draft Inquiry report, p.35.

<sup>212</sup> SA Water classifies trade waste as "*sewage, and substances contained within it, arising from any industrial, business, trade or manufacturing activity, which is discharged from a property's internal sewer to SA Water's sewerage system*"

Trade waste charges are additional to sewerage charges<sup>213</sup> and comprise application, audit and related fees and, for customers with load above a certain threshold, a fee based on the metered volume and type of pollutants discharged into the sewerage network. These pollutants include Nitrogen, measured as Total Kjeldahl Nitrogen (**TKN**), Biological Oxygen Demand (**BOD**), Total Phosphorus (**TP**), Suspended Solids (**SS**), Potassium (**K**) and Total Dissolved Solids (**TDS**).

The larger VLB trade waste customers (approximately 100 out of a total of 9000 trade waste customers) have samples taken from their sewage discharge on a regular basis. The quantity of the chargeable trade waste components is determined by multiplying the concentration by the volume of flow, as metered. Some VLB customers do not have sewage meters, and their sewage flow is estimated in proportion to their water meter readings, according to an agreed formula.

VLB customers receive a remission on their sewerage rates<sup>214</sup> which, SA Water has stated, is applied in recognition of the fact that some of the cost of accepting and treating discharges has been met through the existing sewer rating arrangements. Regardless of whether or not the remission is calculated based on the sewerage rate or VLB charge, it is applied as a reduction against the VLB charge.

The remainder of SA Water's trade waste customers are not charged on the basis of particular trade waste parameters, but pay application and audit fees, and must comply with the conditions of their trade waste permits. A common requirement for small customers (for example, restaurants) is the installation and maintenance of grease traps to prevent such material entering the sewer. Compliance audits are used to check, among other things, that such routine maintenance has been performed.

A schedule of all SA Water trade waste fees and charges can be found in Appendix 4.

The largest VLB customers discharge a disproportionately high quantity of trade waste. For example, between April and June 2013, the top five dischargers of BOD accounted for 44 per cent of the top 100 customers' total BOD, and the top five dischargers of nitrogen made up 58 per cent of all the nitrogen discharged by the top 100 customers.<sup>215</sup>

The majority of the trade waste volume (in the order of 97 per cent) is received at the Bolivar sewerage treatment plant.

SA Water has proposed new estimates for its trade waste parameters, based on LRMC and following a study undertaken in 2012-13. As the new estimates will result in significant price rises for trade waste customers, SA Water began a gradual implementation from 1 July 2014.

#### **8.1.2.1 Historical trade waste prices**

Submissions made the point that trade waste costs have already risen substantially in recent years, and that further rises could threaten the viability of some businesses.

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<sup>213</sup> That is, a trade waste customer is also a sewerage customer (and therefore pays for both services).

<sup>214</sup> Calculated as the lower of one-third of the applicable sewerage rate, or half of the VLB charge

<sup>215</sup> Calculated from information provided to the Commission by SA Water

Trade waste prices for the past eight years are presented in Table 8.1 below;

**Table 8.1: Historical trade waste prices for relevant parameters**

YEAR	FLOW \$/KL	BOD \$/KG		SS \$/KG		TDS \$/KG	TKN \$/KG	P \$/KG
		Up to 1000mg/L	Above 1000mg/L	Up to 500mg/L	Above 500mg/L	Above 650mg/L		
2014-15	0.156	0.256	0.386	0.227	0.328	0.129	0.400	1.946
2013-14	0.151	0.251	0.378	0.218	0.315	0.126	0.392	1.908
2012-13	0.128	0.239	0.360	0.198	0.300	0.084	0.341	1.659
2011-12	0.107	0.228	0.343	0.189	0.286	1.888	0.262	1.276
2010-11	0.093	0.217	0.327	0.180	0.272	1.888	-	-
2009-10	0.085	0.197	0.297	0.164	0.247	1.716	-	-
2008-09	0.077	0.179	0.270	0.179	0.225	1.560	-	-
2007-08	0.074	0.173	0.260	0.144	0.217	1.510	-	-

### 8.1.2.2 Opportunities for improvement

SA Water reported that the total cost attributable to trade waste VLB customers was \$9.84 million (for 2012-13), while the VLB revenue received was \$3.513 million per annum (i.e. overall 36 per cent of costs were recovered). For some trade waste parameters, the level of cost recovery is even lower (for example, TDS charges only covered 9 per cent of LRMC, see Table 8.4). This implied a revenue under-recovery of \$6.327 million per annum and a cross subsidy from general sewerage customers of approximately \$10 per sewerage customer.

The Inquiry has undertaken its own analysis, based on 2013-14 data, and notes that SA Water's current trade waste charges, compared with LRMC, appear to be set too low. This is preventing full-cost recovery from trade waste customers and is resulting in other sewerage customers subsidising them by up to \$14 per sewerage customer (based on SA Water's LRMC).

### 8.1.3 Discussion

LRMC-based pricing sends efficient price signals and promotes economic efficiency. It is, therefore, the most appropriate pricing mechanism where there is a cost associated with levels of usage or disposal.

For example, a large trade waste customer's discharge is potentially expensive for SA Water to treat and dispose of, and may bring forward the need for infrastructure augmentation.

Augmentation of sewerage infrastructure can be expensive and, as far as possible, it should be avoided or postponed through the LRMC price signal.

Cost-reflective pricing with reference to LRMC removes an inefficient subsidy to industries that may not be paying for their share of trade waste costs.

No submissions contradicted or disputed this central point. SA Water's submission did urge that caution be used in the application of its LRMC prices, and that a broad range of outcomes is possible depending upon assumptions used.

Several submissions also questioned the quantum of the LRMC parameters, as presented by SA Water, and have supported an independent review of these. For example, Coopers Brewery stated that, should trade waste charges rise by 85 per cent, it would become economically viable for it to treat its own trade waste, yet the SA Water LRMC prices would see Coopers' trade waste bills increase by an estimated 300 to 400 per cent. Coopers questioned how it could treat trade waste onsite cheaper than the cost of SA Water treating it at Bolivar, where it should benefit from substantial economies of scale.

SA Water submitted that, without changes in the fixed charge, LRMC pricing could result in too much revenue being received from the customer.<sup>216</sup> The Inquiry agrees with those sentiments, hence it recommends an independent review of SA Water's LRMC, with particular regard to the assumptions which underpin them. LRMC pricing is only efficient if correctly set, otherwise there is indeed a risk of revenue recovery not equalling costs.

#### **8.1.3.1 LRMC estimates**

The Inquiry has considered an appropriate methodology for pricing SA Water's trade waste services, concluding that the broad approach adopted by SA Water to estimate LRMC for the other trade waste pollutants (measured by load) appears reasonable.

However, it has found that:

- ▲ the current LRMC for one trade waste parameter (flow) is currently estimated by SA Water at \$1.33 per kL, although it should be around \$0.40 per kL. This difference is attributed to SA Water not correctly accounting for infiltration flows in its LRMC estimates, leading it to overestimate costs attributable to trade waste customers. This is explained further below.
- ▲ the methodology of apportioning costs between trade waste pollutants does not accurately estimate the marginal impact of each pollutant. This may not be a material issue, given the uncertainty in forecasting future demand.

The revised value of the LRMC estimate for flow from \$1.33 to \$0.40 was disputed in a submission by professional services firm GHD, which stated that the range of \$1 to \$2 is more likely, based on their experience. This range is more in line with interstate comparisons, as shown in Table 8.2. However, rather than focus on particular numbers, the

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<sup>216</sup> SA Water submission to the draft Inquiry report, p.35.

purpose of this report is to highlight the most economically efficient approach. The numbers themselves should, as previously stated, be subject to an independent review.

While trade waste prices in other jurisdictions will not necessarily translate to costs for SA Water, given varying factors such as different customer growth profiles and treatment standards, it is noted that the proposed SA Water LRMCs for most trade waste parameters are within the range of prices already being charged interstate (as shown in Tables 8.2 and 8.3) while its current trade waste prices are, in general, well below those of the interstate counterparts.

Given that the environmental standards required to discharge into Gulf St Vincent generally require a higher level of treatment than some other jurisdictions, such as Sydney, it would be expected that the cost profile would reflect this. These costs must nevertheless be met by the relevant dischargers. If it is cheaper to use additional water to deal with waste concentrations, so long as the water and trade waste charges are efficiently set, then that is an appropriate outcome.

**Table 8.2: Trade waste cost parameters for Interstate utilities.**

UTILITY	FLOW \$/KL	BOD \$/KG	SS \$/KG	TDS \$/KG	TKN \$/KG	TP \$/KG
Sydney Water - primary treatment plant	-	0.244 +	0.489	-	-	-
Sydney Water - secondary or tertiary treatment plant	-	1.556 +	1.327	-	1.327	4.918
Gosford City Council	1.67	0.74	0.95	0.04	0.18	1.42
Wyong Shire Council	1.05	0.74	0.95	0.04	0.18	1.42
City West Water	0.9605	0.9619	0.5212	0.0189	1.8511	-
South East Water	0.925	0.8776	0.4921	-	1.9275	-
Yarra Valley Water	1.075	0.8399	0.4888	0.0349	2.2705	-
Western Water	1.1003 - 1.5717	0.3178	0.2027	0.1349	0.6087	-
Water Corporation	1.39	1.17 - 2.37	1.58 - 3.18	0 - 0.134	1.27	0.37
Urban Water Utilities	0.95	0.93	0.85	-	2.12	1.68
Unity Water	2.07	2.09	1.21	1.38	1.93	5.51

### 8.1.3.2 Usage charges

Unlike most sewerage charges, volumes of trade waste can be measured and usage-based pricing is practical. The quantities and composition of trade waste can be sufficient to disturb the sewage treatment process, which is designed to accept domestic-strength waste. It is, therefore, appropriate that LRMC-based pricing be used to send efficient price signals to users.

The marginal usage costs of managing trade waste relate to the cost of processing peak flows at the sewage treatment plant. However, peak volume received at a plant is greater than the volume discharged by customers, mainly due to infiltration into the network. Based on estimates provided by SA Water, the level of infiltration is high. As a result, during peak flow events at Bolivar (driven largely by stormwater infiltration), flows over a 24-hour period increase by up to 2.7 times the normal flow.

### 8.1.3.3 Fixed charges

While there are fixed components to a trade waste customer's total charges (for example, audit and sewerage service fees), a fixed charge for large trade waste customers is not considered the most efficient approach. This is because of the disproportionately large amount of trade waste that can be generated, and the costs of dealing with it. It is viable to identify the largest customers, meter their trade waste, and charge accordingly – where the pricing signal can be implemented as one means of controlling the quantity and strength of waste discharged. This approach is generally consistent in the water industry across Australia.

SA Water's current charges and its new LRMC estimates for trade waste flow and other pollutants are presented in Table 8.3.

**Table 8.3: SA Water's LRMC estimates for trade waste flow and pollutants (ex. GST)**

PARAMETER	CURRENT CHARGE RATE 2014/15	NEW SA WATER LRMC ESTIMATES	% OF LRMC ESTIMATE DUE TO CAPITAL AUGMENTATION
Flow	\$0.156/kL	\$1.33/kL	97
BOD	\$0.256/kg to \$0.386/kg	\$0.74/kg	98
SS	\$0.227/kg to \$0.328/kg	\$0.82/kg	95
TDS	\$0.129/kg	\$1.37/kg	43
TKN	\$0.400/kg	\$2.91/kg	58
TP	\$1.946/kg	\$12.05/kg	87

### 8.1.3.4 Proposed SA Water trade waste LRMC

SA Water stated that, from July 2014, it intended to move towards full cost recovery for trade waste services, and would increase the price of each trade waste parameter by the Consumer Price Index between 2014 and 2017 (which means there will be no real price increases). Thereafter, it will continue to move towards LRMC.<sup>217</sup>

This Inquiry has not undertaken a detailed review of the LRMC of all trade waste parameters. However, it is clear that, where full-cost recovery is not being achieved for a particular service, some cross-subsidies will exist. Therefore, to improve economic efficiency, transition to full-cost recovery should begin as soon as possible.

<sup>217</sup> Fact sheet – frequently asked questions – Trade Waste Pricing for Volume and Load Based (VLB) customers.

**Table 8.4: Comparison of SA Water’s LRMC estimates with current trade waste charges**

PARAMETER	CURRENT CHARGE RATE	SA WATER NEW LRMC ESTIMATE	% OF LRMC CURRENTLY RECOVERED
Flow	\$0.156/kL	\$1.33/kL	12%
BOD	\$0.256/kg to \$0.386/kg	\$0.74/kg	35 to 52%
SS	\$0.227/kg to 0.328/kg	\$0.82/kg	28 to 40%
TDS	\$0.129/kg	\$1.37/kg	9%
TKN	\$0.400/kg	\$2.91/kg	14%
TP	\$1.946/kg	\$12.05/kg	16%

**8.1.3.5 Which trade waste LRMC should be used?**

The Inquiry has examined the usage cost attributable to trade waste VLB customers. Preliminary analysis indicates that SA Water is likely to have significantly overestimated (by around two-thirds) the usage cost (i.e. flow) attributable to these customers. This suggests that it may not be under-recovering its trade waste costs relating to flow to the extent it thinks.

The adjustment to the value for flow is recommended for two reasons:

- ▲ If LRMC is to be used as a basis of pricing sewage volumes for trade waste customers, it should estimate the impact of a marginal (but permanent) change in sewage volume *produced* by customers. However, SA Water’s estimate of LRMC is based on the marginal permanent change in sewage volume *received* (i.e. inflows) at the Bolivar WWTP.

Due to infiltration into wastewater pipes, the sewage volumes produced by customers will be less than the volume received at the Bolivar WWTP. The implication of infiltration is that, in percentage terms, a change in the sewage volume produced by customers will be smaller than the change in sewage received.

- ▲ New infrastructure will be required to meet growth in both peak wet weather flow (**PWWF**) and annual average flow (**AAF**). However, at Bolivar (and other WWTPs) a change in AAF without a change in PWWF will not materially change the timing of (or need for) new infrastructure. This is because the new infrastructure required to meet growth in AAF will be required first to meet growth in PWWF. Therefore, the marginal

cost of additional sewage flow arises from the extent to which this flow contributes to PWWF, not its contribution to AAF.

On this basis, Sapere estimated that SA Water's LRM of sewage volume should be around \$0.40 per kL of sewage produced, as opposed to SA Water's estimate of \$1.33/kL.

The Inquiry proposes that alterations be made to the methodology for calculating the LRM of flow to account for infiltration flows in LRM estimates. Consequently, in calculating the impact on customers from the proposed adoption of LRM for trade waste, it has used the flow LRM of \$0.40/kL, rather than SA Water's proposed LRM estimate of \$1.33/kL. (In comparison, the 2013/14 charge for flow in trade waste was \$0.151/kL).

#### **8.1.3.6 Other options considered**

The Inquiry also considered setting trade waste prices with reference to SRM.

SRM-based pricing is not recommended because of its inherent volatility. Although it may provide a short-term pricing signal, in practice, many trade waste-generating processes (for example, manufacturing) and systems are inflexible in the short term and likely to be unable to respond to a short-run price signal. If businesses are unable to respond to price changes, there are no benefits in terms of economic efficiency to be gained from using SRM. In addition, as SRM does not provide a long-term price signal, businesses would have a weakened incentive to install appropriate treatment infrastructure.

#### **8.1.3.7 Customer bill impacts**

If this recommendation is adopted, the current cross-subsidy between sewerage and trade waste customers will cease, resulting in a reduction in a typical sewerage customer's bill of approximately \$14 per year.<sup>218</sup>

VLB trade waste customers' bills would rise to compensate for this, by an average of \$90,000 per year, although this will vary considerably between customers according to their level, and type, of discharge. For example, initial analysis indicates that, for the largest 100 VLB customers, trade waste bills will increase, on average, by more than 400 per cent. Revenue for the TDS component of trade waste would have to rise by eleven-fold, with the largest TDS discharger's trade waste bill increasing by approximately \$1.2 million per annum. Given the extent of the impact, it is recommended that the remaining non-flow parameters of SA Water's LRM estimates be independently examined prior to implementation.

Further, applying SA Water's proposed LRM for flow would result in the top 100 VLB trade waste bills increasing, on average, by approximately \$140,000 per year.

The estimated customer bill impacts that arise from all sewerage and trade waste recommendations, using the indicative water meter size analysis found at Section 7.1.3.3 as a proxy, are presented in Table 8.5. The fact that there are decreases in the average bills for most customers is driven by the unwinding of the current cross-subsidy to trade waste

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<sup>218</sup> Based upon SA Water's LRM prices, except for flow, and based upon the Commission's analysis of 2013/14 figures.

customers from all other sewerage customer types (i.e. less revenue needs to be collected from non-trade waste sewerage customers). This is coupled with the move to connection based charging, which would, as described in Section 7.1.3.3, reduce the average charge to land assessments with a single connection.

**Table 8.5: Bill impacts of sewerage and trade waste tariffs reform**

CUSTOMER TYPE	METROPOLITAN			REST OF STATE		
	<i>Increases greater than \$50 p.a.</i>	<i>Decreases greater than \$50 p.a.</i>	<i>Average bill change \$ p.a.</i>	<i>Increases greater than \$50 p.a.</i>	<i>Decreases greater than \$50 p.a.</i>	<i>Average bill change \$ p.a.</i>
Residential	40%	37%	-98.46	34%	11%	+10.69
Industrial	11%	61%	-1087.72	10%	13%	-177.89
Commercial	12%	77%	-908.01	15%	26%	-172.08
Concession	43%	32%	-17.93	34%	8%	+31.28
Exempt	1%	99%	-952.51	2%	98%	-666.74

**8.1.4 Implementation**

This recommendation does not require any immediate changes to legislation, or to SA Water’s billing system. The Inquiry is not proposing any change to the methodology for calculating and collecting revenue from VLB trade waste customers, so does not foresee implementation issues.

Several submissions have, however, raised the issue of the high impact the reforms would have on some businesses.<sup>219</sup> Other submissions raised the issue of the need for a transitional adjustment period, if LRMC based prices are introduced. The Inquiry understands that most manufacturing has high fixed costs, and that it takes time to design and commission new infrastructure, or to introduce improved production methods, to reduce the quantity of trade waste.

Section 8.3 below proposes an option for transitioning to cost-reflective pricing. However, as discussed in Chapter 1, where a subsidy is required, this should not be delivered through pricing.

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<sup>219</sup> Business SA (p.7), and the AIG (p.2), also make the point that any changes to trade waste pricing should only be considered within the framework of all state taxes, charges and utility prices, as well as other cross-subsidies that may exist.

## 8.2 Regional trade waste charges

### **Final finding**

***The long-run marginal cost of trade waste is likely to differ for each individual sewerage catchment and there may be net benefits in setting regional trade waste charges to reflect those cost differences.***

### **Final recommendation**

***11. Consideration should be given to implementing regional trade waste charges where the long-run marginal cost of each trade waste parameter within a sewerage catchment is known. Until long-run marginal cost estimates have been developed for individual sewerage catchments, trade waste prices should be set with regard to the long-run marginal cost at Bolivar, which accepts 97 per cent of trade waste volume.***

### 8.2.1 Key reasons for recommendation

- ▲ Economic efficiency is maximised when all decision-makers pay prices that reflect the costs of their decisions. In the case of trade waste services, customers should see the true cost of being provided with those services.
- ▲ The cost of supplying trade waste services is likely to differ between regions and cost-reflective prices should reflect those differences to promote economic efficiency.
- ▲ Businesses should be able to make decisions about location based upon the ongoing costs they face. Those businesses with large discharges of certain trade waste parameters, such as TDS, should be encouraged through the price mechanism to locate where the disposal costs of that waste is lowest.

### 8.2.2 Discussion

It is likely that trade waste LRMCs would differ substantially between sewerage catchments, depending on local supply and demand conditions. Regional LRMC pricing would, over time, lead to customers receiving a true price signal for the discharge of trade waste in their regions. For example, a new, large trade-waste customer in a small sewerage catchment area is likely to have a significant impact on the capacity constraints of the local treatment plant and should receive appropriate price signals in making its decision to locate there.

As trade waste uses the sewerage network, the regional pricing of trade waste services should consider the same 24 sewerage regions, or wastewater asset systems, discussed under Recommendation 10.

Ideally, the charge for trade waste disposal should depend on the LRMC of each individual sewerage region, and the price should send the relevant usage signal. This should be

possible because large trade waste customers, unlike general sewerage customers, have flow meters to measure their waste outputs.

Furthermore, an LRMC value prior to the entry of a significant trade waste customer may be vastly different to an LRMC estimate after that customer has become a part of the trade waste network. This is because a large customer's ongoing activities could require the augmentation of infrastructure that would otherwise not be required. In this case, the change in demand would be significant, and an appropriate locational signal should be sent through augmentation charges. If an appropriate augmentation charge is imposed, this should allow the LRMC to remain unchanged and existing customers would not need to pay for the cost of entry of a new customer.

SA Water has stated that 97 per cent of all trade waste is currently treated at Bolivar. It also advised that it has not determined LRMC estimates for any wastewater asset systems other than Bolivar.

Given that, as at 2013-14, only three per cent of trade waste volumes are treated at WWTPs other than Bolivar, the efficiency benefits of location-based pricing of trade waste would currently only apply to a small proportion of trade waste. However, the costs of location-based pricing, which are administrative, may also be small, while the potential benefits may be large if costly and disruptive trade waste decisions are based on appropriate and relevant price signals.

Due to the potentially different costs of treatment between SA Water sewerage regions, LRMC estimates should be developed for each region. (A detailed review of regional LRMCS for trade waste parameters has not been undertaken for this Inquiry.) Until this has been done, trade waste prices should be set at the Bolivar LRMC (subject to further reviews of the LRMC parameters).

Price signals for the location of new trade waste customers should be set through augmentation charges. In situations where the entry of a new customer (or the expansion of an existing customer) drives (or advances) the need for new investment, it would be efficient for the customer to be levied directly for the incremental cost caused by his action. Such a levy would provide an efficient signal about the costs of new development and expansion, and provide an appropriate location-based price signal.

Augmentation charges are not the only ones that should deliver a locational signal. Supply charges and sewerage charges should also signal the cost of maintenance/replacement of assets. Therefore, a combined augmentation and trade waste charge should be used to provide location-specific price signals. Much of the necessary information required for the calculation of the augmentation charges would also be used in calculating regional trade waste LRMCS.

### **Box 8.1: Case study on regional trade waste charging**

The cost of salt is reflected in the effect it has on the viability of waste water disposal options, as it is not removed through standard wastewater treatment options. The saltier the effluent water, the less useful it is for land-based purposes such as irrigation. Instead, the effluent water may need to be disposed of at sea. Gulf St. Vincent, which would be the recipient of such water from Bolivar, Glenelg and Christies Beach, is a fragile marine environment where other components of effluent water, such as nitrogen and phosphorous, can have a severe environmental impact.

The Port Adelaide sewerage treatment plant does not provide any water for recycling, as it is all pumped out to sea. It is appropriate for the receipt of highly saline influent, as salt imposes very minimal extra cost (there will still be some cost associated with additional corrosion of infrastructure).

This high salinity plant currently has, within its catchment, nine VLB trade waste customers, according to 2012-13 data. These customers currently pay the same rates for TDS disposal as those within the Bolivar catchment, and paid approximately \$24,000 in 2013-14 for disposal of TDS. This would increase to more than \$260,000 under LRMC pricing (\$2013-14).

Meanwhile, there are other customers within the Bolivar catchment who would, under SA Water's LRMC, pay an annual TDS disposal charge of up to \$1.2 million.

If the Port Adelaide plant carried with it a cost-reflective (low) TDS charge, based on its own LRMC, this would provide a price signal to high TDS emitters to think about the benefits of relocating. Not only could this greatly reduce the annual cost of TDS disposal, but their relocation out of the Bolivar catchment would improve the quality of Bolivar's effluent water *and* improve the viability of recycling effluent. This would be an efficient economic and environmental outcome.

#### **8.2.2.1 Costs and other implications**

Determining regional LRMC estimates, and ensuring they remain accurate over time, would incur costs. A move to apply regionally specific LRMC values to trade waste customers is linked to the implementation of the regional water pricing recommendations discussed earlier in this Report (refer to Recommendations 8 and 9). Those recommendations would include costs related to SA Water's billing system changes, estimated by the billing system review to be around \$870,000. Once these changes were made, it is expected that they could accommodate the regional LRMC recommendation with no additional billing system costs.

### 8.2.2.2 Other options

The alternative option of charging for trade waste services on a statewide basis is not supported at this time, for the following reasons.

- ▲ It is likely that the LRMC would differ substantially between sewerage catchments, depending on local supply and demand conditions.
- ▲ Not addressing these cost differences would preserve any cross subsidies that may exist between sewerage catchment areas for sewerage and trade waste customers.
- ▲ It may result in inefficient location decisions for industries that generate trade waste, thus increasing the total costs of dealing with trade waste.

### 8.2.3 Customer bill impacts

This recommendation would not result in any immediate impact on customer bills. Any impacts that arose over time would be dependent on the findings of regional trade waste LRMC studies. Until such studies are carried out, there is no way of knowing whether any bill impacts will arise, relative to the setting of all trade waste prices with reference to Bolivar.

### 8.2.4 Implementation

This recommendation would not require any immediate changes to legislation. Some SA Water billing system changes would, however, be necessary. The costs of regional pricing are discussed in Chapter 6.

Ideally, implementing regional trade waste LRMC prices would be undertaken at the same time as implementing regional drinking water and sewerage LRMC prices, and transition towards full cost recovery could begin immediately. However, there is a substantial discrepancy between current charges and LRMC, as shown in Table 8.4. Issues associated with determining an appropriate lead-time, to allow certain industries to plan for and implement infrastructure improvements or alternative disposal arrangements, would need to be considered.

Where it is known that LRMC for a trade waste parameter is not equal to the Bolivar equivalent, such as TDS for a sewerage treatment plant that does not recycle water, an adjustment should be made as soon as possible to the charge that applies to customers within the relevant sewerage catchment area.

## 8.3 Transitional options for trade waste charges

The Inquiry has recommended that LRMC-based pricing is the most economically efficient approach to setting VLB trade waste charges, although it is acknowledged that, for trade waste customers facing VLB charges, this will lead to large bill increases, as current charges are below cost-reflective levels. In contrast to drinking water prices, where large customers are currently cross-subsidising small customers, trade waste customers are currently being cross-subsidised by smaller sewerage customers.

Should the Government wish to minimise the bill impacts to VLB customers of moving to LRMC-based pricing, one option could be to adjust the fixed charges for those customers to offset the impacts of rising usage charges. Under this approach, the price signal from LRMC-based VLB charges would be retained, while also addressing any potential price shocks faced by trade waste customers.

This transition process would involve the following steps.

- ▲ Each customer would have an initial discharge allowance based upon the existing trade waste agreement between SA Water and the customer.
- ▲ The customer should, in the first step of transition to LRMC pricing, be able to discharge up to the agreed amount of waste without incurring additional charges in total. (i.e. the revenue SA Water receives from that customer would be unchanged)
- ▲ Even though the pricing of the trade waste parameters could move immediately to LRMC, the additional cost could be offset by reductions to the fixed charge.
- ▲ The fixed charge could even be negative if this was required for transition. The important principle that the customer faces with the marginal cost of trade waste decisions remains intact.
- ▲ Discharges in excess of the agreement would also be charged at LRMC, but would not be offset. This is similar to SA Water's existing penalty discharge rates, which are set with reference to LRMC.
- ▲ Faced with the true (increased) marginal cost of their trade waste decisions, customers would be able to make properly informed decisions about the viability of installing infrastructure or changing production methods to reduce their waste load profiles.
- ▲ Over time (for example, five years) the discount on the fixed charge would be steadily removed so that, by the end of the period, cost-reflective pricing for both fixed and usage charges could be achieved.

Currently, SA Water provides a remission on fixed charges in recognition of the fact that they already have embedded in them the volumetric cost of sewerage treatment. As discussed previously, that volumetric cost is very small relative to SA Water's total sewerage costs. However, given the amount of sewage discharged by VLB trade waste customers, and the fact that they are already charged on a volumetric basis, the fixed charge remission is appropriate, as it avoids those customers paying twice for the volumetric cost embedded in fixed sewerage charges.

Separating the fixed and usage charges for VLB customers would be simpler than the current arrangement of remission of fixed charges. It will require the calculation of fixed charges for VLB customers to be different from that of the broader customer base, in order to strip out the proportion of fixed charges that applies to the cost of dealing with the volumetric waste.

If it proves too difficult to strip out the volumetric component of fixed charges, it will remain necessary to continue to provide a fixed charge remission to correct for the over-recovery of revenue that would otherwise result from movement towards LRMC pricing.

**8.3.1 Impacts on the economy**

The longer it takes for cross-subsidies to unwind, the longer the delay in realising the economic efficiency benefits that could be achieved from cost-reflective pricing. Therefore, a longer transition period, while providing some improvement in economic efficiency, results in an efficiency loss when compared with a shorter transition period.

**8.3.2 Impacts on customers**

Over time (for example, five years), the subsidy on the fixed charge could be reduced in equal instalments so that, at the end of that period, the customer would be paying cost-reflective prices, with no cross-subsidy from other SA Water customers. The quantitative effect of this would be the same as a movement towards LRMC pricing in five equal instalments, resulting in the price paths outlined in Table 8.6.

**Table 8.6: Estimated path of transition from current pricing to SA Water’s LRMC estimates for trade waste flow and pollutants (\$2014 ex. GST)**

PARAMETER	CURRENT CHARGE RATE 2014-15	YEAR 1	YEAR 2	YEAR3	YEAR 4	YEAR 5 LRMC ESTIMATES
Flow \$/kL	0.156	0.205	0.254	0.302	0.351	0.40
BOD \$/kg	0.256 to 0.386	0.405	0.489	0.572	0.656	0.74
SS \$/kg	0.227 to 0.328	0.386	0.495	0.603	0.712	0.82
TDS \$/kg	0.129	0.377	0.625	0.874	1.122	1.37
TKN \$/kg	0.400	0.902	1.404	1.906	2.408	2.91
TP \$/kg	1.946	3.967	5.988	8.008	10.029	12.05

Individual customers will be affected differently, depending upon the quantity and combination of VLB trade waste.

**8.3.3 Impacts on the Government/SA Water**

There is no direct revenue impact from the transition to cost-reflective prices for VLB trade waste customers under an assumption of revenue neutrality, as the increased VLB charges would be offset by reduced charges for other sewerage customers.

## 9. WATER PLANNING AND MANAGEMENT COSTS

Clause (a) of the Terms of Reference requires an inquiry “... into options for pricing reform for drinking water and sewerage retail services provided by SA Water in South Australia”.

The pricing of the cost components that make up these services is important in driving economically efficient consumption behaviour. This chapter discusses one such cost component – water planning and management (**WPM**) costs.

The Inquiry recognises that there are likely to be more environmental externalities (positive and negative) associated with water and sewerage service provision than are currently costed. It therefore encourages further work in this area – as recommended in the *National Water Initiative* and *Water for Good*. However, as stated in the Inquiry’s Issues Papers, a comprehensive review of all externalities is beyond its scope, and its focus would be limited to WPM costs that are recovered through SA Water’s customers.

The draft Inquiry report identified areas for improvement in the way the current WPM arrangements are set and reported. It recommended that the Government consider commissioning an independent public review of the prudence and efficiency of all WPM-related costs and, that until such a review was conducted, SA Water’s customers’ bills should transparently present WPM charges.

Nearly all submissions that raised the topic of WPM charging expressed support for further reform in this area. Most of them supported the draft Inquiry report recommendations, which proposed both an independent public review of the prudence and efficiency of all WPM costs incurred by SA Water, and billing changes to ensure greater transparency in WPM charging.

A number of submissions raised concerns about the limited progress to date in implementing externality pricing and suggested even further reform was needed than that proposed in the draft Inquiry report.

## 9.1 Water planning and management costs

### **Final finding**

***Current water planning and management charges paid by SA Water’s customers may not be economically efficient.***

### **Final recommendations**

- 12. The Government should consider commissioning an independent public review of the prudence and efficiency of all water planning and management-related costs incurred by SA Water, including the manner in which they are recovered.***
- 13. Until such a review is conducted, SA Water should make it clear on customers’ bills that a water planning and management payment is being collected through them – and that it is being done for the benefit of the wider South Australian public. Consideration should also be given to the development of a mechanism whereby SA Water’s WPM costs are balanced or trued-up prior to the commencement of the next price determination period (1 July 2016).***

### 9.1.1. Key reasons for recommendations

- ▲ The way WPM charges are set and recovered from SA Water may be affecting economic efficiency.
- ▲ There is currently either a lack of, or a lack of adherence to, formal processes for the independent review of the prudence or efficiency of these costs, and there is the potential for greater transparency about how they are set and recovered.
- ▲ There may be some potential efficiency to be gained from reviewing the current WPM collection mechanisms.
- ▲ When WPM costs are passed on to consumers, the process should be transparent.

### 9.1.2. Current arrangements

The supply of water and sewerage services brings obvious benefits – for example, to public health – but it can also involve costs, for example, to the environment. These costs or benefits, referred to by economists as “externalities”, are not always reflected in the prices charged. However, pricing externalities and charging for them can be important in driving economically efficient consumption behaviours.

In 2007, an NWI Steering Group made a clear distinction between externality charges and charges to recover the cost of WPM activities.

WPM activities include, for example:

- ▲ development, implementation and review of water resource plans
- ▲ environmental and ecosystem management planning

- ▲ measures to improve water use, such as water efficiency programs.

Across the Murray Darling Basin, governments use a variety of charges to fund or recover the costs of WPM activities. These include:

- ▲ fees and charges for the issuing of water access rights and other permits
- ▲ service/transaction fees (for example, application for trade or transfer of a water access entitlement)
- ▲ charges (often in the form of a levy) that fund multiple activities.

SA Water makes contributions to the Department of Environment, Water and Natural Resources (**DEWNR**), at the direction of the Minister for Water,<sup>220</sup> to support WPM activities required for the implementation of the NWI and the SA Government’s *Water for Good* Plan. For the SA Water PD 2013, these charges will total \$51.4 million (equating to approximately \$78 for each water customer across the three years)(Table 9.1). For SA Water PD 2016, these charges will total \$74.8 million (equating to approximately \$113 for each water customer across the four years)(Table 9.1).

**Table 9.1: WPMC amounts payable by SA Water to DEWNR**

YEAR	AMOUNT (\$M)	% INCREASE
2013-14	16.7	NA
2014-15	17.1	2.4
2015-16	17.6	2.9
2016-17	18.0	2.3
2017-18	18.5	2.8
2018-19	18.9	2.2
2019-20	19.4	2.6
TOTAL <sup>^</sup>	126.1	NA

<sup>^</sup>Total may not sum due to rounding.

The WPM charges SA Water incurs are ultimately paid for by its customers. The money recovered is passed on to Government and other authorities to fund a number of water-related activities.

<sup>220</sup> In May 2013, the Minister for Water issued a Ministerial Direction to SA Water covering the period 2013-14 to 2015-16. A second Ministerial Direction was issued in October 2014 covering the period 2016-17 to 2019-20.

Most water customers also pay the Save the River Murray Levy, which is collected from both residential and non-residential customers to be spent on certain River Murray-related activities, in accordance with the Water Industry Act. The estimated cost of these activities for 2013-14 was \$26.1 million (approximately \$40 for each water customer per year).

### 9.1.3. Discussion

All submissions that raised the topic of WPM charging, except for SA Water's,<sup>221</sup> expressed support for further reform in this area.<sup>222</sup> Some supported greater transparency,<sup>223</sup> while others said more work was needed to ensure environmental externalities were better captured.<sup>224</sup> There was general acceptance that it is reasonable for WPM costs to be considered as genuine costs of providing water and sewerage charges.<sup>225</sup>

The main WPM-related charges relevant to SA Water (and reviewed in determining the Inquiry's recommendations) are:

- ▲ NRM levies (\$45.41 million in 2012-13)
- ▲ WPM-related charges included in the Ministerial Direction issued by the Minister for Water, payable to DEWNR (\$16.7 million in 2013-14)
- ▲ the *Save the River Murray Levy* (\$26.1 million a year)
- ▲ the State's Murray Darling Basin Agreement payments (\$26.4 million a year).

As the WPM-related charges above do not include sufficient detail about the way these costs are calculated or applied, it has not been possible to determine exactly how much of the total charges relate to WPM activities. For example, the Murray Darling Basin Authority (**MDBA**) stated in its submission that the bulk of South Australia's contribution to the MDBA should be attributed to services that fall outside of the NWI definition of WPM.<sup>226</sup> Furthermore, it is difficult to determine whether these WPM-related charges are efficient or

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<sup>221</sup> SA Water (draft Inquiry report p.9) stated that the issue of WPM charges was a matter of government policy and chose not to comment.

<sup>222</sup> For example, see CS Shipard, CHCSA, Consumers SA, UDIA, EPA, CCSA, Richard Clarke and Associates (Issues Papers), and Ceduna Council (Issue Papers), District Council of Lower Eyre. All submissions are available at: <http://www.escosa.sa.gov.au/projects/189/inquiry-into-drinking-water-and-sewerage-retail-services-pricing-reform.aspx>

<sup>223</sup> For example, Consumers SA submission, p.4.

<sup>224</sup> For example, the EPA stated that the licence fees for the ADP do not take into account the broader lifecycle impacts of the plant (p.2), and the Conservation Council of SA stated that current arrangements do not allow for improvements in environmental performance such as sea grass improvements and weed management (pp.4-5).

<sup>225</sup> Uniting Communities, in its submission to the Issues Paper (p.8.) stated that, while it accepted that WPM costs are part of the operating costs of providing water and sewerage services, broader policies, such as those relating to the environment, should be funded by Treasury rather than through consumers' water bills.

<sup>226</sup> Murray Darling Basin Authority, submission to draft Inquiry report, September 2014, p.20, available at: <http://www.escosa.sa.gov.au/library/20141001-Water-ReformPricingInquiry-DraftReportSubmission-MurrayDarlingAuthority.pdf>.

provide SA Water and/or its customers with appropriate price signals and incentives to change behaviour.

### 9.1.3.1. NRM Levies

SA Water holds a water entitlement in four of the State’s NRM regions: the SA Murray Darling Basin; Adelaide Mount Lofty Ranges; South East; and Eyre Peninsula. As shown in Tables 9.2 and 9.3, it pays a differential water levy rate which is much higher than other water users in each of these regions. For example, it pays over six times more than other users in the South East, and three times more than other users in the SA Murray Darling Basin region.

**Table 9.2: 2013-14 NRM water levies – SA Water and other water extractors**

NRM REGION	WATER LEVY (\$ PER ML) (2013-14)	
	SA WATER	OTHERS (AVERAGE)
Adelaide Mt Lofty Ranges	1.2 million (flat rate)	–
SA Murray Darling Basin	17.00	5.43
Eyre	3.96	2.44
South East	16.80	2.65

**Table 9.3: Comparison of SA Water NRM Levy to its water entitlement<sup>227</sup>**

NRM REGION	SA WATER ENTITLEMENT PORTION (%)	SA WATER WATER LEVY PORTION (%)
Adelaide Mt Lofty Ranges	43.3	100.0
Eyre	96.6	98.9
South East	1.8	2.9
SA Murray Darling Basin	22.0	64.1

DEWNR has stated that SA Water’s higher NRM water levy rate generally reflects its “*status as the major public water supplier, taking account of relative levels of water security for the entitlement it holds, and social impact*”.<sup>228</sup>

SA Water appears to have had a greater level of water security for its entitlement, compared with other water extractors, during the drought.<sup>229</sup> This was due to the South Australian Government policy and practice of prioritising critical human water needs over other needs. (A similar level of priority is now reflected in the *Commonwealth Water Act 2007 (Water*

<sup>227</sup> Water entitlement can be considered a proxy for ‘capacity share’.

<sup>228</sup> Information provided to the Commission, by DEWNR, as a part of this Inquiry.

<sup>229</sup> Information provided to the Commission, by DEWNR, as a part of this Inquiry.

**Act**), which requires the Basin Plan<sup>230</sup> to be prepared having regard to the fact that critical human water needs are the highest priority water use for communities dependent on Basin water resources).

For example, in the 10 years from 2003-04 to 2012-13, SA Water had access to 100 per cent of River Murray water entitlement for the Adelaide metropolitan area. In contrast, irrigators had access to 100 per cent of River Murray entitlement in three years out of those 10. In five of those years, irrigators had access to less than 70 per cent of entitlement.<sup>231</sup>

SA Water could, therefore, be considered to possess a different water product, and there may be a case for it paying a higher rate than lower security water entitlement holders. However, the Inquiry has not been able to obtain any information that shows how this high water entitlement security exactly translates into NRM Levy rates, and whether these higher rates are commensurate with that security.

There may be some merit in formalising rules in South Australia, so that the relationship between water security and price charged is more transparent.

As there is not an insufficient amount of publicly available information on this matter, a comprehensive review of these costs has not been undertaken as a part of this Inquiry.

#### **9.1.3.2. WPM-related charges in the Ministerial Direction**

Of the \$15.9 million SA Water paid to the Government in 2011-12, \$8.7 million has been attributed to it being a water licensee and \$7.2 million has been allocated for it to collect on behalf of the South Australian public, as a general public good, on the basis that its customers represent a large proportion of the State's population. This information is not public, is not visible on customers' bills and, potentially, it sends distorted price signals to water users.

These WPM costs are separate from Save the River Murray Levy activities and the Save the River Murray Fund. However, they do include costs for the State's contribution towards the Murray Darling Basin Agreement, which makes up a component of DEWNR's WPM costs.

DEWNR has stated that the current WPM arrangements are a transitional measure, and that it is intended that the amounts attributed to, and recovered from, SA Water (and its customers) and other beneficiaries will be reviewed before the end of the current SA Water Revenue Determination.<sup>232</sup>

In any instance, it is recommended that consideration be given to the development of a mechanism whereby SA Water's DEWNR WPM costs are balanced or "trued up" at the end of this regulatory period. Adjustments should then be made to ensure any excess (i.e.

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<sup>230</sup> The Basin Plan provides a coordinated approach to water use across the Murray Darling Basin's states and the Australian Capital Territory. It limits water use at environmentally sustainable levels by determining long-term average sustainable diversion limits for surface water and groundwater resources.

<sup>231</sup> Information provided by DEWNR.

<sup>232</sup> Note that the second Ministerial Direction issued to SA Water in October 2014 (covering the period 2015/16 to 2019/20) includes WPM amounts determined under the existing arrangements.

unspent) revenues or additional costs are taken into account, so that SA Water's customers only face true WPM costs.

Furthermore, until the current arrangements are reviewed, SA Water should make clear on customers' bills that a WPM payment is being collected through them – and that it is being done for the benefit of the wider South Australian public.

#### **9.1.3.3. *Save the River Murray Levy***

In 2012-13, SA Water's River Murray water entitlement was 130 GL out of a total water entitlement from the River Murray for South Australia of 857 GL.<sup>233</sup> However, only SA Water customers currently pay the STRM Levy.

Further, the proportion of SA Water's customer base that pays the levy has declined by 10 per cent since the introduction of the Water Industry Act in 2012. Under that Act, the Minister for Water can require that this levy be collected from other water retailers. This may be appropriate in an increasingly competitive environment.

#### **9.1.3.4. *The State's Murray Darling Basin Agreement payments***

The South Australian Government currently makes a Murray Darling Basin Agreement contribution of approximately \$26.5 million per annum but, in response to the decision by the NSW Government to reduce its contributions by 70 per cent, announced that, from 2014-15, it will halve its own contribution to approximately \$13.25 million.

SA Water's contribution to the Government's Murray Darling Basin Agreement payment is currently about \$2.25 million per annum, and it has not been suggested that this amount will reduce in line with the Government's overall Murray Darling Basin Agreement payment changes. It is not clear exactly how these costs should align. For example, the MDBA stated in its submission that the bulk of South Australia's contribution to the Murray Darling Basin Agreement should be attributed to services that fall outside of the NWI definition of WPM.<sup>234</sup>

#### **9.1.3.5. *Tests for prudence and efficiency***

Although it is understood that most WPM costs have been through some form of external review process (for example, there are a number of public and Parliamentary reporting requirements in place for the Save the River Murray Levy), none have been subject to specific tests of prudence and efficiency. It may be that some efficiency gains could be identified from doing so. The draft Inquiry report, therefore, recommended that the Government consider commissioning such a review.

In conducting such a review, there may be merit in considering existing frameworks. In its submission, the MDBA stated that the NWI and Water Charge Infrastructure Rules<sup>235</sup> provide

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<sup>233</sup> See 2012-13 River Murray Water Allocation Framework, available <http://www.environment.sa.gov.au>

<sup>234</sup> MDBA submission, p.20.

<sup>235</sup> The Water Charge Infrastructure Rules 2010 commenced on 12 January 2011, and regulate charges for water storage, delivery and other infrastructure services provided by rural water infrastructure operators in

*“an agreed framework for an independent assessment of efficiency and prudence of infrastructure assets as well as cost effectiveness and cost allocation principles for WPM activities”, and that “regulating SA Water in accordance with these rules would improve consistency with the NWI and assist in meeting efficiency and prudence objectives”.*<sup>236</sup>

To address those matters, the South Australian Government could commission an independent (of Government) public review of the prudence and efficiency of all WPM-related costs incurred by SA Water and incorporated into customers’ charges.

Implementing the Inquiry’s recommendations would attract costs associated with a) conducting the review of prudence and efficiency, and b) changing SA Water’s billing system to make transparent the WPM charge collected on behalf of the wider community. Assuming the charge continues to be collected by SA Water, billing changes could cost approximately \$480,000 and take about six months to implement.

#### 9.1.4. Customer bill impacts

Without a detailed analysis of all the efficient DEWNR WPM cost components, the Inquiry has not been able to draw any conclusions about whether these costs should be allocated to customers as a fixed charge, or varied according to customer water use. However, it notes that approaches vary across Australia. In New South Wales, the Independent Pricing and Regulatory Tribunal sets a fixed and usage WPM cost component. In Western Australia, the ERA recommend that recovery of WPM costs vary according to region.<sup>237</sup>

The Inquiry has assumed that, until a review of the prudence and efficiency of WPM costs has been conducted, all customers will receive the same fixed charge on their bill. On this basis, the bill impact of this recommendation would be a once-off (for the first year only) cost of around 75c for all customers. However, a transparent review of all WPM costs has the potential to realise savings that may be greater than this cost.

#### 9.1.5. Implementation

The Inquiry’s recommendations would not require a change to legislation. However, SA Water estimates it would need a six-month timeframe to modify its billing systems to implement the recommendation.

The time to implement the remaining recommendations has not been estimated. However, it notes that:

- ▲ they could begin immediately and are not dependent on any of the other Inquiry recommendations.

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the Murray Darling Basin (see: <http://www.accc.gov.au/regulated-infrastructure/water/water-charge-infrastructure-rules-advice-development>).

<sup>236</sup> MDBA submission, p.20.

<sup>237</sup> ERA, *Inquiry into Water Resource Management and Planning Charges*, 28 February 2011; available at: <http://www.erawa.com.au/cproot/9476/2/20110329%20D62487%20Final%20Report%20-%20Inquiry%20into%20Water%20Resource%20Management%20and%20Planning%20Charges.PDF>.

- ▲ there is merit in considering the SA Water price determination cycles in the implementation of these recommendations.

## 10. IMPLEMENTATION AND TRANSITIONAL OPTIONS

### 10.1 Background

In accordance with its Terms of Reference, this Inquiry has provided recommendations on potential reforms of SA Water’s drinking water and sewerage charges that would deliver greater economic efficiency benefits to South Australia.

The economic benefits identified would be maximised if the recommendations were implemented as soon as possible. However, the Inquiry recognises that implementing them would lead to significant price impacts for some customers. It also recognises the Government has a broader public policy focus and would need to consider the economic case for reform against other factors, including social policy objectives.

As has been discussed elsewhere in this Inquiry report, while submissions to the draft report were generally supportive of the economic principles and arguments in favour of the introduction of more cost-reflective pricing, many did not support the specific reforms proposed or argued that, if they were to occur, transitional arrangements would be necessary to address bill impacts.<sup>238</sup>

The Inquiry has considered those arguments and provided some potential options for transitioning (refer to Chapters 6 to 8). In particular, they are aimed at ameliorating, over time, the impacts the significant price increases some customer groups would face under cost-reflective pricing (resulting largely from the unwinding of current cross-subsidies).

While these transition options are not the most optimal outcomes in terms of maximising the benefits of improved economic efficiency, the Inquiry recognises that some benefits will accrue from any steps towards implementation.

### 10.2 Impacts of immediate reform

The impacts of implementing all Inquiry recommendations as a single package can be assessed across the whole of the South Australian economy, or across specific groups, such as SA Water’s customers. The Inquiry has done this to provide a base case for reform. All transition options can then be compared to this base case.

Table 10.1 summarises the benefits, identified earlier in this report, that arise from implementing the Inquiry’s recommendations. Impacts from the perspective of the economy, SA Water’s customers, the Government and SA Water are discussed below.

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<sup>238</sup> For example, refer to Community Housing Council SA submission (p. 2).

**Table 10.1: Estimated net benefits arising from implementation of the Inquiry's recommendations**

AREA WHERE REFORM IS PROPOSED	QUANTIFIABLE ESTIMATED NET BENEFITS	NON-QUANTIFIABLE BENEFITS
Billing end users and the removal of debt provision	\$5m per annum	<ul style="list-style-type: none"> <li>▲ Improved customer protection arrangements for tenants</li> <li>▲ Pre-cursor to a more competitive water market, as:               <ul style="list-style-type: none"> <li>● the service user would be able to directly exercise choice under end user billing arrangements</li> <li>● it is not appropriate for SA Water to have debt security and recovery rights over and above other market participants (as this conflicts with the principle of competitive neutrality)</li> </ul> </li> </ul>
Non-connected properties	Not quantified at this time	<ul style="list-style-type: none"> <li>▲ Greater consumer choice</li> <li>▲ Pre-cursor to a more competitive water market, as it is not appropriate for SA Water to be able to charge properties that are not connected when its competitors would not be able to do so</li> </ul>
Drinking water	\$30m-\$40m per annum	<ul style="list-style-type: none"> <li>▲ Reducing the misdirection of subsidies intended for vulnerable customers</li> <li>▲ A pre-cursor to greater competition in the water sector</li> <li>▲ More simplistic charging regime for customers</li> <li>▲ Less inefficient investment by SA Water, its customers and providers of alternative water supplies</li> </ul>
Sewerage	Not quantified at this time	<ul style="list-style-type: none"> <li>▲ Improved decisions about where to live, where to locate a business and the level of capital improvement to be undertaken on a property</li> <li>▲ More efficient competition, as property-based charging can result in cherry picking of customers in high property-value areas and discourage competition in low property-value areas</li> </ul>

		<ul style="list-style-type: none"> <li>▲ More simplistic charging regime for customers</li> <li>▲ Reduced reliance on property valuation data, which costs approximately \$8m per year</li> </ul>
Trade waste	Not quantified at this time	<ul style="list-style-type: none"> <li>▲ Unwinding of cross-subsidies from sewerage customers</li> <li>▲ More efficient investment by trade waste customers</li> </ul>
Water planning and management charges	Not quantified at this time	<ul style="list-style-type: none"> <li>▲ Potential efficiency gains to water customers from reviewing whether charges are prudent and efficient</li> <li>▲ Greater transparency for customers</li> </ul>

### 10.2.1 Impacts on the economy

The Inquiry has conservatively estimated overall economic benefits in the order of \$30 million to \$45 million per annum could be unlocked through the implementation of several of this Inquiry’s recommendations. Further economic benefits of approximately \$2 million to \$3 million per annum could be available were it to prove feasible to implement location-based pricing arrangements over time.

These are the monetary benefits that this Inquiry has been able to quantify through its analysis but there is likely to be a range of other benefits that cannot readily be quantified. These benefits include more efficient capital investment by SA Water, its consumers and providers of alternative water supplies.

For example, many submissions, including those from primary producers, have highlighted the capital costs that customers have incurred as a result of usage charges being well above cost-reflective levels (for example, the installation of alternative supply sources and networks by-passing SA Water’s system). While it has not been possible to determine the total quantum of costs of that nature, some of the individual examples provided suggest it could be significant. (Further explanations appear in the drinking water and sewerage sections below.)

Implementing the Inquiry’s recommendations would also provide benefits to businesses through lower production costs, encouraging greater production and employment growth.

In relation to the removal of ROA practices, and sewerage and trade waste pricing reform, the Inquiry has not been able to quantify all the potential benefits at this stage, although it has identified some on a qualitative basis.

### 10.2.2 Impacts on customers

Previous chapters have discussed customer bill impacts for various proposed reforms.

The customer impacts of implementing all the recommendations as a single package, as soon as possible include:

- ▲ *Benefits* – such as those that arise from economic efficiency, and lower costs to society overall
- ▲ *Bill impacts* – which include the direct bill impacts (either positive or negative) from pricing reform, and costs and benefits of implementation. Appendix 8 presents a comprehensive analysis of anticipated customer bill impacts, by customer type and region, should all recommendations be adopted.

Generally speaking, the customer bill impacts that would arise from the full and immediate implementation of the reform recommendations would, generally, be of a magnitude previously unseen in this State's water sector in recent times.

That said, the Inquiry found that changes to water and sewerage pricing implemented by the South Australian Government and others across Australia in recent years have already had a significant impact on customers. For example:

- ▲ The Government has previously transitioned South Australian commercial and industrial customers away from a multi-tiered approach and, in 2012-13, implemented a single usage charge for those customers<sup>239</sup>
- ▲ Between 2009-10 and 2012-13, the Government approved price increases for usage charges by around 25 per cent each year
- ▲ In other jurisdictions, annual increases of between 20 and 45 per cent have been recorded in the usage or supply charge in recent years (Table 10.2).

More recently, in an effort to move to cost-reflective pricing, a number of local government retail water and sewerage service providers have increased the charges for their services. For example, between 2013-14 and 2014-15, seven retailers imposed increases above 10 per cent, with one regional provider increasing its costs by 50 per cent.

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<sup>239</sup> South Australian Government, *Regulatory Statement – 2012-13 Drinking Water and Sewerage Prices*, July 2012, pp.5 and 6; available at: [http://www.treasury.sa.gov.au/data/assets/pdf\\_file/0017/1196/regulatory-statement-201213.pdf](http://www.treasury.sa.gov.au/data/assets/pdf_file/0017/1196/regulatory-statement-201213.pdf).

**Table 10.2: Examples of recent significant price rises for water usage or supply charges in other jurisdictions (urban water retailers with over 50,000 connections)**

WATER RETAILER	PRICE INCREASES	
	%	Description
City West Water (Vic.)	47.5	Increase in Tier 2 usage charge and supply charge between 2012-13 and 2013-14 <sup>240</sup>
South East Water (Vic.)	22.8	Increase in average prices (combined for usage and supply) between 2012-13 and 2013-14 <sup>241</sup>
Yarra Valley Water (Vic.)	24.6	Increase in average prices (combined for usage and supply) between 2012-13 and 2013-14 <sup>242</sup>
Sydney Water (NSW)	31.1	Increase in supply charge between 2007-08 to 2008-09 <sup>243</sup>
Gosford Shire Council (NSW)	23.6	Increase in supply charge between 2012-13 to 2013-14 <sup>244</sup>
Wyong Shire Council (NSW)	17.6	Increase in supply charge between 2011-12 to 2012-13 <sup>245</sup>
Essential Water (NSW)	19.8	Increase in supply charge between 2013-14 and 2014-15 <sup>246</sup>

<sup>240</sup> Refer to <http://www.esc.vic.gov.au/getattachment/653684bc-1058-4cc9-a62b-c31053e7762a/Metropolitan-water-price-review-2013-18-final-deci.pdf>.

<sup>241</sup> Refer to <http://www.esc.vic.gov.au/getattachment/653684bc-1058-4cc9-a62b-c31053e7762a/Metropolitan-water-price-review-2013-18-final-deci.pdf>.

<sup>242</sup> Refer to <http://www.esc.vic.gov.au/getattachment/653684bc-1058-4cc9-a62b-c31053e7762a/Metropolitan-water-price-review-2013-18-final-deci.pdf>.

<sup>243</sup> Refer to <http://www.ipart.nsw.gov.au/files/42132563-b953-4a31-a1eb-9f2400b4eb33/Fact Sheet Water 4 - Review of SWC prices from 01 July 2008 - Jennie Cooper - 10 July 2008 - WEBSITE DOCUMENT Version.pdf>.

<sup>244</sup> Refer to <http://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Metro Pricing/Review of prices for Gosford City Council and Wyong Shire Council from 1 July 2013/14 May 2013 - Final Report/Final Report - Gosford City Council and Wyong Shire Council - Prices for .>

<sup>245</sup> Refer to <http://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Metro Pricing/Review of prices for Gosford City Council and Wyong Shire Council from 1 July 2013/14 May 2013 - Final Report/Final Report - Gosford City Council and Wyong Shire Council - Prices for .>

<sup>246</sup> Refer to <http://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Metro Pricing/Review of prices for Essential Energys Broken Hill water and sewerage services from 1 July 2014/23 Jun 2014 - Final Report/Final Report - Essential Energys water and sewerage services.>

The impact of these price rises on average annual residential bills is between \$50 and \$150.

### *10.2.3 Impacts on the Government and SA Water*

SA Water's submission to the Issues Papers stated that making end users, rather than landowners, its customers would require significant changes to its billing system and necessitate an additional customer management system (**CMS**) at significant cost.<sup>247</sup> It said this would take at least five years to implement<sup>248</sup> and could cost upwards of \$60 million.<sup>249</sup>

Having regard to that submission, the consultants PricewaterhouseCoopers were engaged to undertake an independent review of the billing system changes and associated business processes that would be required to adopt a number of reform scenarios, including changes to SA Water's billing system.

PricewaterhouseCoopers developed estimated costs and timeframes in close consultation with SA Water and its information technology provider. While the consultants focused only on the utility's billing system platform and associated business processes, it is understood these would be the most costly part of adopting the reforms. Other SA Water business-related costs, such as communications, metering and debt risk have been considered throughout this report and its appendices.

Some costs remain unquantified at this time. They include those associated with connections and reconnections that may arise from making end users, rather than landowners, SA Water's customers, and those costs arising from the Inquiry's recommendations that non-connected customers should not be levied an availability charge (refer to Chapters 3 and 4).

PricewaterhouseCoopers found that the changes required to SA Water's existing IT systems would cost around \$7 million (mid-case), and be implemented in around three years (mid-case). It has since confirmed to the Inquiry that the mid-case timescales were based on conservative assumptions regarding human resources allocated to system implementation.<sup>250</sup> It has stated the project duration would likely reduce if additional resources were allocated, and further, that it should be possible to increase resources to deliver it in a shorter timeframe, without impacting the estimated project cost (Table 10.3).

The Inquiry has also considered whether legislative changes would be required to adopt the recommendations, although it has not estimated the time it would take to make these changes (Table 10.3).

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<sup>247</sup> SA Water submission to Issues Paper, p.21.

<sup>248</sup> SA Water submission to Issues Paper, p.21.

<sup>249</sup> SA Water submission to Issues Paper, p.11.

<sup>250</sup> PricewaterhouseCoopers assumed one project manager, one business analyst, one solution architect, and one test lead resource would be allocated throughout the life of the Reform Package project.

**Table 10.3: Estimated impacts to SA Water’s IT system, and legislative requirements, of implementing the Inquiry’s recommendations**

TOPIC	ESTIMATED IMPLEMENTATION COSTS (\$M +/-20%)	DURATION (WEEKS) (+/-20%)	LEGISLATIVE CHANGE REQUIRED (Y/N)
Billing end users	4.8	102	Y
Non-connected properties	0.55	23	Y
Water	0.65	33	N
Sewerage	0.69	31	N
Regional pricing	0.87	34	N
Water planning and management	0.48	25	N
<b>Total reform</b> 251	<b>6.97</b>	<b>165</b>	

### 10.3 Transitional options for drinking water, sewerage and trade waste

The most significant customer bill impacts arise from the Inquiry’s drinking water, sewerage and trade waste recommendations. This report has included a number of possible transitional arrangements to address these impacts (See Chapters 6 to 8). These are briefly summarised below.

#### 10.3.1 Drinking water

Of all the Inquiry’s recommendations, the recommended drinking water price reforms have the greatest economic efficiency benefits. However, they also have the greatest bill impacts on some customer groups, and would lead to significant bill increases for low water users.

These arise mainly from the move to a more cost-reflective usage charge. Reducing the usage charges to the current best estimates of LRMC (at 65c/kL) would significantly reduce the amount of revenue earned by SA Water from usage charges. To maintain the same total

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<sup>251</sup> Totals do not add up to the sum of the individual topics because efficiencies are included in both cost and timescale if the total reform package is undertaken at once.

revenue, a material increase in supply charges would be necessary and would, generally, lead to lower bills for high water users and higher bills for low water users.

Overall, this would result in the majority of residential customers paying higher water bills than at present, even though their usage charges would fall.

The Inquiry recognises that this is a major impediment to the introduction of a single LRMC-based usage charge for all customers. Three transition options have therefore been identified.

1. Combine three residential usage charges into a single charge of \$3.17/kL, the weighted average of the current tiers. This would keep the supply charges at current levels.
2. Implement a single usage charge for all customers at \$2/kL. This would lead to moderate increases in water supply charges.
3. Implement a single usage charge for all customers of \$1/kL. This would lead to greater supply charge increases, but not as great as under the option of moving to the recommended LRMC.

The options highlight the trade-off between the economic and equity impacts of price reform under an assumption of revenue neutrality for SA Water. The current price structure sees large users cross-subsidising small users. Any move towards a more cost-reflective price structure would increase bills for small users but also promote greater economic efficiency. There are no drinking water reform options that could unlock significant economic efficiency benefits without leading to higher bills for low users.

The quantified economic benefits of implementing cost-reflective usage prices for drinking water have been estimated at around \$30 million to 40 million per annum. This reduces as the single usage charge increases. The economic benefits of a tiered system are estimated to be low (see Table 10.4).

As stated in Chapter 6, these estimates are conservative, and have been adopted to minimise the possibility of overstating the benefits that accrue from LRMC pricing. The Inquiry notes that there do not appear to be any studies assessing the impacts of reducing usage charges by the magnitude proposed. Furthermore, empirical studies have focused on demand changes in response to price *rises*, but there do not appear to be any comprehensive studies of demand for water after *falls* in price.

**Table 10.4: Estimated economic benefits of a range of usage charges**

USAGE CHARGE	ECONOMIC BENEFIT
First at \$2.32, second at \$3.32	Low <sup>252</sup>
Single at \$3.17/kL	Low <sup>253</sup>
Single at \$2/kL	\$15m-\$20m p.a.
Single at \$1/kL	\$30m-\$40m p.a.

The proposed changes would unlock other benefits that have not been quantified in this report.

- ▲ *A pre-cursor to greater competition in the water sector.* It would be important to implement efficient cost-reflective pricing before allowing a significant degree of third party access to SA Water’s infrastructure. If SA Water were initially to be charging more than the true marginal cost of water for a service, competitors would run the risk that, if it moved to charge at marginal cost at some future point, their operations could then be stranded.
- ▲ *Reducing the misdirection of subsidies intended for vulnerable customers.* Inclining block tariffs are inconsistent with the policy intent of creating equity by providing well-targeted subsidy payments to worthy recipients. Currently, all customers receive the benefits of the lower tier.

### 10.3.2 Sewerage

The two transitional options presented in Chapter 7 are hybrid approaches combining pricing according to property-values and cost-reflective pricing.

The current property-based sewerage charging regime entrenches cross subsidies from business (commercial and industrial) customers to residential customers, and also attempts to redistribute income from wealthy to poor households.

The first transitional option presented reduces the annual revenue requirement from business customers by the amount they currently cross subsidise residential customers

<sup>252</sup> There may be a small economic benefit from improved consumption decisions arising from the removal of the third tier. As discussed previously, inclining block tariffs may provide a confusing price signal to customers.

<sup>253</sup> There may be a small economic benefit from improved consumption decisions arising from a single usage charge, even if that charge is set at the current weighted average price of around \$3.17/kL. As discussed previously, inclining block tariffs may provide a confusing price signal to customers. A clearer signal about the marginal price of water may lead to more informed consumption choices.

(approximately \$30 million per year). Property values could, initially, continue to be used to determine sewerage bills in each of the two revenue groups.

Some economic benefits would flow from removing the \$30 million annual cross subsidy the business sector currently carries. They would include a reduction in business operating costs and improved profitability and competitiveness. Benefits might also arise from more efficient decisions about where to locate a business (making South Australia more attractive for a businesses to locate) and the level of capital improvement to be undertaken on a property (property improvements would increase the sewerage charge). These costs have not been able to be quantified at this time.

The impacts on customers, in absolute terms, would vary significantly. However, bills would drop 42 per cent for business customers and increase 11 per cent for residential customers.

The second option presented is based on grouping properties with similar values into bands or categories. These bands could then be further grouped together, over time, so that customers would gradually move towards the cost-reflective price, without experiencing a bill shock price change in any one year.

Analysis of this option suggests that it would be possible to transition to cost-reflective prices over four years, limiting the maximum bill increase a customer would face in one year to approximately \$100.

This option would also result in some improvements to economic efficiency because it gradually reduces, but does not eliminate, the negative impacts arising from property-based sewerage charging. These negative impacts include:

- ▲ increased operating costs for business
- ▲ the distortion of decisions about where to live or where to locate a business
- ▲ the distortion of decisions about the level of capital improvement to be undertaken on a property
- ▲ discouraging investment and competition.

However, as with all of the transitional options presented, these are not the first-best solutions to sewerage pricing. The continuation of property-based charging in any form will reduce the ability to maximise economic efficiency, as it is not fully cost-reflective.

### *10.3.3 Trade waste*

This Inquiry has found that trade waste customers are currently being cross-subsidised by sewerage customers by about \$6.3 million per annum (or approximately \$10 per sewerage customer). According to information provided by SA Water, current revenue from trade waste customers only recovers 36 per cent of the costs incurred in providing the service.

Noting that a relatively large increase is required, and taking account of the relatively small number of customers that these increased costs would need to be shared between, the Inquiry has presented an option to smooth the bill impacts (see Chapter 8).

This option effectively preserves the current total bill (both fixed and usage components) for these customers, but increases the usage (LRMC) component to the cost-reflective amount. Faced with the true (increased) marginal cost of their trade waste decisions, customers would be better informed before making decisions about the viability of installing infrastructure or changing production methods to reduce their waste-load profiles. An adjustment to the fixed charge would offset significant bill increases. Over time, this reduction could be unwound and eventually removed.

Although this option provides some cost-reflective price signals for these customers, which would result in some economic efficiencies being realised, the longer it takes for cross-subsidies to unwind, the longer the delay in realising the full benefits that could be achieved from cost-reflective pricing. A longer transition period results in an efficiency loss when compared to a shorter transition period.

## 10.4 Further ways of reducing bill impacts

There are other ways in which the Government can achieve greater economic efficiency through SA Water's prices while also managing customer bill impacts.

- ▲ It is important that any subsidies provided by the Government to SA Water's customers are well targeted and provide adequate financial assistance to those that require it. This matter is discussed further below.
- ▲ The taxes and transfers system could be reviewed more broadly, to ensure that the Government's budget requirements are recovered in the most efficient manner.
- ▲ It is also important to ensure that SA Water's cost base is prudent and efficient. This could be achieved through the price determination process, and also through the actions of the Government in setting regulatory parameters through pricing orders under the Water Industry Act.

### 10.4.1 Exemptions and concessions

The granting of exemptions and concessions is an important policy tool for assisting those most in need. Effective discounts on both water and sewerage charges are used to alleviate the financial burden on some types of organisations and individuals.

Exemptions for water and sewerage services are set out under the transitional provisions of the repealed *Waterworks Act 1932* and *Sewerage Act 1929*. The Water Industry Act supersedes both of these earlier laws, however, no new exemption scheme has been implemented to apply under it.

Exempt land can be charged some form of water or sewerage rates if, after consultation with SA Water, the Minister so instructs. For example, exempt landowners are currently billed

sewerage rates based on the lower of property value, the minimum charge, or a fixed charge per toilet connected to the sewerage system.

SA Water receives a CSO payment from the Treasurer to recognise the rates and revenue it forgoes under the exemption schemes.

The current water concession scheme operates under Section 25(1)(o) of the Water Industry Act. Eligible pension and concession holders receive a discount (currently 30 per cent) of water charges, subject to a yearly minimum and maximum. This concession is applied as a credit on their bills.

For sewerage, a flat rate per annum sewerage concession is applied as a credit to the bill of eligible concession holders. This is in addition to any benefit arising under property-based charging.

Water and sewerage concessions are funded and administered by the Minister for Communities and Social Inclusion and applied to customer bills by SA Water.

#### **10.4.1.1 Review of exemptions and concessions**

Implementation of the Inquiry's reform recommendations would have short-term impacts on certain individuals and customer groups, including consumers who currently receive exemptions and concessions. The Inquiry has sought to identify those impacts and notes that additional actions could be considered by Government (as a part of any preparation/implementation program) to ensure that the benefits to all South Australians can be delivered, and that those customers most in need of support still receive assistance.

One such action could be a review of the concession/exemption scheme. While consideration of that important issue is outside the scope of this Inquiry, such a review may assist in ensuring that subsidies are targeted and effective. As noted by the Department of Treasury and Finance (DTF) in its submission to the Inquiry Issues Papers, the Inquiry:

*... would not be able to adequately address the range of options that may be considered for vulnerable households, where water and sewerage costs/concessions are just one of many aspects of living affordably and Government support. This work is considered to be a matter for the Government's Affordable Place to Live Taskforce.<sup>254</sup>*

The Inquiry supports the commitment from DTF to address this issue through the Affordable Place to Live Taskforce.

If water pricing is to remain as a tool for delivering social equity objectives, to ensure that usage charges remain cost-reflective, any exemptions and concessions should be independent of the amount of water consumed (that is, they should apply to the fixed charge only). It is important that usage charges be set based on cost-reflective principles to

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<sup>254</sup> DTF, submission to Issues Paper, November 2013, p.1, available at: <http://www.escosa.sa.gov.au/library/131118-WaterPricingInquiry-IssuesPaperSubmission-DTF.pdf>

promote economic efficiency. Applying subsidies to usage charges would distort consumption decisions and reduce economic efficiency.

On economic efficiency grounds, therefore, the Inquiry does not support concessions and exemptions being based on an “allowance of essential volumes of water”<sup>255</sup>, or capping bills as a way of delivering these subsidies. It follows that any concession should be applied to a water customer’s fixed charge only.<sup>256</sup>

The Inquiry supports approaches whereby social equity instruments are fully separated from water and sewerage pricing policy. Using SA Water’s drinking water and sewerage prices as a means of achieving equity outcomes is a blunt approach. Other social policy measures, in particular the tax and transfer systems, are available and provide more efficient, better targeted and more transparent outcomes.

### *10.5 Further reviews and work arising from this Inquiry*

As discussed throughout this report, this Inquiry has identified a number of further reviews and pieces of work that need to be completed to implement the recommendations.

- ▲ Further work is needed to ensure there is flexibility to allow usage prices to increase to the SRMC of water supply during any future periods of emerging water scarcity. A framework for how and when this would occur is required.
- ▲ Security-of-supply standards need to be developed for SA Water. (Cost and duration have not been estimated.)
- ▲ Work is required to link customer accounts to the size of sewerage connections (at an estimated cost of \$700,000 and taking up to seven months).
- ▲ A review of all Bolivar trade waste parameter LRMC estimates, including regional (cost and duration not estimated) is necessary.
- ▲ Trade waste parameter LRMC estimates for other sewerage catchments are required.
- ▲ The prudence and efficiency of all WPM costs incurred by SA Water need to be reviewed. This includes the manner in which they are recovered. (The cost and duration has not been estimated).

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<sup>255</sup> DCSI submission to Issues Paper, p.3.

<sup>256</sup> This approach is supported by Hon. Sandra Kanck, in her submission to the Issues Papers, November 2013, p.2, available at: <http://www.escosa.sa.gov.au/library/131118-WaterPricingInquiry-IssuesPaperSubmission-HonSandraKanck.pdf>



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