Issues Paper

Inquiry into the Efficient Costs and Tariffs of the Water Corporation, Aqwest and the Busselton Water Board

6 February 2012

Economic Regulation Authority
WESTERN AUSTRALIA

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For further information, contact:

Economic Regulation Authority
Perth, Western Australia
Phone: (08) 9213 1900

Foreword

The Treasurer of Western Australia has requested that the Economic Regulation Authority (**Authority**) undertake an inquiry into the efficient costs and tariffs of the Water Corporation, Aqwest and the Busselton Water Board (Busselton Water).

This inquiry is the third major review by the Authority into the tariffs of the Water Corporation, Aqwest and Busselton Water, following previous inquiries in 2005 and 2008. This inquiry will recommend tariffs for the period from 2013/14 to 2015/16 for non-contestable services provided by each of the service providers. The Water Corporation provides water supply, wastewater, drainage and irrigation services to residential and/or non-residential customers across the State, including the Perth metropolitan area, regional areas and country towns. The water boards provide water services in Bunbury (Aqwest) and Busselton (Busselton Water).

In accordance with the inquiry's Terms of Reference, the Authority must consider the efficient costs required by the service providers in order for them to meet their required standards of service. The Authority is also required to make recommendations on the level and structure of water storage charges to the South West Irrigation Management Co-operative (Harvey Water).

The purpose of this issues paper is to provide background information and outline the issues to be considered in the inquiry. It is intended to assist stakeholders to understand the nature of the issues under review and to facilitate public comment and debate. Throughout this issues paper, questions that may be of particular interest to stakeholders are raised and highlighted in boxes. To assist with the assessment process, the Authority is requesting that the service providers include their proposed tariffs in their submissions.

Submissions on any matter, including those raised in this issues paper, should be submitted by 4:00 pm (WST) on **Monday 12 March 2012**, preferably in electronic form.

> Inquiry into the Efficient Costs and Tariffs of the Water Corporation, Aqwest and the Busselton Water Board
>
> Email address: publicsubmissions@erawa.com.au
>
> Postal address: PO Box 8469, PERTH BC WA 6849

Section 1.6 of this issues paper provides further information regarding the process for making a submission. Interested parties and stakeholders will have a further opportunity to make submissions following the release of the Authority's draft report.

The final report for this inquiry is scheduled to be delivered to Government by no later than 2 November 2012, following which the Government will have 28 days to table the report in Parliament.

I encourage interested parties to consider the Terms of Reference and matters raised in the issues paper and prepare a submission for the inquiry.

LYNDON ROWE
CHAIRMAN

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(3) Request to Water Corporation, Aqwest and Busselton Water: please provide, in response to this issues paper, your own proposed revenue requirement and associated tariffs for the period from 1 July 2013 to 30 June 2016, and justification for that revenue and tariffs.

Demand Projections

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Key Issues for Setting Water Charges for Residential Customers

(18) Question for interested parties: In determining the level of water usage charges for residential customers, what considerations or assumptions should the Authority take into account regarding, for example:

- the long-run or short-run marginal cost of water supply;
- the level of security of supply;
- the cost and availability of current and future water sources, including externality costs;
- the marginal costs of water delivery;
- whether usage charges should be set in inclining blocks, or if there should be a single volumetric charge, and on what basis the charges in each band should be set;
- whether discounts should apply for low volumes of water use;
- whether high prices should apply to water use above a certain level, and if so, what level and what price;
- potential impacts on tenants and large households of any changes in usage charges;
- how any changes in charges should be phased in?

Water Charges for Residential Customers in Country Towns

(19) Question for interested parties: Do you have any comments on how the uniform tariff policy is applied in the pricing of country residential water services; e.g.

- Is the uniform price threshold of 150 kL per household for water to meet basic needs appropriate?

- Should the same usage charge continue to apply up to the average level of consumption per household (300 kL for Country South towns and 500 kL for Country North towns)?
- Should all residential customers pay the same annual water service charge?
- Are the thresholds above which cost reflective charges apply for residential households (550 kL for Country South towns and 750 kL for Country North towns) appropriate?
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(21) Question for interested parties: Should wastewater charges for residential customers continue to be set on the basis of property values, or should customers pay the average cost of wastewater services (subject to caps)?

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1 Introduction

The Treasurer of Western Australia gave written notice to the Economic Regulation Authority (**Authority**) on 10 January 2012 to undertake an inquiry into the efficient costs and tariffs of the Water Corporation, Aqwest and Busselton Water. The recommended tariffs, if adopted, would apply to the period beginning 1 July 2013 and ending 30 June 2016.

The inquiry has been referred to the Authority under section 32 of the *Economic Regulation Act 2003* (**Act**), which provides for the Treasurer to refer inquiries to the Authority on matters related to regulated industries (i.e. water, gas, electricity and rail industries).

1.1 Terms of Reference

The Terms of Reference for the inquiry are provided in **Appendix A**.

In accordance with the Terms of Reference, the Authority is required to investigate and report on the efficient costs, and appropriate charges for the services of the Water Corporation, Aqwest and Busselton Water, including recommended tariff levels and charging structures for water, wastewater, irrigation and drainage services.

The Authority is also to make recommendations on the most appropriate level and structure of water storage charges to the South West Irrigation Co-operative (Harvey Water).

The Authority must give consideration, but will not be limited, to:

- the efficient operating and capital costs of providing services, with a focus on:
  - cost effectiveness in the supply of services;
  - appropriate service standards and the resources required to meet them;
  - resources necessary to meet the required service standards; and
  - resources necessary to meet security of service supply standards for water;
- the method used to determine the revenue requirements of each service provider;
- the value of the service providers' assets, and the appropriate rate of return on those assets;
- the impact of the recommendations on each service provider's net financial position and financial performance;
- the impact of the imposition of a Clean Energy Future Package (carbon pricing) by the Commonwealth Government;
- the impact of the recommendations on the Government's financial targets, in particular, Public Sector Net Debt, dividends, tax equivalent payments and the level of Government funding (particularly through Community Service Obligation Payments); and
- the social impact of the recommendations.

In developing its recommendations, the Authority is to have regard to:

- the pricing principles of the 1994 Council of Australian Governments water reform agreement and the National Water Initiative;
- the State Government's uniform pricing policy; and
- the pricing mechanisms available to the service providers under relevant legislation.

In undertaking the inquiry, the Authority recognises section 26 of the Act, which requires the Authority to have regard to:

- the need to promote regulatory outcomes that are in the public interest;
- the long-term interests of consumers in relation to the price, quality and reliability of goods and services provided in relevant markets;
- the need to encourage investment in relevant markets;
- the legitimate business interests of investors and service providers in relevant markets;
- the need to promote competitive and fair market conduct;
- the need to prevent abuse of monopoly or market power; and
- the need to promote transparent decision making processes that involve public consultation.

1.2 Background to the Inquiry

This inquiry is the third major review of the Water Corporation's water and wastewater tariffs and the water tariffs of Aqwest and Busselton Water, and the second major review of the Corporation's drainage tariffs.

The requirement for external oversight of prices is a result of the Council of Australian Government's Water Reform Agreement (1994) and the National Water Initiative (**NWI**). Water and wastewater services are generally provided by monopoly service providers. As such, there is a need for oversight of prices to ensure the businesses do not overcharge for their services. The approach taken in Western Australia has been for the Government to issue a Terms of Reference to the Authority to undertake an inquiry and provide recommendations on appropriate tariffs.

The most recent review by the Authority of the tariffs of the Water Corporation, Aqwest and Busselton Water was in 2009, and included both country and metropolitan customers in the case of the Water Corporation.[1] The recommended tariffs from this inquiry were for the three year period to 30 June 2013. The Authority also carried out an inquiry in 2007 into the appropriate level and structure of the Water Corporation's water storage charges to Harvey Water, which are set as part of the Bulk Water Supply Agreement between the parties. This agreement is due to expire in 2012.

The Authority has also carried out a number of other inquiries into the tariffs of the service providers and other water-related issues in Western Australia:

- water resource management and planning charges (2011);

[1] Economic Regulation Authority (23 October, 2009), *Inquiry into Tariffs of the Water Corporation, Aqwest and Busselton Water*

- pricing of recycled water (2009);
- developer contributions to the Water Corporation (2008);
- competition in the water and wastewater services sector (2008);
- Water Corporation's country water and wastewater tariffs (2006);
- the cost of supplying bulk water to Kalgoorlie-Boulder from Perth, either from Perth via the existing network, or transporting desalinated seawater from Esperance along a new pipeline (2005); and
- Water Corporation's tariffs for water and wastewater services in the Perth metropolitan area, and water tariffs set by Aqwest and the Busselton Water Board (2005). This inquiry was the first independent inquiry into urban water and wastewater tariffs in Western Australia.

In addition to the major reviews of urban and country water and wastewater tariffs, the Authority has also carried out annual reviews of the Water Corporation's tariffs (in 2007 and 2008). These annual reviews provided advice to the Government on the implications of the latest cost increases on the tariff structures that had previously been set by Government. The Authority has also undertaken (in 2008) an annual review of the tariffs charged by Aqwest and Busselton Water.

As a result of previous water and wastewater pricing inquiries, the Government has implemented a number of changes to the Water Corporation's pricing structure.

- Metropolitan water usage charges are moving towards the (long run) marginal cost of future water sources (and at the same time, the fixed charge is being adjusted to ensure full cost recovery).
- The number of steps in the water tariff schedules for the Water Corporation (both residential and non-residential) are being reduced over time.
- Charges in country towns for water usage above the uniform threshold are being more closely related to the costs of providing the water service.
- All of the Corporation's water and wastewater tariffs are moving towards being set as closely as possible to the costs of delivering the service (subject to the uniform tariff policy and caps on wastewater charges).

The Government did not accept all of the price increases recommended by the Authority in the 2008 inquiry, with some price increases phased in over a longer period (e.g. 2013/14 instead of 2012/13 for changes to country water charges). The average water price increases were similar to what the Authority recommended, although the fixed charge has remained higher and usage charges for low amounts of water usage have remained lower than what the Authority recommended.

The Government also did not accept the Authority's recommendations to move away from property-based pricing of wastewater and drainage services.

The current inquiry fits in with the NWI process, which requires State Governments to use independent bodies to either set or review prices (or price setting processes) for water storage and delivery by government water service providers. Prices should be consistent with the pricing principles set out in the NWI, including the requirements to set prices to reflect costs where possible, and to remove or at least make transparent any cross subsidies. While the Authority does not have a formal function as a price regulator for water and wastewater services, it has indirectly performed this role through inquiries which result in tariff recommendations to the Government.

The Productivity Commission recently conducted a public inquiry into Australia's urban water sector and published its final report on 31 August 2011.[2] The Authority will be drawing on the Productivity Commission's findings and analysis where these are relevant to the matters being considered in this inquiry.

Other jurisdictions have independent regulators which regulate water and wastewater prices; the Independent Pricing and Regulatory Tribunal (**IPART**) in NSW, the Essential Services Commission of South Australia (**ESCOSA**), the Essential Services Commission (**ESC**) of Victoria, and the Independent Competition and Regulatory Commission (**ICRC**) in the ACT. These regulatory bodies set, or provide advice to the State governments on, the maximum prices that can be charged by water and wastewater utilities for their services.

The Terms of Reference require the Authority also to have regard to a number of Western Australian State Government policies.

Uniform Pricing Policy

The Authority understands that the aim of this policy is to provide residential customers with an amount of water to meet essential needs at the same price to all households across the State. Currently, this policy is translated into water tariffs by providing that all residential customers pay the same low uniform usage charge for the first 150 kL of water, the same fixed service charge, and the same usage charge up to a threshold level of consumption per household in the country (300 kL for households in the south and 500 kL for households in the north).

A Note on Units of Water Measurement

The units of measurement for water volumes used throughout this issues paper are as follows:

kL = kilolitre, or 1,000 litres

ML = megalitre, or 1 million litres

GL = gigalitre, or 1 billion litres

In Perth, average residential scheme water use is around 277 kL per year, or around 106 kL per person per year.[3]

Community Service Obligations Policy

Community Service Obligations (**CSOs**) are goods or services provided by government agencies at the direction of government which would not be provided on a commercial basis. The WA Government's CSO policy is aimed at ensuring that CSOs performed by Government Trading Enterprises are transparent and scrutinised.[4] CSOs apply only to government agencies and are not available to private service providers.

[2] Productivity Commission (31 August 2011), *Australia's Urban Water Sector – Productivity Commission Inquiry Report No.55, Volumes 1 and 2.*

[3] Water Corporation, *Perth Residential Water Use Study 2008/09*

[4] Treasury Department (April 2000), *Community Service Obligations Policy in Western Australia*

1.3 Overview of Tariff Review Methodology

As noted previously, the price oversight approach taken in Western Australia has been for the Government to issue a Terms of Reference to the Authority to undertake an inquiry and provide recommendations on appropriate tariffs.

In making these recommendations, the Authority first establishes the efficient costs of the businesses. For a given forecast of demand and service standards, tariffs are then calculated such that efficiently-incurred costs are recovered. This approach is adopted individually for water, wastewater, drainage and other regulated services such that the tariffs for each service reflect the efficient costs of providing that service. The terms of reference also require that in recommending tariffs, the Authority is to have regard to the pricing mechanisms available to the service providers under the relevant legislation. This legislation includes the *Water Agencies (Powers) Act 1984* and the *Water Boards Act 1904.*

To assist with the transparency of its assessment and decision-making, the Authority is requesting that the service providers submit their proposed tariffs for the three year period 1 July 2013 to 30 June 2016, and justification for those tariffs, as part of their submissions in response to the issues paper.

A more detailed discussion of the methodology adopted by the Authority is contained in Section 3.2.

1.4 Structure of the Paper

The structure of this Issues Paper is as follows.

- Section 2 provides background information on the Water Corporation, Aqwest and Busselton Water and the services they provide. The water supply and demand options available to the service providers are outlined, and average bills are compared with those of other water and wastewater service providers.
- Section 3 discusses how each element of the regulatory revenue requirements are determined, to ensure that the service providers have sufficient revenues to cover their efficient costs of service.
- Section 4 outlines the principles and practice involved in setting prices to recover costs for each service, including the assessment of the impacts of any pricing recommendations.

Throughout the paper, questions are raised on particular issues on which the Authority would welcome information. However, comments are invited on any other matters that interested parties consider to be relevant to the inquiry.

1.5 Review Process

The recommendations of this inquiry will be informed by the following public consultation process:

- This Issues Paper invites submissions from stakeholder groups, industry, government and the general community on the matters in the Terms of Reference. Submissions are due by Monday 12 March 2012.

- Following consideration of submissions received on the Issues Paper, the Authority intends to publish a Draft Report in late June 2012. Public submissions on the Draft Report will be invited.
- The Authority will consult its Consumer Consultative Committee during the course of the inquiry.
- The Final Report for the inquiry is to be delivered to the Treasurer by no later than 2 November 2012 and the Treasurer will, in accordance with the Act, have 28 days to table the report in Parliament.
- The Authority is intending to engage technical consultants to examine the cost effectiveness of the three utilities, including reviewing their capital expenditure programmes and levels of operating expenditure.

1.6 How to Make a Submission

Submissions on any matter, including those raised in this issues paper, should be submitted by **4:00 pm (WST) on Monday 12 March 2012**, preferably in electronic form.

Inquiry into the Efficient Costs and Tariffs of the Water Corporation, Aqwest and the Busselton Water Board

Email address: publicsubmissions@erawa.com.au

Postal address: PO Box 8469, PERTH BC WA 6849

Submissions made to the Authority will be treated as in the public domain and placed on the Authority's website unless confidentiality is claimed. The submission or parts of the submission in relation to which confidentiality is claimed should be clearly marked. Any claim of confidentiality will be dealt with in the same way as is provided for in section 55 of the *Economic Regulation Authority Act 2003.*

The receipt and publication of a submission shall not be taken as indicating that the Authority has knowledge either actual or constructive of the contents of a particular submission and, in particular, where the submission in whole or part contains information of a confidential nature and no duty of confidence will arise for the Authority in these circumstances.

Further information regarding this inquiry can be obtained from:

Dr Ursula Kretzer
Manager Projects, Reference and Research
Economic Regulation Authority
Ph: (08) 9213 1900

Media enquiries should be directed to:

Richard Taylor
Riley Mathewson Public Relations
Ph: 61 8 9381 2144
Fax: 61 8 9381 3877

2 Background on Service Providers, their Services and Water Supply and Demand

2.1 Overview of Service Providers

The following sections provide a brief overview of the Water Corporation, Aqwest and Busselton Water and the services they provide.

2.1.1 Water Corporation

The Water Corporation is a statutory corporation operating under the *Water Corporation Act 1995*. The Water Corporation was established as a commercially focused utility on 1 January 1996 following a restructuring of the water industry that also saw the roles of water resource manager (now the Department of Water) and regulator (now the Authority) separated from the functions of the utility. The Water Corporation is governed by a Board of Directors acting in accordance with Corporations Law, and the Board is accountable to the Minister responsible for the *Water Corporation Act 1995*. In undertaking the tasks associated with water and wastewater services, the Water Corporation must comply with the relevant health and environmental regulations.

The Water Corporation is a vertically integrated water and wastewater business and is the principal supplier of water, wastewater, drainage and irrigation services in Perth and regional towns of Western Australia.[5]

- In 2010/11, the Water Corporation delivered 359,000 ML of water to over 1.1 million properties across the State, with three quarters of these in the Perth metropolitan area.
- Over 900,000 properties received wastewater services from the Water Corporation (79 per cent of these in Perth), with 410 ML of wastewater treated each day.
- Drainage services are provided across a total drainage area of over 450,000 hectares in Perth and the Great Southern and South-West regions.
- The Water Corporation also delivers over 250,000 ML of irrigation water per year. The Water Corporation maintains responsibility for a number of irrigation customers in the North-West.[6]

During the 2010/11 financial year, the Water Corporation had revenues of approximately $2.0 billion (including $483 million from the Western Australian Government for the provision of Community Service Obligations) and an after-tax profit of $552 million. The Water Corporation pays dividends to the State Government, its shareholder, of 85 per cent of after-tax profits. In 2010/11 the dividend was $421 million.[7]

2.1.2 Bulk Water Supply Agreement with Harvey Water

The Water Corporation provides bulk water storage services for the South West Irrigation Management Co-operative (Harvey Water). Harvey Water's licensed bulk water allocation

[5] Statistics from the Water Corporation Annual Report 2011.

[6] Other irrigation accounts in the North-West (Ord River), Preston Valley District, South-West Irrigation District and the Mid-West Irrigation District are managed by irrigator-run co-operatives.

[7] In 2009/10, Water Corporation's CSO revenue was $500 million and its dividend payment was $411 million. In 2008/09, CSO revenue was $444 million and the dividend $371 million.

is stored in seven south-west dams, which are owned and operated by the Water Corporation (Waroona, Drakesbrook, Samson Brook, Logue Brook, Stirling Dam, Harvey and Wellington via Burekup Weir). The size of Harvey Water's allocation is adjusted each year by the Department of Water, depending on the amount of water in the dams; in 2010/11, the allocation was 136 GL. The charges paid by Harvey Water to the Water Corporation are to recover Harvey Water's share of the costs to the Water Corporation of storing bulk water for Harvey Water, including efficient capital and operating expenditure on the dams, depreciation and a return on assets. Costs are allocated according to the proportion of water volumes in each dam held by each party. Some costs are also allocated to the general public to reflect the benefits to recreational users of dam catchments.

Harvey Water distributes the bulk water to its 683 irrigation customers in the Harvey and Waroona districts, through a network of 250 km of channels and 430 km of pipelines, owned and operated by Harvey Water. On average, Harvey Water delivers 69 GL of water to its customers each year.

2.1.3 Aqwest

Bunbury Water Board, trading as Aqwest, is a statutory authority established under the *Water Boards Act 1904*. The Bunbury Water Board was established in 1905 and was operated in association with the Bunbury local government authority until 1997 when it was re-formed as a separate entity.

Aqwest provides potable water services to the Bunbury-Wellington region, including water sourcing, treatment, distribution and retailing operations. Water is sourced from the Yarragadee and Leederville aquifers through 13 production bores and supplied to about 16,000 properties through 332 kilometres of water mains. In 2010/11, the total water consumption by Aqwest customers was around 5,700 ML, of which 70 per cent was to residential customers and the remaining 30 per cent to non-residential customers. Aqwest employs around 36 full-time-equivalent staff. Aqwest does not provide wastewater services, which in Aqwest's region of operation are provided by the Water Corporation.

During 2009/10, Aqwest had an after-tax profit of approximately $1 million. In 2010/11 Aqwest incurred after-tax losses of around $0.5 million, attributed to a reduction in developer contributions ($0.7 million) and increased depreciation ($0.4 million).[8]

2.1.4 Busselton Water

The Busselton Water Board, trading as Busselton Water, is a statutory authority established under the *Water Boards Act 1904*. The Busselton Water Board was established in 1906. Busselton Water is governed by a Board, the members of which are appointed by the Governor in Executive Council for a three-year term, and is responsible to the Minister for Water. The Board elects its own Chairperson.

Busselton Water provides a potable water service to the town of Busselton and to surrounding areas, including water sourcing, treatment, distribution and retailing operations. Busselton Water also signed an agreement with the Water Corporation in February 2010 to supply bulk water to the Water Corporation's Dunsborough system.[9]

[8] Aqwest (2011), *Annual Report 2010-2011*, p5 and p38.

[9] Busselton Water (2010), *Annual Report 2010-2011*

Water is sourced from the Yarragadee and Leederville aquifers through eight production bores and treated in four treatment plants. In 2010/11, Busselton Water supplied around 3,800 ML of water to 11,000 properties across 300 kilometres of water mains. Around 77 per cent of water was supplied to residential customers and the remaining 23 per cent to non-residential customers. The business has an employee workforce of around 27 full-time-equivalent staff. Busselton Water does not provide wastewater services, which in Busselton Water's region of operation are provided by the Water Corporation.

During 2010/11, Busselton Water had a total income of approximately $7.9 million and an after-tax profit of approximately $1.2 million.

2.2 The Supply/Demand Balance

This inquiry coincides with a period of high uncertainty regarding the long-term rainfall pattern in the southern region of Western Australia. At the same time, demand for water continues to increase, due to a growing population, despite some reduction in per capita consumption over the past decade. The expenditures of water service providers, and ultimately the prices paid by water customers, will depend on the strategies that are employed to balance supply and demand over the next decade.

2.2.1 Water Supply

The Water Corporation supplies water to Perth, the Southwest, Wheatbelt and Goldfields and Agricultural regions through an interconnected network of water sources, pipes, storage facilities and treatment plants. This network is known as the Integrated Water Supply System (**IWSS**). Water supply for the IWSS is drawn from three main sources.

- **Groundwater**, drawn by bores from aquifers and treated to make it potable, has traditionally provided 35-50 per cent of IWSS water supplies. The aquifers systems in the Perth region are the Gnangara mound north of the Swan River and the Jandakot mound in the south of the Perth region. Within each system, the topmost aquifer is the superficial aquifer, the upper surface of which is the water table, which averages around 50 metres in depth. Below this are the deeper, confined aquifers, including the Leederville aquifer (several hundred metres thick) and the Yarragadee aquifer (more than 1 km thick);
- **Surface water**, collected from stream run-off and stored in dams in the Perth hills and the south west, have traditionally provided 25-45 per cent of supplies; and
- **Desalination,** which provided 15 per cent of IWSS water supplies in 2010/11 from the desalination plant at Kwinana. However, this contribution increased to 30 per cent following the commissioning of the first stage of the Southern Seawater Desalination Plant (**SSDP**) at Binningup, and will increase to over 50 per cent when the second stage of the Binningup plant is commissioned.

Since the early 1970s, rainfall and dam storage levels have shown a marked decline, with average inflows into the dams over the past five years around one sixth of pre-1974 average inflows. Inflows in 2010/11 were at a record low, with only 13 GL flowing into the dams supplying the IWSS, compared with an average of over 100 GL per year over the past ten years. However, since May 2011 have been closer to average, with 94.8 GL recorded up to early December 2011.

A further consideration is that continued abstraction from the Gnangara groundwater system to supply the IWSS is unlikely to be sustainable at current levels of abstraction. Groundwater levels have declined significantly over the past decade, due partly to

increased abstraction, but also due to a long-term decline in rainfall in the southwest of the State,[10] resulting in a drying of local wetlands.

The response of the Government to these factors has been to diversify the sources of water supply to the IWSS, including the development of sources that are not climate dependent, such as desalination and recycling. Following the recent low dam inflows, the Premier announced on 1 August 2011 the early commencement of stage two of the SSDP in Binningup. This expansion will double the capacity of the plant from 45 GL to 100 GL. The first stage, costing $955 million, was completed in September 2011, and is delivering water into the IWSS. The second stage will cost a further $450 million, and is expected to start delivering water by the end of 2012.

The expansion of the SSDP will further shift the balance of IWSS water sources away from relatively low cost, rainfall dependent sources (dams and groundwater), to higher cost, capital intensive options. Once the second stage of the SSDP is fully commissioned, desalination will provide over half of the water supply to the IWSS.

Additional sources of water include increased recycling, as well as potential savings through demand management (see section 3.6). The Water Corporation's planning objectives for 2030 are to recycle 30 per cent of metropolitan wastewater (currently 7.5 per cent). An existing project is the Kwinana Water Reclamation Plant, which recycles treated wastewater from the Woodman Point wastewater treatment plant for non-potable water for industrial customers in Kwinana. The Water Corporation has also commenced a groundwater replenishment trial, in which treated wastewater from the Beenyup wastewater treatment plant is recharged into the groundwater aquifers.

For regional towns supplied by the Water Corporation, drinking water is sourced from various groundwater and surface water supplies.

All water supplies to Bunbury and Busselton are drawn from the south west Yarragadee and Leederville aquifers.

2.2.2 Water Demand

Per capita demand has been decreasing over the past decade (from an average of 185 kL for household and business customers in Perth in 2001, to 147 kL in 2009),[11] due to water saving programs, including restrictions on sprinkler use.

- The Government introduced permanent water saving measures in October 2007 which included a sprinkler roster system (which varies according to region and whether water is scheme water or borewater).[12] In addition, all businesses using more than 20 ML per annum and many State Government agencies are required to develop water saving management plans.
- The Government extended the permanent water saving measures in 2010 to include a permanent ban on winter sprinkler use in Perth, Mandurah and towns in

[10] Since the mid-70s, average winter rainfalls in southwest Western Australia have declined by 15-20 per cent (CSIR0, 23 March 2010, Ref 10/23).

[11] Water Corporation (October 2009), *Water Forever: Towards Climate Resilience*, p32.

[12] Under these restrictions, scheme watering is permitted before 9am or after 6pm on alternate days in towns north of Kalgoorlie and Kalbarri and two days per week in all other towns. Bore owners in Perth and Mandurah are allowed to water for three days per week before 9am or after 6pm, while in all other towns bore use is permitted on any day before 9am or after 6pm.

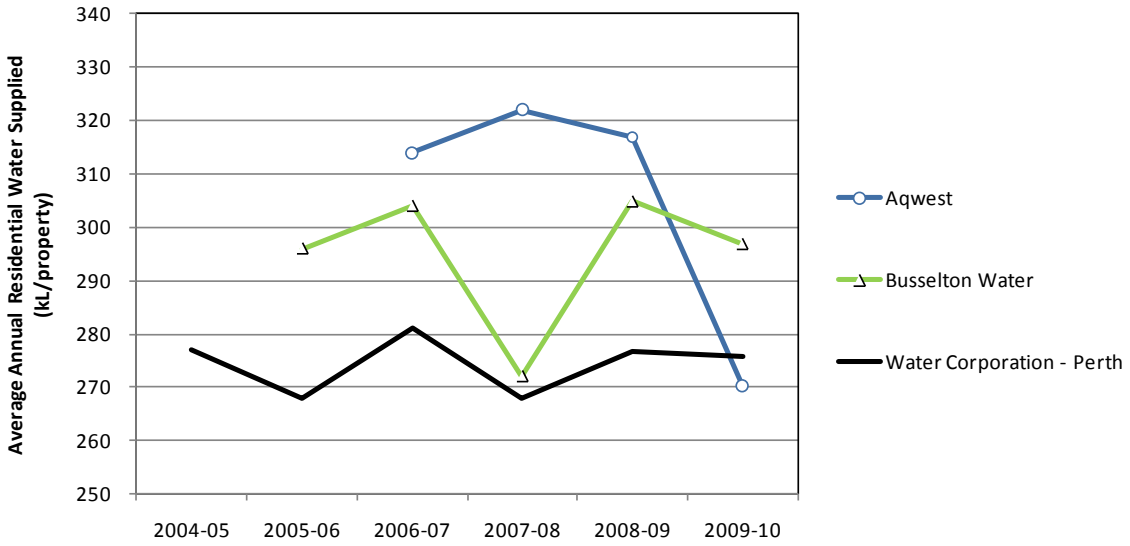
the South West between 1 June and 31 August each year, which applies to both scheme water users and bore owners.[13]

The Water Corporation's objective for 2030 is for further reductions in the per capita scheme water usage by households and businesses by 15 per cent on 2008 levels. For Perth households, this will mean a reduction in demand to 85 kL per person per year by 2030,[14] from a current level of around 100 kL per person per year.[15]

However, total demand for water in the IWSS and across the State is increasing. The population in Perth is expected to grow by almost 29,500 people per year on average from now until 2030. The Water Corporation estimates that by 2030, an extra 120 GL per year will be required in addition to current water sources to meet demand on the IWSS (excluding the expansion of the SSDP).[16]

Historically, per capita household water demand has generally been higher in Bunbury and Busselton than in Perth (see Figure 2.1), although demand in Bunbury has reduced in recent years, largely due to water efficiency measures.

Figure 2.1 Average Annual Residential Water Supplied (kL per Property)



Source: National Water Commission (2011), National Performance Report 2009/10 – Urban Water Utilities.

[13] *Water Agencies (Water Use) By-laws 2010*

[14] Water Corporation (October 2009), *op.cit.*, p33.

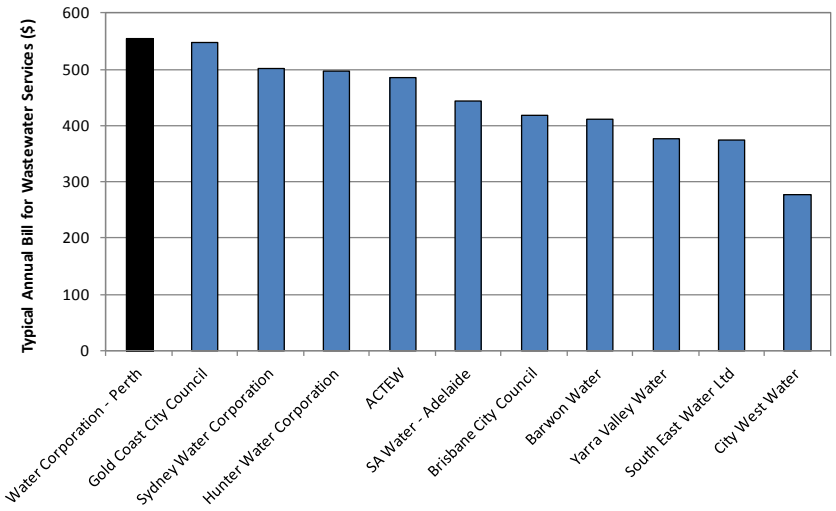
[15] Water Corporation, *Annual Report 2010/11*, p58.

[16] Water Corporation (October 2009), *op.cit.*

2.3 Comparison with Other Service Providers

The annual residential water bills for the Water Corporation are in line with typical bills for other large service providers across Australia (see Figure 2.2).

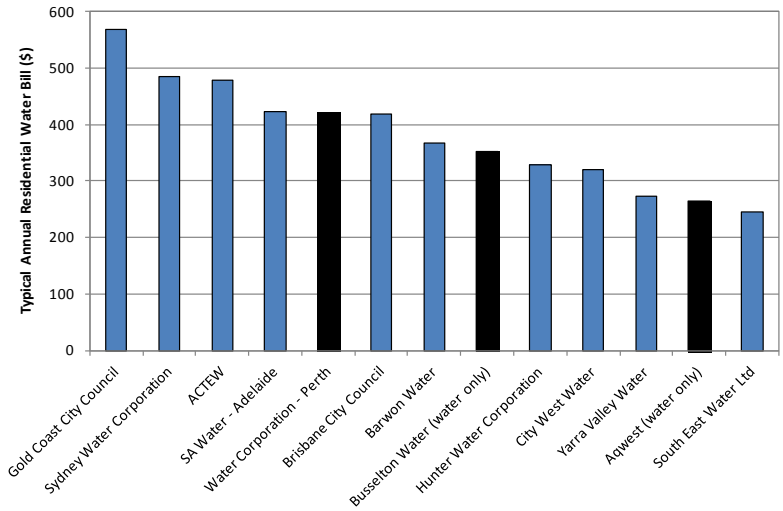
Figure 2.2 Typical Residential Bill for Wastewater Services in 2009/10 for Large Wastewater Service Providers (More than 100,000 Customers)



Source: National Water Commission (2011), National Performance Report 2009/10 – Urban Water Utilities. Most recent version of the National Performance Report available at time of publication.

Annual residential water bills for Aqwest and Busselton Water are below those of the Water Corporation (even though the smaller size of the water boards could limit their opportunities for economies of scale).

Figure 2.3 Typical Annual Residential Water Bills in 2009/10, Based on Average Residential Water Supplied ($)

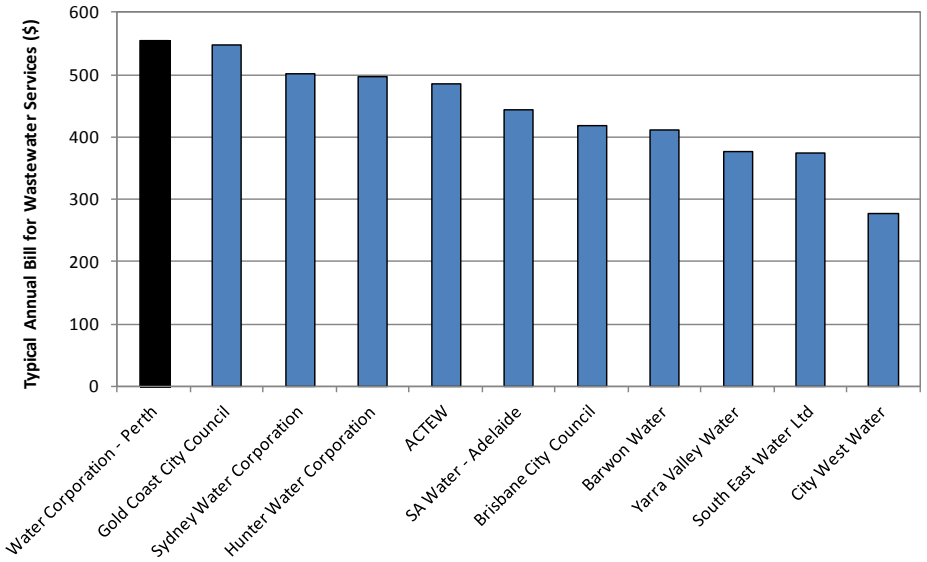


Note: All utilities are major utilities with more than 100,000 customers and supplying water and sewerage services, except for Aqwest and Busselton Water, which have been 10,000 and 20,000 customers and provide only water services.

Source: National Water Commission (2011), National Performance Report 2009/10 – Urban Water Utilities. Most recent version of the National Performance Report available at time of publication.

Figure 2.4 shows typical annual bills for wastewater services in 2009/10 for large wastewater service providers. The typical annual wastewater bill for Water Corporation residential customers is higher than any other service provider ($554 per year, compared to an average for other large service providers of $443 per year).

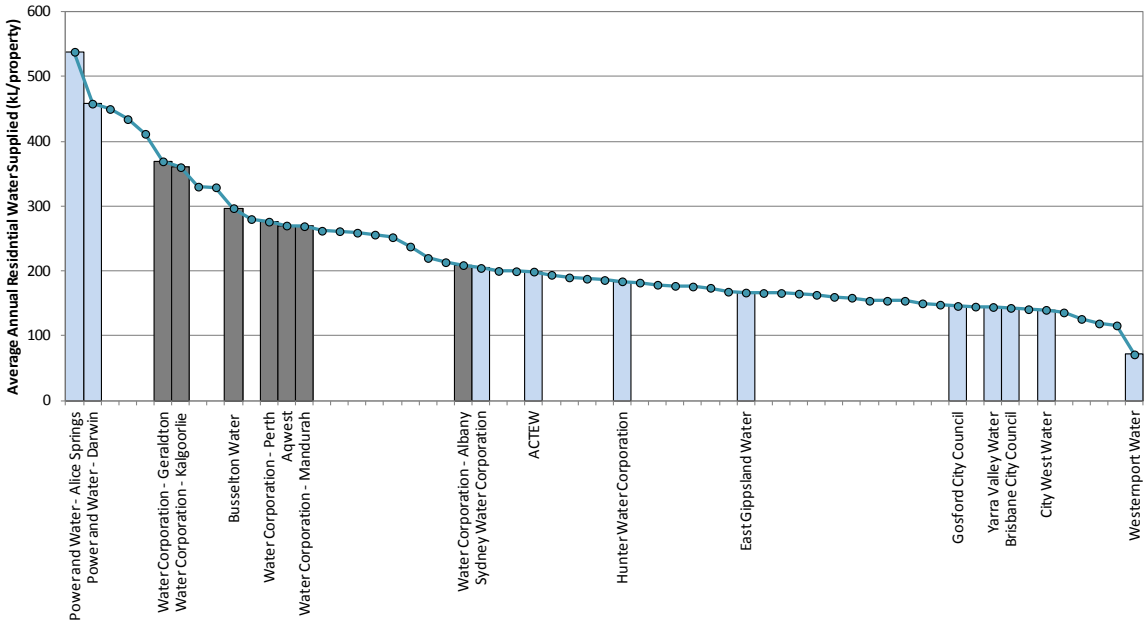
Figure 2.4 Typical Residential Bill for Wastewater Services in 2009/10 for Large Wastewater Service Providers (More than 100,000 Customers)



Source: National Water Commission (2011), National Performance Report 2009/10 – Urban Water Utilities. Most recent version of the National Performance Report available at time of publication.

Figure 2.5 shows annual per capita water consumption for residential customers, which is generally higher for the Western Australian suppliers than for water service providers in other jurisdictions across Australia.

Figure 2.5 Average Annual Residential Water Supplied by Selected Australian Water Utilities with 10,000 Customers or More in 2009/10 (kL per Property)



Source: National Water Commission (2011), National Performance Report 2009/10 – Urban Water Utilities.

3 Estimating Required Revenues

3.1 Standards of Service

The Terms of Reference for the current inquiry require the Authority to consider whether the utilities have sufficient resources to meet the levels of service that are currently required. Regulated revenues include provision for the efficient costs of meeting the service standards that service providers are required to meet under their licence obligations. Where service standards are in excess of regulatory requirements, these would need to be justified (e.g. on the basis of customer consultation, with customers willing to pay for the additional costs of delivering the higher service standards).

The provision of services by the three water utilities is regulated under the *Water Services Licensing Act 1995*. This Act establishes a licensing scheme whereby the Corporation is granted an operating licence for provision of water supply services, sewerage services, irrigation services and drainage services and the water boards are granted licences for provision of water supply services.

Licences are granted subject to terms and conditions that establish standards and requirements for the provision of services in respect of:

- processes for dealing with customer complaints;
- a requirement to establish a customer charter;
- establishment of committees of consumers for the purpose of obtaining consumer opinions on the service provider's prices and service standards;
- obligations to customers in respect of the availability and connection of services;
- reporting of customer complaints and incidents in the provision of services including non-compliance with water quality standards, overflows from wastewater infrastructure and interruption of water services;
- standards for the provision of services including standards for customer service, health-related aspects of water quality, water pressure and flow, interruptions to water services, overflows of sewerage systems, and design criteria and performance requirements for drainage schemes;
- reporting of compliance with standards for the provision of services;
- maintenance of an asset management system; and
- performance of operational audits, being audits of the effectiveness of measures taken by the service provider to maintain quality and performance standards.

In addition, licence conditions are implemented to ensure customers receive a prescribed level of service, and to ensure certain public health and safety standards are achieved.

- Licensees are required to carry out an asset management systems effectiveness review (**AMSER**) and an operational audit (**OA**) and submit these to the Authority at least every two years, or such longer period as the Authority allows. The last AMSER and OA for the Water Corporation were in 2009 (available on the Authority's website), and the next AMSER and OA are scheduled for 2012. The 2009/10 AMSERs and OAs for Aqwest and Busselton Water are available on the Authority's website.
- The Authority also reviews and approves the Customer Service Charters which service providers are required to establish as part of their licence conditions.

Customer Service Charters set out the terms and conditions upon which service providers intend to provide their services. In approving Charters, the Authority utilises guidelines on Customer Service Charters developed by the Authority.

Given the Authority's licensing function, it is aware that all three utilities are providing services in accordance with their licence requirements.

The Authority can amend service standards and performance targets of licensed service providers as part of the licence approval or monitoring process. Any revisions of service standards as part of the license approvals process tend to occur in response to issues with particular service standards as they arise. For example, the Authority is currently consulting on an operating licence amendment proposed by the Water Corporation,[17] regarding a change in the minimum flow measures and service standard measures for farmland services and rural water supply schemes.[18]

Service Standards

(1) Question for Water Corporation, Aqwest and Busselton Water: do you have sufficient resources to meet the service and performance standards set out in your operating licences?

(2) Question for interested parties: Do you have any concerns about the current levels of service provided by Water Corporation, Aqwest and Busselton Water?

3.2 Regulatory Approach to Determining the Revenue Requirement

The approach adopted by the Authority in previous tariff inquiries to determining the revenue requirement is referred to as the 'building block' approach, as each cost component is calculated individually to determine the total revenue requirement. This is the typical approach adopted in most regulated utilities including water, wastewater, gas, and electricity.

[17] Operating Licence No.32 (Water Corporation), Schedule 4, Clause 6.2. http://www.erawa.com.au/cproot/4438/2/20110125%20D58407%20Water%20Corporation%20Water%20Operating%20Licence%2032.pdf

[18] The current service standard is for the minimum flow to farmland services (Goldfields and Agricultural Water Supply, the Great Southern Town Water Supply Scheme and the Mid West Region) over a 24 hour period to be 11.2 litres per hectare per day and 3 kL per occupied house, and to rural water supply schemes to be 5.6 litres per hectare per day and 1.8 kL per occupied house over a 24 hour period. The Water Corporation proposes that these standards be changed to a minimum flow of 3 kL per day per service to farmland services, and 1.8 kL per day to rural water supply schemes. The Water Corporation is also proposing amendments to the way in which the minimum flow and pressure for these services is measured. The consultation process on this issues can be viewed on the ERA website: http://www.erawa.com.au/cproot/9714/2/20110713%20Consultation%20-%20Further%20Extension%20of%20Period%20for%20PS%20-%20Amendment%20to%20WOL32.pdf

The revenue requirement is calculated using the building block method as follows:

Revenue requirement	=	return on capital *plus*
		return of capital (depreciation) *plus*
		operating and maintenance costs
where the return on capital	=	rate of return *multiplied by*
		the regulated asset base (which is rolled forward each year by adding capital expenditure and subtracting depreciation).

A return on capital is necessary to ensure that the business receives a return on its investment sufficient to provide it with an incentive to continue to invest. The return of capital, also referred to as depreciation, allows the business to recover capital invested over the life of the investment. Operating and maintenance costs are recurrent costs required for the ongoing operation of the business.

The approach adopted by the Authority to calculate tariffs for the Water Corporation, Aqwest and Busselton Water involves using the building block approach to balance revenues and costs of service over the modelling period (2005/06 to 2020/23, using actual historical data for the period from 2005/06 to the current year, and forecast cost data for the going forward to 2020/23). The target revenue for each year is calculated on the basis that the service providers achieve a target level of operating expenditure efficiency.

The target revenue and forecasts of demand for services are then used to calculate a smooth tariff path, which gradually adjusts tariffs from current levels to target levels. These tariffs are updated through annual reviews that take into account updated forecasts of demand and efficient costs.

For this inquiry, the Authority would like to receive the service provider's own proposed tariffs in response to the issues paper, in order to compare these with the Authority's calculated tariffs. This is consistent with the approach used by the Authority in other determinations (such as approval of access arrangements in gas and electricity) of accepting service providers' proposals where tariffs are based on efficient costs and set cost-reflectively.

Service Providers' Tariff Proposals

(3) Request to Water Corporation, Aqwest and Busselton Water: please provide, in response to this issues paper, your own proposed revenue requirement and associated tariffs for the period from 1 July 2013 to 30 June 2016, and justification for that revenue and tariffs.

3.3 Demand Projections

The expenditure forecasts of the service providers will depend on their forecasts of future demand growth, which are the product of projected population growth and projected per capita demand. A key factor in the estimation of demand is the assumptions regarding the level of future water restrictions (e.g. sprinkler bans), which are determined by Government. The Authority will need to examine the demand projections of the service providers to ensure that revenue requirements are based on reasonable estimates of future demand growth.

It should be noted that currently the service providers do not bear the demand risk if actual forecasts are above or below the projected forecasts. Instead, revenues are adjusted for any differences between projected and actual demand, so that any demand risk is borne by customers. The reason for this is that the level of demand restrictions is a government decision, which results in an unmanageable risk for the service providers. However, demand restrictions have been made permanent, and there is less uncertainty around future restrictions. The question of whether customers should continue to bear all of the demand risk is worth considering.

Demand Projections

(4) Request to Water Corporation, Aqwest and Busselton Water: please provide your demand projections for each of your services including the analysis for why you think these projections are robust.

3.4 Capital Expenditure

Capital costs are the costs of buying and constructing new physical assets used to provide services. In order to assess the prudency of capital expenditure by the service providers, the Authority will engage technical consultants to examine:

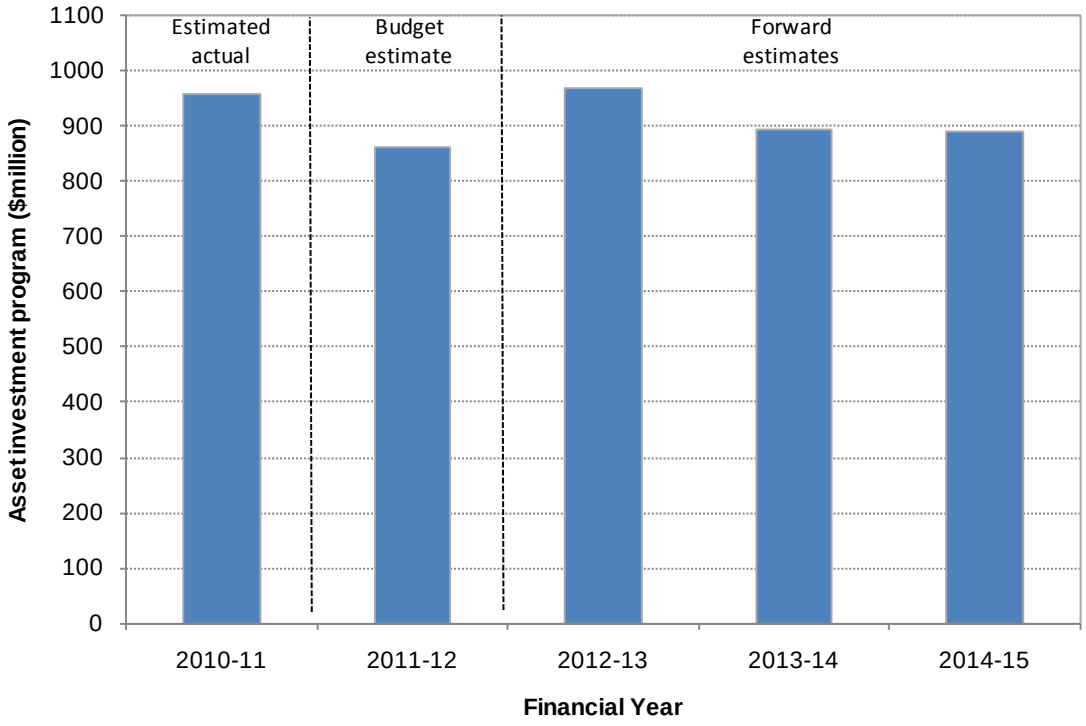
- historical capital expenditure for the period 2007/08 to 20010/11, to determine if there were significant divergences between actual expenditure and the capital expenditure forecasts at the time of the 2008 inquiry. The reasons for any differences will be examined to determine the appropriateness of historical capital expenditure over this period;
- the processes used by the service providers to procure and deliver capital projects, including corporate and strategic planning, assessment of alternative investments, business cases and approval processes for significant investments, and processes to ensure efficient project delivery. It is important that capital processes encourage innovation and efficient investment;
- planned expenditure, to determine the appropriateness of capital expenditure forecasts. This would include consideration of the cost drivers of the investment program, and whether the investments are necessary to meet projected demand, are in line with strategic planning objectives and minimum cost principles, and are determined through robust analysis.

In the 2008 tariff review, the Authority did not identify any major concerns for any of the service providers' capital expenditures and capital processes and therefore accepted the capital expenditure forecasts proposed by each service provider for the purpose of setting the revenue requirement for the 2009/10 to 2012/13 tariff period.

3.4.1 Water Corporation

The Water Corporation's asset investment program for the period 2011/12 to 2014/15 is estimated at $3.6 billion (Figure 3.1). The lower forecast expenditure in 2011/12 is partly due to the deferral of the $370 million West Pilbara Desalination Plant due to heavy rains in the region.

Figure 3.1 Water Corporation's Asset Investment Program (2010/11 to 2014/15)



Source: Government of Western Australia, 2011/12 Budget – Budget Statements, Budget Paper No.2, vol.2, pp876-7

Major capital projects planned for this period include:[19]

- $1.06 billion on country and metropolitan water source development and distribution, including $113 million to complete the Southern Seawater Desalination Plant in 2011/12, ahead of schedule;
- $735 million on country and metropolitan wastewater treatment and conveyance in country, including $244 million on the East Rockingham Wastewater Treatment Scheme;
- $296 million on the Mundaring Water Treatment Plant, which is being developed as a public-private partnership;
- $75 million for the Infill Sewerage Program (and $10 million for the Regional Infill Sewerage Program);
- $65 million to upgrade a pipeline from Wellington Dam to supply water to the Shotts Industrial Park and the Perdaman Collie Urea Project;
- $11 million to continue the Perth Groundwater Replenishment Trial; and
- relocation of the Pilbara-Port Hedland wastewater treatment plant ($42 million), although the capital works for this project are being funded out of the Royalties for Regions Program.

Other capital works planned for 2011/12 are:

- Carabooda storage reservoir ($11 million);

[19] Government of Western Australia (2011), *Budget 2011/12, Budget Paper No.2*, pp 876-877.

- stage 1 of the Picton Water Treatment Plant ($13 million);
- remedial works on Wellington Dam ($7 million);
- replacement of the Cunderdin water pump station ($375,000).

In reviewing the prices in the Bulk Water Supply Agreement (**BWSA**) with Harvey Water, the Authority will need to assess the efficiency of the Water Corporation's expenditure in relation to the south west dams. Most of the water storage charges paid by Harvey Water to the Water Corporation under the BWSA relate to capital expenditure by the Water Corporation on the dams, largely to comply with safety standards set out in the Australian National Committee on Large Dams (**ANCOLD**) Guidelines.[20] These charges were determined by the Authority in its 2007 inquiry into Harvey Water Bulk Water Prices. The final report for this inquiry explains in detail how the charges were derived.

3.4.1 Aqwest

Aqwest's asset investment program between 2011/12 and 2014/15 is estimated at $13.5 million, including:[21]

- $7.6 million of capital works on treatment plants;
- $4.2 million of capital works on water distribution and reticulation;
- $1.6 million in plant and other purchases; and
- $0.09 million of capital expenditure related to subdivisions.

A major expenditure for Aqwest is associated with the decommissioning of a number of water treatment plants along the coast, on the recommendation of the Department of Water, due to increasing salinity. These plants will be replaced by a new treatment plant, pump station and storage facility in Glen Iris, at a total project cost of $8.9 million between 2010/11 to 2013/14.

3.4.2 Busselton Water

Busselton Water has an asset investment program of $17.8 million over the period 2011/12 to 2014/15. This includes:

- $8.2 million of capital works on new mains and services;
- $5.0 million of treatment plant works;
- $2.3 million on plant, mobile and other purchases (such as data logging devices). Busselton Water received a grant of $750,000 from the Australian Federal Government in June 2010 towards the cost of its radio frequency meter retrofit program;
- $2 million on a new administration building in 2012/13;
- $0.3 million to implement and install a new chlorination system, following a decision by the Board in February 2010 to implement full-time chlorination as the primary disinfection method; and
- $0.2 million on office equipment.

[20] Economic Regulation Authority (22 June 2007), *Revised Final Report – Inquiry on Harvey Water Bulk Water Pricing*, available on the Authority website.

[21] Government of Western Australia (2011), *Budget 2011/12, Budget Paper No.2*, p878.

Capital Expenditure

(5) Request to Water Corporation, Aqwest and Busselton Water: please provide your capital expenditure proposals including the analysis for why you think these proposals are appropriate.

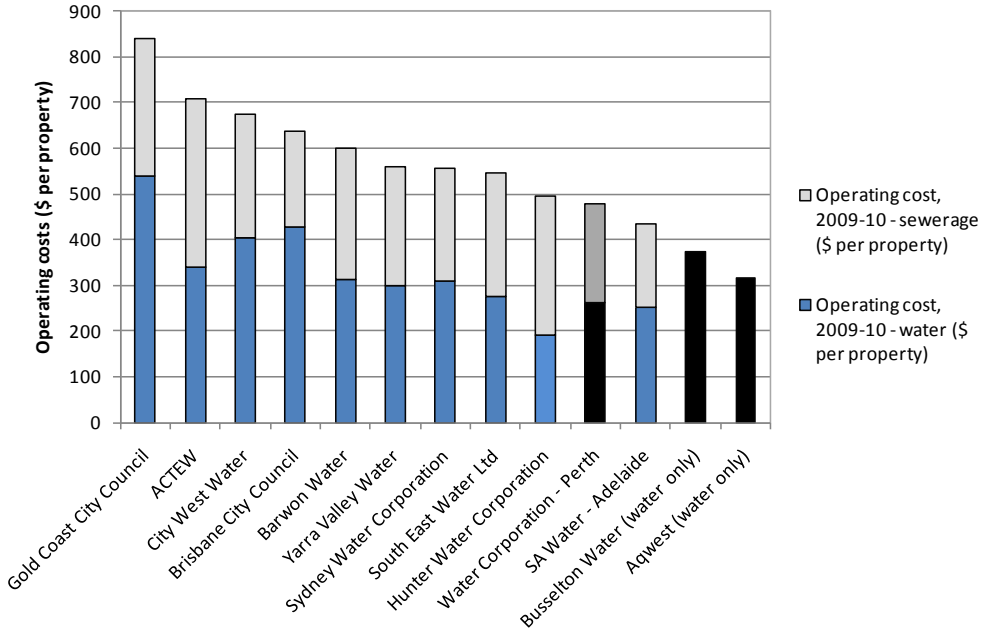
3.5 Scope for Efficiency Gains

Operating costs cover all expenditure related to the overall operation of the business and include water and wastewater treatment plant operation (e.g. power, chemicals, labour, materials), plant and equipment, administration, salaries, contracted services and overheads.

The Authority notes that operating costs per property for the three water utilities are comparatively low. Figure 3.2 shows that in 2009/10, the Water Corporation's Perth total operating costs per property were lower than those of all other large water utilities, except for SA Water. Figure 3.3 shows that in 2009/10 Aqwest and Busselton Water had total operating costs for water per property that were towards the lower end of costs for water service providers of a similar size.

It should be noted the benchmark comparisons of costs can be problematic: the number of suitable comparator businesses in Australia is small, and difficulties arise in determining whether differences in operating cost performance between businesses are due to different efficiencies, or could be explained by other factors (such as available water sources, geography, demography, hydrology, climate, technology, social factors). For example, the high operating costs of the Water Corporation's water service to Kalgoorlie-Boulder are associated with the operation and maintenance of the existing pipeline from Mundaring Weir.

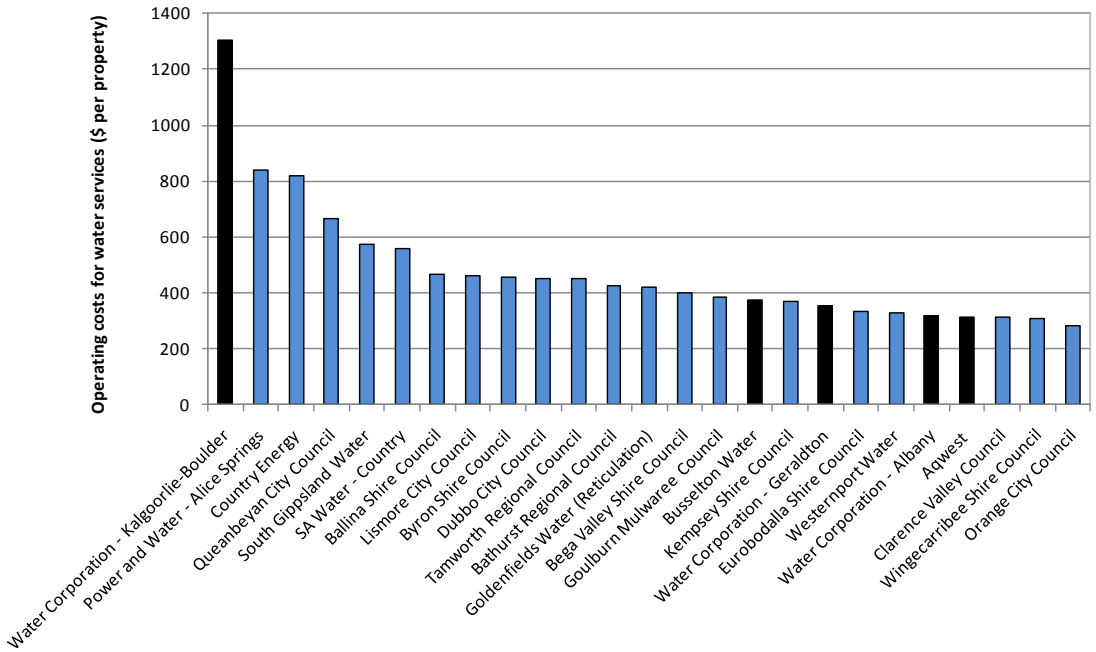
Figure 3.2 Operating Costs for Water and Sewerage Services (2009/10), $ per Property



Note: All utilities are major utilities with more than 100,000 customers and supplying water and sewerage services, except for Aqwest and Busselton Water, which have been 10,000 and 20,000 customers and provide only water services.

Source: National Water Commission (2011), National Performance Report 2009/10 – Urban Water Utilities.

Figure 3.3 Operating Costs for Water Services for Non-Major Service Providers (10,000-20,000 Customers), 2009/10, $ per Property

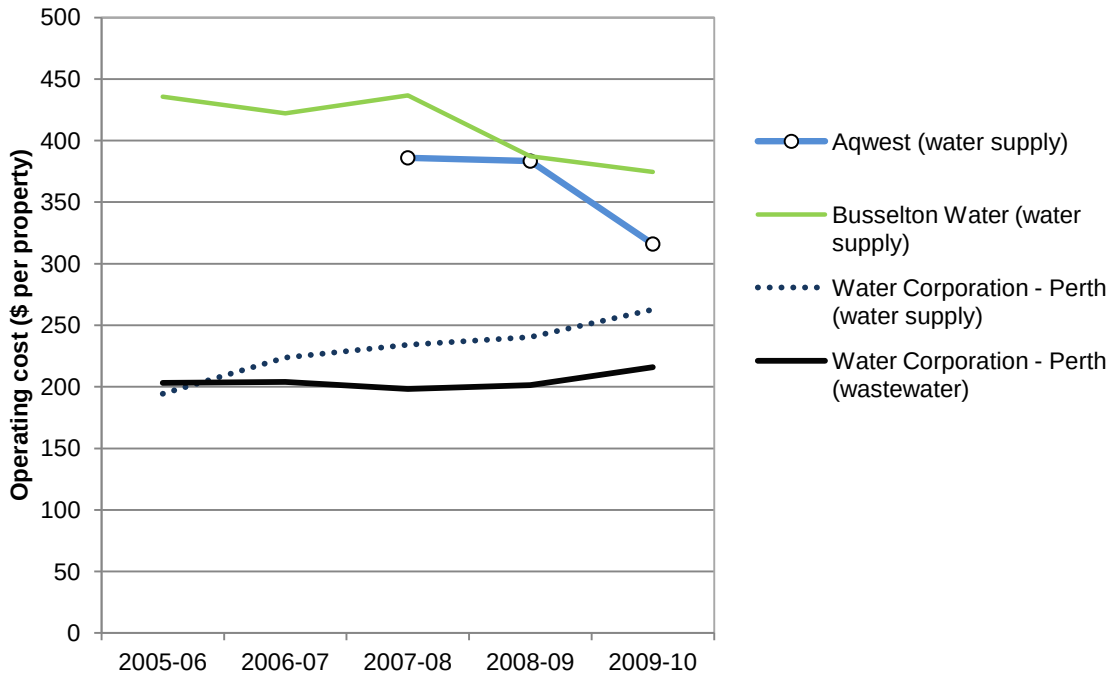


Source: National Water Commission (2011), National Performance Report 2009/10 – Urban Water Utilities.

Figure 3.4 below shows that the unit operating costs ($ per property) for water services provided by Aqwest and Busselton Water are above those of the Water Corporation's water services in Perth, but declined between 2007/08 and 2009/10. The Water

Corporation's unit operating costs in Perth have increased over this period, for both water and wastewater services.

Figure 3.4 Operating Costs ($ per Property)



Source: National Water Commission (2011), National Performance Report 2009/10 – Urban Water Utilities.

The Water Corporation is subject to the Western Australian Government's five per cent efficiency dividend on Government Trading Enterprises, implemented in the 2011/12 State Budget.[22] To meet this obligation, the Water Corporation will be seeking to achieve total cost reductions of $20.8 million in 2011/12.[23]

In the 2008 inquiry, the Authority recommended an efficiency target for the Water Corporation of a 1.88 per cent reduction in base real operating costs per connection per annum. Savings in operating expenditure will contribute towards the overall cost reductions required by the Government. The Water Corporation submitted that an operating efficiency target of 1.88 per cent would be difficult to maintain going forward, as most of the easy efficiency improvements had been made, and that continuing efficiency improvements at that level could compromise service standards. However, the Authority considered that this target was achievable and in line with those applied to water businesses in the eastern States. The Authority recommended that the Water Corporation be able to retain any operating expenditure savings greater than the efficiency target.

The Authority approved operating expenditure for the Water Corporation of around $2.4 billion in nominal terms for the period 2009/10 to 2012/13. Included in this amount was a total of $610 million over the same period for expenditure claimed by Water Corporation to be required to provide improvements in levels of service associated with a range of projects, including desalination projects, a renewable energy premium for the Southern Seawater Desalination Plant, new capital expenditure, compliance with regulatory standards, Government programs, non-regulated revenue-generating activities,

[22] The Government expects the efficiency dividend to raise $524 billion over the four year period from 2011/12 to 2014/15.

[23] *Water Corporation Statement of Corporate Intent 2011*.

and $149 million for particular Water Corporation initiatives.[24] The Authority accepted the Water Corporation's proposed operating expenditure for level of service improvements, but noted that information should be made available at the next (2011) tariff review to allow a full analysis of any proposals associated with increasing service levels.

The Authority also recommended that customers should not pay any premium associated with the procurement of energy for the SSDP from energy sources that are untested at a commercial scale. In August 2011, the Government announced that, to offset the energy requirements of the SSDP, the Water Corporation would purchase the entire output of the 55 MW Mumbida Wind Farm and 10 MW Greenough River Solar Farm, both to be commissioned in 2012.[25] An issue for this inquiry is the extent to which the Water Corporation's customers, rather than the Government, should bear the cost of renewable sources if these are much more expensive than other energy sources.

The Authority did not note any concerns in the 2008 review regarding the operating expenditures proposed by Aqwest and Busselton Water and accepted the forecasts from both service providers. The Authority did not set operating efficiency targets for the water boards, based on consultant advice and the Authority's assessment that there are limited opportunities for economies of scale in these operations.

Operating Expenditure

(6) Request to Water Corporation: please provide your operating expenditure efficiency target proposal including the analysis for why you think this target is appropriate.

(7) Request to Aqwest and Busselton Water: please provide your operating expenditure efficiency targets, if you consider such a target would be appropriate; if not, please provide measures you intend to put in place to achieve efficiency gains.

(8) Question for interested parties: The method that is currently used to encourage efficiency gains is by way of an operating expenditure efficiency target. What do you think would be an appropriate operating efficiency target for the Water Corporation? Are there any other methods that should be applied to generate greater incentives to be efficient?

3.6 Efficiency of Demand Management Activities

The Terms of Reference required the Authority to give consideration to the efficiency of the demand management activities of the service providers.

Table 3.1 below lists the range of water demand management activities carried out by the Water Corporation, which include rebates or contributions towards water efficient appliances or rainwater tanks, advice on water efficiency, education programs and media

[24] The Water Corporation initiatives included the Asset Condition Assessment Gap Treatment Management Program, to measure asset conditions and improve asset management; backflow prevention, to help protect Water Corporation's assets from backflow from commercial and industrial customers; and the Water Cycle Strategy, to improve the management and planning of the Water Corporation's non-drinking water service.

[25] Media statement by the Minister for Water and the Minister for Energy (25 August, 2011), "Renewable energy contracts in place for new desalination plant".

campaigns. Some demand management activities are prescribed by Government, such as the implementation of sprinkler rosters and winter sprinkler bans. However, these programs will involve some expenditure by the service providers in the provision of information to customers and the monitoring and enforcement of infringements. Media campaigns (such as the Target 60 campaign during summer and autumn in 2010/11 to encourage customers to reduce consumption by 60 litres per person per day) can be extensive, involving newspaper, radio, television and billboard advertising.

Table 3.1 Water Corporation's Demand Management Activities

Water Corporation Water Efficiency Program	Eligible Customers	Program Description
Showerhead Swap Program	Residential customers in Perth metropolitan area	Customers can exchange up to two high water use showerheads for water efficient showerheads for free
H2Ome Start	Residential customers in the North West and Great Southern regions and in some Perth suburbs	Free waterwise assessment for indoor water use. Some customers eligible for free upgrade of showers, toilets, taps or repair of leakages.
Toilets to Go	Residential and business customers in Perth, Mandurah and Geraldton	30 per cent reduction on the purchase and installation costs of a water efficient toilet
Rainwater Reward	Residential customers in Great Southern towns	Up to $1,000 towards the installation of a new rainwater tank (>2 kL) or up to $500 towards plumbing in or replacing an existing tank.
Education programs	All customers	Water Corporation's Education Office runs the Waterwise Schools program, lectures, tours, and provides education resources on water efficiency
Media campaigns	All customers	Media campaigns on particular water efficiency initiatives (e.g. the Target 60 campaign)
Sprinkler ban enforcement	All customers	Publicising, monitoring and enforcing sprinkler restrictions mandated by Government.

Source: Water Corporation website

The efficiency of demand management activities can be assessed in the same way as other options for sourcing additional water, in terms of the costs incurred to obtain a unit of water.

- For demand management options, the relevant quantity of water is the amount of water that is saved relative to the amount of water which would have been consumed in the absence of the demand management program or option. For example, the Water Corporation estimates that the Target 60 campaign has resulted in water savings of 14.4 GL since its start.
- The costs of achieving these savings may include capital and operating costs, although some of these will be paid for by the customer. For example, the cost to the Water Corporation of the Rainwater Reward program is the total payments to customers under the program, but these customers may incur additional costs of rainwater tank purchase, installation and maintenance that are not covered by the program. Therefore, the cost efficiency of demand management programs may be greater from the perspective of the service provider than from the perspective of society as a whole.

- Further, there are additional costs to consumers from demand management, in terms of the loss of consumer welfare that results from a curtailment in water supply below that which some customers would prefer. Sprinkler restrictions and water efficiency measures also impose direct costs on customers (e.g. the time spent hand watering, garden plant losses, or the costs of re-designing gardens to suit a regime of water restrictions).

Price can also be used as a demand management tool. Depending on how sensitive water users are to the price of water, increasing water charges can, in theory, achieve the same reduction in demand as that achieved by direct water restrictions. The sensitivity of water users to price will depend on a wide range of factors, including:

- whether the water is being purchased to meet essential needs or for discretionary use. Typically, demand for water for indoor use (cooking, showering, washing, etc) is less sensitive to price than demand for water for outdoor use (swimming pools, reticulation);[26]
- the scope for further improvements in water efficiency. A customer with inefficient water use practices and appliances will be more easily able to reduce demand than a customer with water efficient practices and appliances;
- income. Low income households may be less able to purchase water efficient appliances than higher income households, and a larger proportion of their water usage may be for essential needs, resulting in a lower responsiveness to price; and
- the timeframe for demand reduction. Customers may not be in a position to respond to price changes in the short term, but may be more responsive to price over the long term through their capital investment decisions (e.g. garden design, reticulation systems, purchasing of water-using appliances).

Efficiency of Demand Management Activities

(9) Request to Water Corporation, Aqwest and Busselton Water: what demand management activities are you intending to undertake over the review period; please justify why you think this expenditure is efficient.

(10) Question to interested parties: Are you aware of any information that would help the Authority to assess whether the demand management activities of the service providers are efficient?

3.7 Community Service Obligations

The Terms of Reference require that the Authority give consideration to:

- the review of the efficiency, methodology and governance arrangements for CSO payments calculations; and
- the review of the viability and efficiency of contestable CSOs for water services.

The WA Government's policy on Community Service Obligations (CSOs) sets out policies and principles for identifying, costing, funding and monitoring CSOs to ensure

[26] The Productivity Commission's final report on *Australia's Urban Water Sector*, p171, cited a study by Xayavong, Burton and White (2008) that estimated a one per cent increase in the price of water reduced indoor water usage by 0.7-0.94 per cent and outdoor water usage by 1.3-1.45 per cent.

transparency and scrutiny of CSOs performed by Government Trading Enterprises.[27] Agencies are required to prepare detailed submissions on proposed CSOs when obtaining funding approval from the Minister and to include information on the nature and cost of CSOs in their Statements of Corporate Intent. CSOs are reviewed periodically to ensure they are consistent with Government policy objectives and to determine whether alternative funding mechanisms are more appropriate. The amount and nature of CSO funding is also reported in the annual State Budget Papers.

Under the National Water Initiative (NWI), State and Territory governments agree that pricing in rural and regional water systems should aim for full cost recovery, but recognise that there are some rural communities that will never be economically viable and will need to be maintained in order for social and public health obligations to be achieved. The NWI states that where full cost recovery is not possible and CSOs are needed, the size of the CSO should be reported publicly and that governments consider alternative management options, where practicable, that would remove the need for the subsidy.[28]

CSO payments to the Water Corporation are around $500 million per year (see Table 3.2). In 2010/11 these related mainly to:

- meeting the shortfall in revenues from the provision of water, sewerage and drainage services in country towns ($325 million);
- rebates on water service charges and concessions on usage charges for pensioners and senior concession holders ($118 million);
- subsidisation of the infill sewerage program ($43 million); and
- subsidisation of rural irrigation schemes ($13 million).

Table 3.2 Actual and Forecast CSO Payments and Subsidies to Water Corporation (2010/11 to 2014/15), $million.

	2010/11 Estimated Actual, $m	2011/12 Budget Estimate, $m	2012/13 Budget Estimate, $m	2013/14 Budget Estimate, $m	2014/15 Budget Estimate, $m
Operating subsidies:					
Country water, sewerage and drainage operations	325	300	288	289	306
Infill sewerage program	43	40	41	43	45
Pensioner and Senior concessions	118	113	121	131	141
Rural irrigation schemes	13	18	12	12	12
Other subsidies:					
Burrup Water Supply Scheme	8.5	8.7	8.7	8.7	8.7
Port Hedland WWTP – Royalties for Regions		5	18	19	
Reimbursement of land sales	0.20	0.20	0.20	0.20	0.20
Statewide water efficiency measures	0.26	0.26	0.26	0.26	0.26
Total	501	478	488	504	514

Source: Department of Treasury (2011), Budget 2011/12: Economic and Fiscal Outlook, Budget Paper No.3, p294

[27] Treasury Department (April 2000), *Community Service Obligations Policy in Western Australia*

[28] Intergovernmental Agreement on a National Water Initiative (1994), clause 66(v)(c)

Community Service Obligations

(11) Request to Water Corporation: please provide your projection of CSO revenue, including the analysis used to calculate this revenue, for the review period.

3.8 Rate of Return

The rate of return determined by the Authority is used as an input for setting allowable revenues for the three service providers. In setting a rate of return for regulated service providers, the objective is to ensure that regulated entity makes efficient investment decisions and that customers pay no more than is necessary to provide the service efficiently.

Investors have a right to expect a return on the value of their investments equal to the cost of capital associated with the regulated activities. Assets are often financed by a combination of debt and equity. Thus, the returns from an asset must compensate both the providers of debt and the equity holders. For this reason, the term "Weighted Average Cost of Capital" (**WACC**) is often used to refer to the average cost of debt and equity capital, weighted by a proportion of debt and equity to reflect the financing arrangements for the assets.

The rate of return for each service provider should be based on current estimates of the WACC parameters, to reflect prevailing market conditions, the level of risk faced by the service providers, the appropriate cost of debt (particularly in the case of a Government-owned utility, such as the Water Corporation), and the credit ratings of the service providers.

In the 2008 tariff inquiry, the Authority set the real pre-tax rate of return for the Water Corporation at 6.62 per cent, and for Aqwest and Busselton Water at 7.14 per cent. These rates of return were based on:

- the prevailing financial market conditions at the time of the final report, which were characterised by upward pressure in the margin sought by investors in utilities;
- maintaining a credit rating of A^- for the Water Corporation and BBB^+ for Aqwest and Busselton Water.

There are some merits in setting regulatory rates of return on a *post-tax* basis, rather than a *pre-tax* basis as previously applied by the Authority. Post-tax modelling involves estimating the taxation liability of the regulated business as a separate building block of the revenue requirement, based on the taxation liability that would be incurred by a similar, well-managed, privately-owned business. It more accurately reflects actual tax liabilities, which are often lower than the statutory rate assumed when estimating rates of return on a pre-tax basis. Most other Australian regulators have adopted a post-tax approach to determining the rate of return, most recently IPART in NSW.[29] For these reasons, the Authority is considering applying a post-tax WACC when determining the revenue requirements of the Water Corporation, Aqwest and Busselton Water in this inquiry.

[29] IPART (December 2011), *The Incorporation of Company Tax in Pricing Determinations – Other Industries – Final Decision.* Other regulators who use a post-tax approach include the Australian Energy Regulator, Essential Services Commission in Victoria, Queensland Competition Authority, Ofwat (the UK water regulator) and Ofgem (the UK gas regulator).

Rate of Return

(12) Request to Water Corporation, Aqwest and Busselton Water: what rate of return are you proposing to use in the calculation of your revenue requirement?

(13) Question to interested parties: what rates of return do you consider to be appropriate for the Water Corporation, Aqwest and Busselton Water? Are there any particular factors that would lead the Authority to calculate a different rate of return to Aqwest and Busselton Water compared to the Water Corporation (for instance, in the last review the Authority used a lower credit rating for the water boards)?

(14) Question to interested parties: Should the Authority calculate the rate of return on the basis of a pre tax approach, as it has in past inquiries, or on the basis of a post tax approach, which more explicitly accounts for the tax payments made by the service providers?

3.9 Other Technical Issues

3.9.1 Treatment of Inflation

The inflation rate used to escalate tariffs for the Water Corporation and the water boards in each year has historically been the rate recommended by the Department of Treasury and Finance, which is the average annual four quarter increase in the Perth Consumer Price Index (**CPI**), for the four quarters to September.

The Authority recommended in the 2008 inquiry that the annual tariff escalations be based instead on an Australia-wide index (the most recent annual increase in the eight city average CPI). This is because Australia-wide inflationary expectations are built into the domestic capital markets and into the rate of return used to determine the revenue requirements. Escalation of tariffs at a rate different to that used to determine the revenue requirement could result in under or over recovery. Further, most of the costs incurred by utilities relate to market expectations wider than the domestic market, such as the return on assets (which is influenced by international markets) and depreciation on capital expenditure that is sourced more broadly than just the local market. The use of the eight cities CPI is also consistent with the practices of other water regulators (IPART in NSW, ICRC in Canberra and ESC in Victoria).

The Water Corporation also recommends the use of the Australian eight cities average CPI for tariff escalation. However, the decision of Government following the 2008 inquiry was to adopt the Perth CPI for tariff escalation purposes.

The Water Corporation uses its own Capital Cost Index and Operating Cost Index, based on domestic cost factors, for the escalation of its capital and operating costs. The Authority accepted this approach in the 2008 inquiry.

The appropriate inflation rates to be used in determining the revenue requirement and escalating tariffs will need to be examined as part of this inquiry.

Inflation

(15) Request to Water Corporation, Aqwest and Busselton Water: please provide your inflation projection as well as the reasons for why you have adopted your proposed inflation measure.

(16) Question for interested parties: Should tariffs be adjusted by using an inflation index that represents inflationary conditions in Australia or locally?

3.9.2 Carbon Price

The federal Government introduced its Clean Energy Future legislation package in late 2011. As part of this package, the *Clean Energy Act 2011* introduces a carbon price of $23 per tonne to be paid by the 500 companies with the largest carbon emissions (in sectors such as electricity generation, mining, natural gas retailing, some heavy industries and landfill). The carbon price is scheduled to commence on 1 July 2012, and will increase by 2.5 per cent per year until 2015, when it will be replaced by an emissions trading scheme.

The impact of a carbon price on the Water Corporation, Aqwest and Busselton Water will depend on the extent to which any of these costs are passed through (for example, by electricity retailers or natural gas retailers) to their customers. This could increase the costs of providing water, wastewater, drainage and irrigation services. The Authority will need to identify any costs due to the carbon price when determining the revenue requirements.

Carbon Price

(17) Request to Water Corporation, Aqwest and Busselton Water: please provide your carbon cost projections as well as the reasons for why you have adopted these projections.

4 Pricing to Recover Efficient Costs

Once the efficient costs (revenue requirements) for each of the services provided by the Water Corporation, Aqwest and Busselton Water are established, prices can then be determined to recover those costs. This section outlines the current approach to each service, the rationale behind these prices, and the issues to be considered in this inquiry.

4.1 General Pricing Principles

By setting prices that reflect as closely as possible the efficient costs of a service, these costs are signalled to the customers for whom the service is provided. This requires, for example, that the costs associated with the supply of water to Perth residential customers be recovered from Perth residential customers, and the costs associated with the provision of commercial wastewater services in a particular country town are recovered from those commercial customers.

Further, usage charges that are set to reflect the marginal cost of a service (i.e. the additional cost of service imposed by the use of an additional unit of the service by a customer) allow customers to factor into their usage decisions the cost consequences of providing the service.

However, setting prices solely on the basis of marginal costs would generally result in a revenue shortfall for service providers in industries where there are significant economies of scale, which is the case in the water sector. For this reason, two-part tariffs are commonly used in utility pricing, with usage charges set to reflect the marginal cost of usage, and a fixed charge, averaged across all users of the service, to ensure that revenues equal the efficient costs of providing the service.

4.2 Issues in the Setting of Water Usage Charges

The setting of water usage charges involves consideration of a wide range of factors.

- What is the appropriate marginal cost for the setting of usage charges?
- What assumptions should be made about the level of security of supply?
- What is the cost and availability of current and future water sources, including externality costs?
- Should usage charges reflect the cost of water delivery?
- Should there be a single usage charge, or an increasing block tariff structure for water?
- Should water used to meet essential needs be discounted?
- Should there be penalty charges for high water users?
- What is the impact of different charging approaches on tenants, or large households?
- Over what length of time should tariffs be phased in to avoid price shocks to customers?

A further question is how to set the water usage charges for residential water customers in Bunbury and Busselton, and whether the same approach should be applied as for the Water Corporation's Perth residential customers.

4.2.1 Long-run vs Short-run Pricing

Regulators across Australia, including the Authority, have used long run marginal cost (**LRMC**) to set water usage charges for metropolitan customers. LRMC estimates the marginal cost impact of an increase in per capita demand for water, in terms of the long term capital and operating costs required to match supply and demand.[30]

However, LRMC estimates can vary widely, depending on the assumptions made about future supply and demand. This is particularly the case in Perth, where the near-record low inflows into the dams in 2010 have exacerbated the uncertainty regarding climatic conditions, water demand and water supplies in the future. In the 2008 inquiry, the estimates of LRMC ranged between $1.41 per kL and $1.70 per kL (in real dollars of June 2009). For the 2012 inquiry, LRMC estimates will need to be re-calculated, based on revised expectations of future demand and supply and the Water Corporation's latest Strategic Development Plan.

In the 2008 inquiry, the Authority also considered whether usage charges should be linked to the short term value of water. The current value of water varies according to the supply/demand balance, with a low price in times of surplus capacity (such as after a new major source is brought in) and a high price in times of water scarcity. Setting usage charges to reflect the short-term value of scarce water supplies could potentially reduce water usage, avoid the use of mandatory water restrictions and defer decisions on major capital investments in new sources. However, there are arguments against a short-term pricing approach:

- demand for water is not very sensitive to price, and there is uncertainty about how high water prices would need to be to induce demand reductions similar to those achieved by demand restrictions;
- fluctuating prices can create uncertainty for investors;
- more frequent billing would be needed so that consumers could better respond to short-term price changes;
- water would be available to those who are willing to pay high prices, and not to those who are not willing to pay, whereas under demand restrictions such losses are spread across all customers.

One option for incorporating the short term value of water into pricing is to set the maximum usage charge at the upper estimate of the LRMC or the short run marginal cost (**SRMC**), whichever is the higher. The Authority estimated in 2008 that a usage charge of around $2 per kL (real dollars of June 2009) would be needed to achieve the same water savings as under a two-day-per-week sprinkler ban.

A further option, proposed by the Productivity Commission, is to have a range of tariffs from which customers could choose according to their preferences on security of supply and price. Some of these tariff options could incorporate signals on the short-term value of water. For example, one tariff option may be for a guaranteed supply at a volumetric

[30] Long run marginal cost can be estimated by examining the cost impact of an increment (or decrement) in per capita water demand on the forward-looking capital investment program required to balance supply and demand over the long term.

charge that reflects the scarcity value of water, while another option may be for a stable charge for an extended period.

4.2.2 Security of Supply

A key driver of the Water Corporation's program is the level of security of supply that the Corporation is required to deliver, both in the short-term (how much water is required to be delivered in a given year) and over the long term (the timing of new sources). The level of security of supply is determined by Government, and is expressed in terms of particular triggers for the development of new sources (currently, if groundwater abstraction on the Gnangara Mound exceeds 120 GL for more than three years in a row, or if the probability of a total sprinkler ban exceeds two per cent). These assumptions would need to be re-examined in the light of current supply and demand forecasts.

4.2.3 Availability and Cost of Future Water Sources and Environmental Impacts

Many of the costs associated with preventing, mitigating, managing or remediating environmental impacts will be reflected in the project costs of different source or demand management options, wastewater treatment or drainage services. Service providers are required to obtain approvals for projects from the Environmental Protection Authority and in many cases also from local, State and federal government agencies under other legislation, such as the *Conservation and Land Management Act 1984*, *Heritage of Western Australia Act 1990*, *WA Wildlife Conservation Act 1950*, *Rights in Water and Irrigation Act 1914*, *Aboriginal Heritage Act 1972*, and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. Legislative compliance requires that projects meet particular conditions in their construction and operations to achieve specified environmental standards. This will often require additional capital or operating costs, which may then be included as part of the legitimate costs of a project and recovered through tariffs.

Environmental impacts are also factored into water prices by placing constraints on some source options, consistent with environmental sustainability principles. For example, environmental impacts on the Gnangara mound can be lessened by reducing the levels of groundwater abstraction for public drinking water supplies (such as to a level that is consistent with the long term sustainability of groundwater-dependent ecosystems). However, this will require other higher cost source options, such as desalination, to be brought forward to help address the shortfall in demand, potentially leading to higher water prices. Thus, the calculation of LRMC depends on assumptions about the availability of future water sources, including dam water and groundwater (see **Box 1**).

Box 1. An Example of Environmental Externalities: the Gnangara Mound

The Gnangara Mound has seen a significant drop in average groundwater levels over the past decade (over 2 metres since 1997). The Draft Report on the Gnangara Sustainability Strategy noted the decline in groundwater levels is not solely due to groundwater abstraction, but that declining rainfall is a major contributing factor.[31] However, continued abstraction of Perth's groundwater at current levels would have major environmental impacts on the Mound. At the time of the 2008 inquiry, the view of the Department of Water was that for the long term sustainability of the Gnangara Mound abstraction levels would need to be 120 GL or less; the Gnangara Sustainability Strategy recommends an average annual abstraction rate of 110 GL per year. Abstractions over recent years have exceeded this level, on average, with the Water Corporation abstracting 137 GL in 2008/09, 110 GL in 2009/10, and 120 GL in 2010/11.

Groundwater abstractions from the Gnangara Mound by the Water Corporation for public drinking water supplies are guided by a groundwater abstraction rule, agreed with the Department of Water, in which the Water Corporation abstracts less groundwater in years when water supply in the dams is high. If total dam storage is above 362.5 GL, groundwater abstractions are reduced to 105 GL per year. If total dam storage is below 235 GL, groundwater abstractions of 145 GL are allowed. However, in exceptional circumstances, abstraction levels of up to 165 GL per year are permitted.

In 2010/11, inflows into Perth's dams were at a record low, with only 13 GL of inflows between May 2010 and April 2011, compared to actual inflows between 2001 and 2007 of around 110 GL per year. Inflows for 2011/12 have been higher, with 95 GL of inflows to early December 2011. CSIRO climate modelling indicates that by 2030, rainfall in southwest Western Australia could reduce by 20 per cent on a 1990 baseline. The Water Corporation's planning assumptions are that yields from dams will reduce to 75 GL by 2030 and 25 GL by 2060.[32]

Dam storage levels are still low following the low 2010 inflows (around 210 GL at the beginning of 2012, compared to around 300 GL at the beginning of 2010), and the Water Corporation has indicated that it will be seeking to abstract 145 GL or more this year. The commencement of the Southern Seawater Desalination Plant in Binningup in 2011 has eased pressure on Perth's groundwater supplies, and the Water Corporation's long term planning assumes a reduced reliance on water supply from Perth's dams.[33] Environmental impacts on local wetlands can also be reduced by shifting groundwater abstractions from shallow bores that tap into the superficial aquifer, to deeper bores that draw groundwater from the deeper Leederville and Yarragadee aquifers.

The impact of the low 2010 inflows on assumptions about future inflows will be a factor in the LRMC calculations. The externality costs associated with these impacts can be incorporated into the pricing of water by adopting appropriate assumptions in the LRMC model about the sustainable level of groundwater abstractions. For example, the difference between the LRMC based on current abstraction levels with the LRMC assuming a lower, sustainable level of abstraction indicates the environmental externality premium associated with current abstraction levels.

If environmental standards are set effectively, then the pricing of water services will reflect the full costs of water use on the environment. It is appropriate that such standards are set by environmental regulators, who have the expertise to assess the environmental

[31] Government of Western Australia (July 2009), *Gnangara Sustainability Strategy – Draft for Public Comment,* p1, states that: "Falling groundwater levels have resulted primarily from declining rainfall (and hence recharge into the system). Other contributing factors which have subregional effects include groundwater abstraction for public and private uses, water use associated with pine plantations and losses associated with an altered frequency of burning of natural woodlands. As a result, ecological communities have degraded and restrictions have been imposed upon groundwater extracted for public drinking water and commercial purposes. Rapid population growth in metropolitan Perth has increased pressure on the system and this is expected to continue for the next 20 years."

[32] Water Corporation (October 2009), *Water Forever: Towards Climate Resilience*, p18.

[33] Water Corporation (July 2010), Water Forever, "Gnangara Groundwater System - Information Sheet".

impacts of water use. However, in some instances, environmental regulations are insufficient to prevent some impacts from arising, so that these costs are not reflected in prices (these are known as environmental externalities).[34] Externalities arise when the production or consumption of goods or services imposes costs or benefits on others which are not reflected in the prices charged for those goods or services. The question for the Authority will be whether there is a need for higher prices to capture the costs of these externalities.

Setting tariffs at a level that reflects environmental externality costs can act as a demand management tool, to the extent that customers reduce their water usage in response to higher prices. The role of pricing in demand management was discussed in section 3.6. Another impact of higher tariffs is that they can create incentives for the development of new source options. For example, high water prices can make recycling projects by private proponents more viable.

In terms of tariff design, a question for the Authority will be how tariffs can be best set to manage the environmental impacts associated with water use.

4.2.4 Cost of Water Delivery

Water usage results in other costs in addition to those of providing bulk water sources, such as additional pumping and water treatment costs associated with delivering extra water to customers. In the 2008 inquiry, these costs were estimated at $0.12 per kL for the Water Corporation, $0.09 per kL for Aqwest and $0.07 per kL for Busselton Water.

4.2.5 Inclining Blocks vs Single Usage Charge

A further issue is whether usage charges should be applied in inclining blocks, with lower charges for low water users, and high charges for high levels of water usage.

The case for pricing water use up to a given level (e.g. up to 150 kL per household per year) at a lower price is based on the view that a certain amount of water is required to meet “essential needs” (such as cooking and washing). Setting a low charge for a basic level of water usage can help to offset costs for low-volume users in a situation where water costs are increasing, as they are in Western Australia. There is also a widespread view that water usage above a certain level is discretionary or even wasteful, and that charges for water use at high levels of consumption should be charged a high price, perhaps even at penalty rates (above the LRMC).

However, setting a low price for essential water benefits not only low water users, but all water users (since all water users get the discount on the first tranche of water use). It can also work against the interests of low volume users, as fixed charges need to rise to make up the revenue shortfall. Revenues generated from high priced “discretionary” water use are insufficient to make up the shortfall, as the proportion of high-volume users is small. This means that total payments by low water users (usage charges plus fixed charge) would increase, even if water usage charges are lower.

A problem with applying penalty prices to high-volume water use is that this could have unintended impacts on large households, which require larger volumes of water (around 500 kL per year for a six occupant household with a garden).

[34] An example is the lowering of the groundwater levels in the Yanchep Caves, to the extent that these are the result of groundwater abstraction. Some of the costs of these externalities can be estimated through the cost of ameliorating the environmental impacts of the lower groundwater levels, or the cost of measures to increase groundwater levels in the caves.

The Productivity Commission reports that inclining block tariffs result in inefficiency, as water usage charges that diverge from the marginal cost of providing water will result in under-charging (relative to the cost of service provision) at low tariffs, and over-charging at high tariffs. The Commission found that substantial efficiency gains could be achieved by adopting a flat volumetric charge across all levels of consumption, based on the marginal cost of water.[35]

The problem with introducing a single volumetric charge is that this is difficult to determine, given the high degree of uncertainty about the marginal cost of water supply in Western Australia. Rather, there is likely to be a range of equally valid estimates of LRMC (and short run costs), depending on underlying assumptions about future supply, demand, costs and climate.

4.2.6 Impact on Tenants

Tenants in Western Australia pay only the usage charge for water, and not the fixed charge. Therefore, any increase in usage charges has a disproportionate impact on tenants' total water costs, as tenants do not benefit from any compensating reduction in the fixed charge.

4.2.7 Transition to New Tariffs

In recommending any change in tariffs, the impacts on different customer classes must be taken into account. Changes in usage charges and the level of the fixed charge will have different impacts on different customer groups (for example, a drop in the fixed charge would not offset an increase in usage charges for tenants, unless it is reflected in rents). Similarly, a change in volumetric bands can result in some customers experiencing marked changes in their bills as they move from one tariff category to another. The price changes experienced by customers can be minimised by smoothing tariff paths over time and transitioning in any changes gradually. The Authority will model any recommended tariffs to determine impacts on different types of customers, to ensure that price shocks are avoided.

[35] Productivity Commission (August 2011), *Australia's Urban Water Sector – Inquiry Report,* pp160-163 and Finding 6.1.

Key Issues for Setting Water Charges for Residential Customers

(18) Question for interested parties: In determining the level of water usage charges for residential customers, what considerations or assumptions should the Authority take into account regarding, for example:

- the long-run or short-run marginal cost of water supply;
- the level of security of supply;
- the cost and availability of current and future water sources, including externality costs;
- the marginal costs of water delivery;
- whether usage charges should be set in inclining blocks, or if there should be a single volumetric charge, and on what basis the charges in each band should be set;
- whether discounts should apply for low volumes of water use;
- whether high prices should apply to water use above a certain level, and if so, what level and what price;
- potential impacts on tenants and large households of any changes in usage charges;
- how any changes in charges should be phased in?

4.3 Water Usage Charges for Perth, Bunbury and Busselton

4.3.1 Current Water Charges for Perth Residential Customers

On the basis of all the above considerations, the Authority recommended in the 2008 inquiry (and the Government accepted the recommendation) that water usage charges in Perth be phased in on a tariff path, so that by 2012/2013 there will be three different usage charges, with:

- usage up to 150 kL priced at the lower estimate of the LRMC of water supply, plus an additional amount reflecting the marginal cost of water distribution;
- usage between 151-500 kL priced at the upper estimate of LRMC, plus the marginal distribution cost; and
- usage above 500 kL priced at the level estimated to be necessary to achieve the same water savings as the two day per week sprinkler ban, plus the marginal distribution cost.

Currently, there are six bands of usage charges for Perth residential customers (see Table B1 in Appendix B), although these bands will be reduced to the recommended three by 2012/13.

The fixed charge for all metropolitan residential customers is currently $186.60.

4.3.2 Current Water Charges for Residential Customers in Bunbury and Busselton

Currently, residential water charges in Bunbury and Busselton are linked to Perth prices. Usage charges are being transitioned by 2012/13 at a constant rate, with the highest usage charge capped at the highest usage charge in Perth.

Water usage charges in Bunbury and Busselton are currently set in six inclining blocks (transitioning to fewer blocks in future years); see Tables B14 and B17 in Appendix B. This is among the highest number of tariff blocks for water service providers in Australia. The Productivity Commission found in its final report that for efficiency reasons, volumetric charging should move away from inclining block tariffs, towards a single, cost-reflective usage charge.[36] There are problems with having a single usage charge, as noted in section 4.2.5 above. However, it is worth considering whether the tariff structures in Bunbury and Busselton could be further simplified, taking into account any transitional impacts when moving to a new structure.

The marginal costs of water supply by Aqwest and Busselton Water are lower than in Perth. (The LRMC of water supply in Bunbury was estimated at around $0.56 per kL in 2006.) However, pricing at LRMC would present opportunities for trade: the water boards could potentially sell water to the Water Corporation to supply adjacent supply areas or even Perth. Therefore, the price of water in Bunbury could be determined on the basis of the price of water in Perth, minus any transportation or network integration costs required for a transfer of water to Perth. There is a case for aligning the tariff structures of the water boards with those of the Water Corporation, which would make it easier to compare tariffs between customers who use similar volumes of water. Such comparisons are particularly relevant in the case of customers in adjacent areas that are supplied by different service providers (e.g. Eaton, supplied by the Water Corporation, and Bunbury, supplied by Aqwest).

For example, one option would be to have four tariff blocks, for consumption from 0-150 kL (set at a low price for essential water use); 151-300 kL; 301-500 kL; and above 500 kL. The advantage of this four-block structure is that it could be applied across the whole State (country towns have a four-block structure – see section 4.4.1 below), so that usage charges could be compared more easily for customers with similar consumption levels. The usage charges for Bunbury and Busselton could be set at the Perth usage charges for each band, minus the marginal costs of transferring water.

4.3.3 Metropolitan Non-Residential Water Services

The rationale behind charges for non-residential metropolitan water customers is that the efficient costs of providing these services are recovered from those for whom they are provided, in a way that reflects as closely as possible the marginal costs of providing the services. The costs of water services increase with the square of the diameter of the customer's meter,[37] so commercial customers pay an annual charge which increases in proportion to the size of the meter (see Table B2 in Appendix B).

Currently, all metropolitan commercial customers pay a single usage charge of 172.4 c/kL. This usage charge was set to transition to the same charge as for the second tier of usage charge for residential customers. The 20mm meter fixed charge is also aligned with the

[36] Productivity Commission (August 2011), *Australia's Urban Water Sector – Inquiry Report*, pp160-163.

[37] Meter sizes are defined by the diameter of the water inflow hole into the meter (e.g. 20mm up to 350mm). Larger meters are required for higher volume water supplies.

residential fixed charge. This is because the small business customers in this category are very similar to residential customers (e.g. a newsagent and a household).

4.3.4 Bunbury and Busselton Non-Residential Water Services

Commercial water customers of Aqwest and Busselton Water also pay an annual charge that increases in proportion to the size of their meter (see Tables B14 and B16 in Appendix B). As in the case of Perth commercial customers, the fixed charge for commercial customers with 20mm meters is the same as the residential fixed charge.

For usage charges, Aqwest and Busselton Water customers pay a higher charge for water use above 1,000 kL per annum, although usage charges are being transitioned towards a single usage charge, which is aligned with the third tier of residential usage charges for each service provider.

4.4 Country Water Services

4.4.1 Country Residential Water Customers

Country water tariffs have been undergoing a process of progressive reform towards charges that more closely recover and reflect the costs of water services in each town. There are five class categories for country towns, ranging from the lowest cost towns (Class 1) to the highest cost towns (Class 5); see Table B5 in Appendix B.

Currently, the Government has a uniform pricing policy in place, under which residential customers across the State:

- pay the same uniform price for the first 150 kL of water (currently 119.2 c/kL);
- pay the same annual service charge (currently $186.60);
- pay the same usage charge up to the average level of consumption of 300 kL per household for towns south of the 26th parallel (“Country South” towns) and 500 kL for households in “Country North” towns (as well as the towns of Cue, Laverton, Leonora, Meekatharra, Menzies, Mt Magnet, Mullewa, Sandstone, Wiluna and Yalgoo).

Above 300 kL, costs in country towns increase to reflect the cost of service provision, and above 550 kL charges are fully cost reflective. However:

- Residential customers in Class 1 towns pay lower usage charges than the uniform usage charges, as the costs of service in these towns are lower than those applied through the uniform pricing policy.
- Special lower tariffs apply to residential customers in Country North, for which the water usage threshold for each tariff band is 200 kL higher than for towns in the same class in Country South towns. The rationale is that the hotter climatic conditions in these towns require a higher water allowance to meet additional household needs (e.g. air conditioning).
  - For example, a charge of 167.9 c/kL currently applies to Class 2 Country South customers using 350 kL, and to Class 2 Country North customers using 550 kL.
- Similarly, fully cost-reflective usage charges would apply above 750 kL for Country North towns, rather than 550 kL.

- Usage charges in the most expensive towns (Class 5) are capped. This cap was set at $5 per kL in 2006 dollars.

There are currently nine tariff bands in each Class, although these are being transitioned towards four tariff bands.

In the 2008 inquiry, the Authority considered the appropriate level of water usage at which the uniform price should apply. It was noted that 150 kL of water use per household per annum is consistent with a basic water entitlement of 100 litres per capita per day (considered by the World Health Organisation to be necessary to meet basic needs for drinking water, hygiene, bathing and laundry) for a four person household.

Any shortfall in revenue in the provision of water services to country towns, due to the State-wide uniform price for the first 150 kL, partial cost recovery below 550 kL (or 750 kL for Country North towns) and the tariff cap for Class 5 towns, are recovered by the Water Corporation through CSO payments. The estimated CSO payment for 2011/12 to recover revenue shortfalls in country water, sewerage and drainage services is $300 million.

An issue for this inquiry is whether the additional "allowance" of 200 kL of water usage for Country North towns is necessary (i.e. reflects actual usage patterns for households in these towns). Initial investigations of water consumption data by the Authority suggest that average annual consumption by households in Country North towns is only around 100 kL higher than average annual water use by Country South households.

Water Charges for Residential Customers in Country Towns

(19) Question for interested parties: Do you have any comments on how the uniform tariff policy is applied in the pricing of country residential water services; e.g.

- Is the uniform price threshold of 150 kL per household for water to meet basic needs appropriate?
- Should the same usage charge continue to apply up to the average level of consumption per household (300 kL for Country South towns and 500 kL for Country North towns)?
- Should all residential customers pay the same annual water service charge?
- Are the thresholds above which cost reflective charges apply for residential households (550 kL for Country South towns and 750 kL for Country North towns) appropriate?
- Is an additional allowance of 200 kL a year required for households in Country North towns to meet their average additional water use?

4.4.2 Country Non-Residential Water Customers

Country commercial customers pay the same annual service charges as metropolitan commercial customers, which increase in proportion to the square of the size of the meter (see Table B7 in Appendix B).

However, unlike the single usage charge paid by metropolitan commercial customers, country customers currently pay a reduced price for the first 300 kL and different usage

charge for each town, depending on the cost category of the town (there are fifteen cost categories, or classes, based on the costs per litre of supplying water). There is also a cap on the usage charge for the highest cost towns. The reduced price for the first 300 kL of usage is being phased out, and towns are being moved up or down one cost category each year, towards cost reflectivity. Eventually, commercial customers in country towns will pay a single usage charge that reasonably reflects the cost of water service provision in that town (or the average of the costs of service of towns in that category).

There are a different number of cost categories for country commercial customers (15 categories) compared to country residential customers (5 categories). This can lead to inequities in some towns, with residential and commercial customers who receive the same water service paying different water usage charges (e.g. a residential household next to a delicatessen). The Authority will examine whether there are ways of aligning cost categories between residential and non-residential country customers that would resolve such inequities, and are not too administratively complex.

Water Charges for Non-residential Customers in Country Towns

(20) Question for interested parties: Should the number of cost categories for residential and non-residential customers in country towns be the same?

4.5 Wastewater Services

4.5.1 Residential Wastewater Customers

Residential wastewater tariffs in Western Australia are currently set as a fixed charge each year, based on the estimated Gross Rental Value (**GRV**) of the property. As relative property values vary, the wastewater charges are adjusted to maintain the required amount of revenue for the wastewater service.

In Perth, residential wastewater charges are set to recover the cost of the service (by assuming that the cost share between residential and commercial customers is maintained at its existing level). In 2011/12, charges are set at 4.01 cents per dollar of GRV up to $16,700, and 0.93 cents per dollar above this value. There is a minimum residential wastewater charge of $302.30 per household.

In the country, residential wastewater charges are set to recover the costs of wastewater service provision in each scheme and are subject to minimum and maximum charges. Thus, each town has a different charge per rateable dollar (e.g.10.011 cents per dollar of GRV in Bridgetown, and 6.768 cents per dollar of GRV in Geraldton). For very high cost towns, full cost recovery is limited by the application of a cap of 12 cents per dollar of GRV, which limits the extent of full cost recovery in these areas. The same minimum charge applies in country towns as for metropolitan residential customers ($302.30 in 2011/12), and there is also a maximum charge for country residential customers ($753.30 in 2011/12).

The Authority recommended in both the 2005 and 2008 tariff inquiries that residential wastewater charges be decoupled from property values. In the 2008 inquiry, the Authority recommended a flat annual wastewater charge for residential customers, based on the average annual cost of service, which would be more cost-reflective than property-based prices. Under the GRV method, there is little if any relationship between the price charged and the cost of the service. Further, the correlation between property values and

income is not strong, with 25 per cent of lower-income households in properties above the average property value. However, the Government did not accept the Authority's recommendation.

The Authority will be examining ways to improve cost reflectivity in wastewater tariffs. A further consideration is whether a minimum charge should be applied, when the costs of service to some customers may be less than the minimum charge.

Wastewater Charges for Residential Customers

(21) Question for interested parties: Should wastewater charges for residential customers continue to be set on the basis of property values, or should customers pay the average cost of wastewater services (subject to caps)?

4.5.2 Non-Residential Wastewater Customers

Charges for wastewater services for commercial customers are the same for metropolitan and country customers (see Table B9 in Appendix B). Commercial wastewater charges comprise:

- a service charge based on the number of major sewerage fixtures; and
- a usage charge based on the estimated volume discharged to the sewerage system, which is calculated by multiplying water usage by a discharge factor.

The Authority considered other approaches to wastewater pricing in the 2008 inquiry, such as basing the service charge on estimated water usage or the size of the water meter rather than the number of fixtures, but concluded that the current approach was appropriate. An issue for this inquiry is whether the Authority should reconsider this conclusion.

Wastewater Charges for Non-residential Customers

(22) Question for interested parties: Are there any concerns with the current method of charging for non-residential wastewater services; and would an alternative method be more appropriate?

4.6 Drainage Services

The Water Corporation provides the main drainage services across 40 per cent of the Perth metropolitan area. The Water Corporation owns and manages a system of around 950 kilometres of main drains (generally piped drains larger than 700 mm diameter, as well as open channels). Other infrastructure includes compensating basins and gauging stations to measure flows and rainfall. Main drains which cross more than one local area boundary are provided and maintained by the Water Corporation, if requested by local authorities. There are around 347,000 homes and businesses connected to the Water Corporation's metropolitan drainage network. Water that goes into drains ends up in either rivers, wetlands or the ocean. Under its licence, the Water Corporation is required to provide drainage services in the metropolitan area to accommodate a one-in-five year

rainfall event in residential areas, and a one-in-ten year rainfall event for commercial areas and compensating basins.

Local councils own and maintain the local drainage infrastructure over the remainder of the metropolitan area (over 3,000 kilometres of local drains, generally with pipes less than 700 mm). Local governments providing drainage services recover their costs through council rates and specific drainage charges, which are not regulated.

For new developments, the developers provide smaller pipes, as well as landscaping of developments to minimise additional runoff and inflows into the main drains. In addition, developments within the Perth main drainage system are subject to a standard headworks charge, based on the average cost per lot to the Water Corporation of expanding the Perth main drainage system. Developers recover their drainage costs from those purchasing blocks in new developments.

The Water Corporation also provides drainage services to country areas, with around 1.9 million kilometres of drains across the Great Southern and South-West regions. The Water Corporation is required by its operating licence to maintain these drains such that the period of any inundation to land adjacent to the drains is at most 72 hours. However, country customers do not pay drainage charges, which are recovered through CSO funding.

The current funding arrangements for the Water Corporation's drainage system are:

- 40 per cent of the total capital cost of drainage is recovered through the standard headwork charges;
- the remaining capital costs (i.e. 60 per cent) plus operating costs are recouped via annual charges by Water Corporation to its customers in the declared drainage areas in Perth; and
- country drainage systems are funded by a CSO.

The Water Corporation recovers its costs from metropolitan customers through drainage charges based on GRV (see Table B13 in Appendix B for the current charges). Different rates per dollar of GRV apply for residential customers, non-residential customers and vacant land, and all properties are subject to a minimum drainage charge ($85.25 in 2011/12).

Drainage charges based on property values do not reflect the cost of the services provided, with customers with high value properties (particularly non-residential customers) cross-subsidising customers with low-GRV properties. A more cost-reflective approach would be to set a flat drainage charge across all customers, or to base charges on land area, as land area is correlated with the amount of drainage water. The Authority recommended a land-area based approach in the 2008 inquiry, but this was not accepted by Government.

Drainage services also have a component of public benefits that apply to all people across the metropolitan area. These benefits include reduced flooding (which can result in damage to public infrastructure and contamination of waterways), as well as improvements in water quality, aesthetic values and recreational opportunities. Improvements to the quality of drainage water would also have wider community benefits, such as improved water quality in the Swan and Canning River. Drainage water can be high in nutrients such as nitrogen and phosphorus and can contain heavy metals, organic matter, sediments and litter, which can be harmful to the water courses into which it flows. There is a case for recovering the costs of any drainage expenditure mainly related to

public benefits, such as programs to improve drainage water quality, through a separate drainage levy on all Water Corporation metropolitan water customers.

Country customers currently do not pay for drainage services provided by the Water Corporation. There is a case for the costs of these drainage services to be recovered from country customers, just as drainage services provided by local councils in rural communities are recovered from ratepayers in those communities.

Charges for Drainage Services

(23) Questions for interested parties: Are there any concerns about the current method used by Water Corporation to charge for its drainage services? On what basis should the costs of providing drainage services in the Perth metropolitan area be recovered? How should the costs of expenditure to improve drainage water quality, and other drainage programs with wider community benefits, be recovered? Should country customers pay for the drainage services provided to them by the Water Corporation, and if so, on what basis should the charges be set?

4.7 Concessions for Pensioners and Seniors

4.7.1 Water Corporation Concessions

The Water Corporation provides the following concessions to pensioners and seniors.

- Holders of a Pensioner Concession Card or State Concession Card are entitled to a rebate of up to 50 per cent on the annual service charge (for water, wastewater and drainage). Pensioner Concession Card holders are also entitled to up to 50 per cent concessions on water usage charges up to a threshold amount (150 kL for Perth customers, 400 kL for country customers in the south and 600 kL for country customers in the north).
- Holders of a State Seniors Card are entitled to a rebate of up to 25 per cent (capped) on their annual service charge (for water, wastewater and drainage).[38]
- Holders of both a State Senior Card and a Commonwealth Seniors Health Card are entitled to a rebate of up to 50 per cent of their annual service charge.

The Water Corporation's pensioner and seniors concessions are funded out of CSO payments. The budget for 2011/12 includes an estimate of $113 million to fund pensioner and seniors concessions by the Water Corporation.

4.7.2 Aqwest Concessions

Aqwest customers who are registered as pensioners are entitled to a 50 per cent rebate on their first 350 kL of water usage in the financial year.

Holders of a State Senior Card and a Commonwealth Seniors Health Card are entitled to a 50 per cent rebate for their first 150 kL of water usage in the financial year.

[38] The discount is capped at 25 per cent of the 75th percentile of the standard annual charge.

4.7.3 Busselton Water Concessions

Busselton Water funds a rebate to both owners and occupier of residential properties who hold a current Concession Card. The rebate is applicable to standard supply charges and "Pay As You Use" water consumption costs. The following rebates apply to the standard supply charges:

- Pensioners – up to 50 per cent rebate;
- Seniors – up to 25 per cent rebate; and
- Commonwealth Seniors Health Card – up to a 50 per cent rebate.

Pensioners and holders of a Commonwealth Seniors Health Card are also entitled to up to a 50 per cent rebate on their first 350 kL of water usage for the whole year.

Concessions for Pensioners and Seniors

(24) Question for interested parties: Do you have any comments on the concessions for pensioners and seniors provided by the Water Corporation, Aqwest and Busselton?

4.8 Water Corporation Non-Standard Tariffs

There are a range of Water Corporation tariffs that differ from standard tariffs.

- Some services may involve higher or lower costs, which can be identified and allocated to those for whom the services are provided, with charges reflecting the costs of service.
- Other charges may be subsidised for equity reasons, to reduce costs for particular customer groups.
- In other cases, the administration costs of moving from the historical charging approach to a standard tariff may be prohibitive.

4.8.1 Variations Due to Costs of Service

For costs that diverge from standard tariffs for reasons of differing costs of service, the Authority will need to examine the efficient costs of those services and determine whether charges are cost-reflective.

Brighton and Evermore Schemes – Non Potable Water Supply

In addition to drinking water supply, the Brighton and Evermore developments are supplied with non-potable water for outside use. An annual charge is applied for the service, based on lot size. Brighton and Evermore customers also receive a potable water supply, for which standard metropolitan residential water tariffs apply.

Industrial Waste Charges

Industrial waste charges are set to recover the costs of different services provided by the Water Corporation to industrial customers discharging industrial waste to sewers. These services include the monitoring, transport, treatment and management of impacts of industrial waste. There are three main types of charges:

- An annual permit charge, paid by all industrial waste customers, to recover the costs to the Water Corporation of administering the industrial permit licensing system;
- Quality/quantity usage charges, which comprise:
  - a per kL volume charge for all customers (in 2011/12, $1.27 per kL of industrial waste discharged to the network); and
  - different charges per kg of industrial waste contaminant, which varies by the type, level and volume of industrial waste.

  Some industries have fixed annual quality/quantity charges, calculated from a model of the types and quantities of industrial waste discharged by these industries (care facilities, hospitals, radiology clinics, commercial car washes and fast food restaurants).

  There is also a charge for unroofed washbays and binwash areas that drain into the sewer network (per square metre of floor area).
- Activity-based charges for specific services, such as permit application assessments; inspections; operation of units to pre-treat greasy wastewater; monitoring, metering and sampling; management of one-off discharges.

Early payment discounts, additional charges on late payments

The Water Corporation provides discounts for early payment of accounts and applies interest on overdue payments.

The current interest rate charged on overdue amounts is 14.81 per cent.[39] A consideration for the Authority will be whether the interest charged is consistent with Water Corporation's cost of debt. By comparison, Aqwest and Busselton Water charge penalty fees on overdue amounts of 10 per cent and 12 per cent per annum respectively.

4.8.2 Variations for Equity Considerations

In some cases, it may be government policy to provide subsidised water or sewerage charges to particular customer groups for equity reasons. In these cases, it is important to establish the costs of such programs to identify their impact on Community Service Obligation payments.

Public and charitable institutions

In the metropolitan area, charitable institutions and a range of other customer categories are exempt from the annual water service charge and pay a lower wastewater service

[39] *Water Agencies (Charges) By-laws 1987*, Schedule 7 – Discounts and Additional Charges. Charges Gazetted on 23 June 2011.

charge than standard non-residential customers ($185.50 per fixture in 2011/12).[40] Non-profit homes for the aged also pay a lower wastewater service charge ($185.50 for the first fixture and $81.60 for each additional fixture in 2011/12).

In country areas, properties used for local government purposes, institutional public organisations such as non-government schools, churches and community facilities, and charitable organisations are also exempt from annual water service charges, and pay reduced water use charges.

Community residential

Community residential properties are communal properties with more than one family. They are primarily remote indigenous communities. Community residential customers receive a 50 per cent discount on the standard water service charge and a 50 per cent discount on the standard water usage charges, up to a threshold amount (150 kL for metropolitan customers, 400 kL for Country South, 600 kL for Country North. Community residential customers in remote communities pay a fixed charge (per major fixture) where connected to sewer.

Concessions to community residential customers are used as a practical way of delivering pensioner discounts to residents, many of which are welfare recipients (see section 4.7 on pensioner discounts).

Farmland water

Non-potable water supplied to farmland, including water for stock watering and local government standpipes, is charged at the same annual charge as residential customers ($186.60 in 2011/12). However, customers pay a uniform tariff per kL of water use, which does not vary between towns, despite variations in the cost of delivering these supplies, and is fairly low (less than the price of usage between 151-300 kL for Class 2 town households).

Farmland water was put in place largely as a supply of last resort, as farmers were expected to supply their own water on the farm, with standpipes available for emergency supplies. Farmland water is supplied mainly through the Goldfields and Agricultural Water Supply Scheme, sourced from Mundaring Weir, and the Great Southern Towns Water Supply Scheme, sourced from Harris Dam. The uniform price was put in place largely for equity reasons, so that the price paid by farms in country areas is the same as that paid by farms or standpipes in the metropolitan area.

4.8.3 Variations for Practical Reasons

Long-term residential caravan bays

Caravan parks are primarily commercial operations with short-term customers to which commercial tariffs would apply. However, caravan parks also have a number of long-term residential customers who typically have lower water usage and impose fewer costs on

[40] The types of properties deemed as exempt are: land held by the State Government; local government; religious (including church, manse, convent, etc.); public hospital, benevolent asylum, orphanage, public school, private school, public library, public museum, public art gallery, mechanics institute; charities; land vested as parks and reserves (including zoos, etc.); societies, clubs, or associations, except certain racing (galloping, trotting, greyhound); cemeteries; land declared by the Corporation to be exempt. Some types of property, e.g. State Government, are exempt when they are not connected (whereas standard customers are charged based on the availability of the service). Further details on exempt properties can be found in the *Water Agencies (Charges) By-laws 1987*, By-law 4, 8, 12, 22, 23 and 28.

the system than standard residential households. In addition, it is difficult to obtain GRV estimates for caravan bays.

For water services, long-term residents are charged:

- an annual service charge that is less than the standard annual service charge for residential customers. Other bays in caravan parks are charged according to standard non-residential tariffs, depending on the meter size for their service; and
- a water usage charge set at the minimum residential tariff for the first 150 kL, and a higher charge for consumption above this level.

For wastewater services, long-term residents are charged:

- a standard service charge of $228.00 per bay (i.e. not based on GRV as for other wastewater customers, and less than the minimum service charge of $302.30 for metropolitan residential customers). Other bays are charged as for non-residential customers, on the basis of the number of major fixtures; and
- a usage charge, based on the estimated wastewater discharge to the sewer (which is calculated, as for commercial customers, on the basis of water usage multiplied by a discharge factor). Caravan parks are given a standard allowance of 200 kL of wastewater, which is increased by 75 kL for each long-term residential lot. Discharge above this allocation is charged at the standard commercial rate (253.8 c/kL in 2011/12).

Strata-titled storage units and parking bays

Strata title storage units and parking bays pay reduced water, wastewater and drainage service charges, as it is difficult to obtain GRV valuations for these properties. The charges in 2011/12 are:

- $65.70 per year for water services (compared with the standard service charge of $186.60);
- $68.40 per year for wastewater services (compared with a minimum wastewater service charge of $302.30 for metropolitan residential customers); and
- $9.60 for drainage services (compared with a minimum drainage charge of $85.25 for metropolitan residential customers).

Mixed commercial/residential properties

Mixed commercial/residential properties have a mixed use (for example, commercial properties that also have residential units, such as flats above a shop). These properties pay the standard non-residential water service charge, the residential water usage charge for the first 150kL and the non-residential usage charge for water use over 150kL. They are charged at the non-residential rates for wastewater and drainage, where available.

Small mining customers

Beginning in 2010/11, the Government decided to align the water usage charge for small mining companies (that is, those with a capacity requirement of less than 49 kL per day) with the equivalent non-residential usage rate for the relevant scheme. This replaced a State-wide uniform rate, with the transition to be phased in over a maximum of eight years, depending on the magnitude of the increase required for each scheme.

Vacant land

Vacant land in the metropolitan area incurs a water service charge and water usage charges at the standard tariffs, for both residential and non-residential land. It also incurs charges for drainage and sewerage services, which are both based on property values (a rate per dollar of GRV). However, vacant land incurs a lower minimum charge for sewerage services (around three quarters of the standard minimum charge for residential sewerage services), as there are no fixtures involved in the provision of sewerage services to vacant land.

Water Corporation's Non-standard Tariffs

(25) Question for interested parties: Are the Water Corporation's non-standard tariffs appropriate, either on the grounds of cost-reflective pricing of specific services, or equity reasons, or for practical considerations?

4.9 Impacts of Tariff Recommendations

The Authority is required to examine the social impacts of its recommendations, as well as impacts on the service providers and State Government. The Authority will therefore model the impacts of different levels of revenue recovery, tariff structures and phase-in approaches when developing its recommendations.

4.9.1 Social Impacts

The Authority will model the impact of tariff recommendations on a wide range of customer categories, including high and low income households, tenants, pensioners, country and metropolitan customers, large and small commercial and industrial customers, and customers of non-standards services. The matters that the Authority will take into account in the setting of tariffs were discussed in section 4.2 above.

Where there are transitional impacts as a result of recommended changes to tariffs, the Authority will examine whether changes can be phased in over time to reduce these effects.

Impacts of Tariffs

(26) Question for interested parties: Do you have any particular concerns around the social impacts of water pricing that need to be brought to the attention of the Authority?

4.9.2 Impacts on Financial Positions of Service Providers

The Terms of Reference require the Authority to consider the impact of the tariff recommendations on the net financial positions and financial performance of the service providers.

The Authority will examine the impact of any of its recommendations on a range of financial indicators for the service providers, including net profit, net assets (equity), debt,

gearing levels (ratio of debt to total assets), cash flows and credit rating. It is important that any tariff recommendations, as well as providing for appropriate returns on investment, are also consistent with the long-term financial viability of the service provider, and ensure sufficient cash-flows for operations.

4.9.3 Impacts on State Government

The Terms of Reference require the Authority to consider the impact of the tariff recommendations on the net financial positions of the State Government, including its net debt, dividends, tax equivalent payments and the level of Government funding (through CSO payments). The Authority will estimate the level of each of these payments to and from Government for each tariff option considered.

APPENDICES

Appendix A Terms of Reference

INQUIRY INTO THE EFFICIENT COSTS AND TARIFFS OF THE WATER CORPORATION, AQWEST AND BUSSELTON WATER

TERMS OF REFERENCE

I, CHARLES CHRISTIAN PORTER, Treasurer and pursuant to section 32(1) of the Economic Regulation Authority Act 2003 request that the Economic Regulation Authority (ERA) undertake an inquiry into the efficient costs and tariffs of the Water Corporation, Aqwest and Busselton Water Board for the next three year period.

Whilst conducting its inquiry, the ERA is to investigate and report on the efficient costs, and appropriate charges for the services of the Water Corporation, Aqwest and the Busselton Water Board. The ERA should consider, but not limit its investigation to, recommended tariff levels and charging structures for water, wastewater and drainage services.

The ERA is also to make recommendations on the most appropriate level and structure of water storage charges to the South West Irrigation Management Co-operative (Harvey Water).

The ERA must give consideration, but will not be limited, to the following:

- the efficient operating and capital costs of providing services, with a focus on:
  - cost effectiveness in the supply of services;
  - appropriate service standards and the resources required to meet them;
  - resources necessary to meet the required service standards; and
  - resources necessary to meet security of supply service standards for water;
- the method used to determine the revenue requirements of each service provider;
- the value of the service providers' assets, and the appropriate rate of return on those assets;
- the impact of the recommendations on each service provider's net financial position and financial performance;
- the impact of the imposition of the Clean Energy Future Package (carbon pricing) by the Commonwealth Government;
- the impact of the recommendations on the Government's financial targets, in particular, Public Sector Net Debt, dividends, tax equivalent payments and the level of Government funding (particularly through Community Service Obligation Payments); and
- the social impact of the recommendations.

In developing its recommendations, the ERA is to have regard to the following policies:

- the pricing principles of the 1994 Council of Australian Governments water reform agreement and the National Water Initiative;
- uniform pricing; and

- the pricing mechanisms available to the Water Corporation, Aqwest and the Busselton Water Board under relevant legislation.

The ERA will release an issues paper as soon as possible after receiving the terms of reference. The paper is to facilitate public consultation on the basis of invitations for written submissions from industry, government and all other stakeholders groups, including the general community.

A draft report is to be made available for further public consultation on the basis of invitations for written submissions. A final report is to be completed by no later than the close of business 2 November 2012. To accommodate the timing necessary to meet the normal information requirements of the 2013/14 Budget Process, no extension of time is possible beyond this date.

HON C. CHRISTIAN PORTER MLA
TREASURER; ATTORNEY GENERAL

Appendix B. Current Tariffs (as at February 2012)

Water Corporation – Water Services

Table B1. Water Services – Metropolitan Residential Customers

	2011/12
Annual service charge	$186.60
Water use charges	
Water use*	
0-150 kL	119.2 c/kL
151-350 kL	153.5 c/kL
351-500 kL	158.2 c/kL
501-550 kL	190.1 c/kL
551-950 kL	208.2 c/kL
Over 950 kL	216.7 c/kL

* For multiple residential units served by a common service, the amount of water use allowed in each tranche is multiplied by the number of residential units. For example, for a 10-unit residence, the amount of water charged at the first tranche price of 119.2 c/kL is 10 x 150 kL (1,500 kL).

Table B2. Water Services – Metropolitan Commercial Customers

	2011/12
Annual service charge	
Meter size	
20 mm meter	$279.00
25 mm meter	$435.90
30 mm meter	$627.70
40 mm meter	$1,116.00
50 mm meter	$1,743.70
80 mm meter	$4,463.90
100 mm meter	$6,974.90
150 mm meter	$15,693.40
200 mm meter	$27,899.50
250 mm meter	$43,592.90
300 mm meter	$62,773.80
350 mm meter	$85,442.10
Strata titled units sharing a meter	$186.60
Water use charges	172.4 c/kL

Table B3. Water Services – Metropolitan Vacant Land

	2011/12
Annual service charge	$186.60
Water use charges	
Residential	As per Metropolitan Residential
Non-residential	As per Metropolitan Non-residential

Table B4. Other Metropolitan Water Charges

		2011/12
Strata titled and long-term residential caravan bays		
Annual service charge	$131.10	
Water use charge		
Water use		
0-150 kL	119.2 c/kL	
Over 150 kL	172.4 c/kL	
Strata titled storage units and parking bays		
Annual service charge	$65.70	
Connected metropolitan exempt and charitable organisations		
Annual service charge	$0.00	
Water use charge	As per Metropolitan Non-Residential charges, except properties held by charities that are single residential, which are charged at the Residential rate.	
Fire Services		
Annual service charge	$186.60	
Connected State Government Property		
Annual service charge	As per Metropolitan Non-Residential	
Water use charge	As per Metropolitan Non-Residential	
Brighton and Evermore Schemes – Non-Drinking Water		
Annual service charge		
	Brighton Scheme	**Evermore Scheme**
Lots less than 400 m^2	$71.40	$115.15
Lots 400 m^2 or greater	$142.80	$230.30

Table B5. Water Services – Country Residential Customers

					2011/12
Annual service charge	$186.60				
Water use charges for towns in south of the State (below the 26th parallel)					
Water use	**Class 1 (c/kL)**	**Class 2 (c/kL)**	**Class 3 (c/kL)**	**Class 4 (c/kL)**	**Class 5 (c/kL)**
0-150 kL	92.8	119.2	119.2	119.2	119.2
151-300 kL	119.1	153.5	153.5	153.5	153.5
301-350 kL	125.8	167.9	206.4	240.7	278.2
351-450 kL	129.2	171.9	210.3	244.6	282.2
451-550 kL	129.2	177.8	218.9	255.9	294.3
551-750 kL	165.5	219.2	288.1	384.9	506.7
751-950 kL	173.3	238.6	308.7	409.5	535.3
951-1150 kL	174.5	244.8	322.4	427.8	566.1
1151-1550 kL	190.5	267.6	350.9	479.1	636.3
1551-1950 kL	198.5	284.7	377.5	501.9	659.2
Over 1950 kL	208.3	309.4	400.3	524.7	678.2
Water use charges for towns in north of the State (above the 26th parallel), and for the towns of Cue, Laverton, Leonora, Meekatharra, Menzies, Mt Magnet, Mullewa, Sandstone, Wiluna and Yalgoo					
Water use	**Class 1 (c/kL)**	**Class 2 (c/kL)**	**Class 3 (c/kL)**	**Class 4 (c/kL)**	**Class 5 (c/kL)**
0-150 kL	92.8	119.2	119.2	119.2	119.2
151-350 kL	97.9	124.3	124.3	124.3	124.3
351-500 kL	119.1	153.5	153.5	153.5	153.5
501-550 kL	125.8	167.9	206.4	240.7	278.2
551-650 kL	128.8	170.9	209.3	243.6	281.2
651-750 kL	138.0	181.3	224.3	262.3	303.4
751-950 kL	173.3	238.6	308.7	409.5	535.3
951-1150 kL	173.3	238.6	308.7	409.5	535.3
1151-1550 kL	190.5	267.6	350.9	479.1	636.3
1551-1950 kL	198.5	284.7	377.5	501.9	659.2
Over 1950 kL	208.3	309.4	400.3	524.7	678.2

Table B6. Water Services – Denham Desalinated Water

	2011/12
Saline water use charge	As per Country Residential or Country Non-Residential water use charges
Desalinated water use charge – residential customers	
Based on a quota of 35 kL per billing period (with three billing periods per year). Quotas are based on a four person household; households with more than four people can apply for a higher quota.	
Water use up to quota	56.7 c/kL
Above quota, for the next 1/7 of quota	415.8 c/kL
Desalinated water use charge – non residential customers	
Based on a quota of 105 kL of water per year. Quota may vary if developer paid extra headworks contributions at time of construction. .	
Water use up to quota	56.7 c/kL
Water use above quota	415.8 c/kL

Table B7. Water Services – Country Commercial Customers

Annual service charge			**2011/12**
Meter size			
20 mm meter			$279.00
25 mm meter			$435.90
30 mm meter			$627.70
35 mm, 38 mm and 40 mm meter			$1,116.00
50 mm meter			$1,743.70
70 mm, 75 mm and 80 mm meter			$4,463.00
100 mm meter			$6,974.90
140 mm and 150 mm meter			$15,693.40
Water use charges			**2011/12**
Previous Class	**Steps**	**c/kL 0-300 kL**	**c/kL Over 300 kL**
1	1	153.0	185.9
	2	168.9	202.5
	3	186.2	220.3
	4	205.4	240.0
2	5	226.7	261.3
	6	246.5	284.6
3	7	268.1	309.9
	8	290.3	337.5
4	9	314.2	367.4
5	10	334.5	400.1
	11	365.7	435.7
	12	399.8	474.5
	13	437.1	516.7
	14	478.0	562.6
	15	522.6	612.7

Water Corporation – Wastewater Services

Table B8. Wastewater Services – Metropolitan Residential Customers

Sewerage charges for residential properties are based on the Gross Rental Value (GRV) of the property. The GRV is determined each year by the Valuer General.

	2011/12
Annual service charge	
First $16,700 of GRV	4.01 cents per dollar of GRV
Thereafter	0.93 cents per dollar of GRV
Minimum residential sewerage charge	$302.30 per household

Table B9. Wastewater Services – Metropolitan Commercial Customers

	2011/12
Annual service charge	
First fixture	$690.50
Second fixture	$295.60
Third fixture	$394.80
Over 3 fixtures (per fixture)	$429.20
Volume charge	
Per kL of wastewater discharge above 200 kL (Wastewater discharge calculated as metered water usage multiplied by a discharge factor)	253.90 cents per kL

Table B10. Wastewater Services – Metropolitan Vacant Land

Sewerage charges for vacant land are based on the Gross Rental Value (GRV) of the property. The GRV is determined each year by the Valuer General.

	2011/12
Annual service charge	
2.63 cents per dollar of GRV	4.01 cents per dollar of GRV
Minimum sewerage charge for metropolitan vacant land	$227.40

Table B11. Wastewater Services – Country Residential

	2011/12
Annual service charge	
Rate per dollar of GRV, with the rate set for each town to recover the costs of residential wastewater services in that town.	
Minimum residential sewerage charge	$302.30 per property
Maximum residential sewerage charge	$753.30 per property

Table B12. Wastewater Services – Country Commercial

	2011/12
Annual service charge	
As per Metropolitan Commercial customers (Table B9)	
Volume charge	
As per Metropolitan Commercial customers (Table B9)	

Table B13. Wastewater Services – Country Vacant Land

	2011/12
Annual service charge	
Rate per dollar of GRV, with the rate set for each town to recover the costs of residential wastewater services in that town.	
Minimum residential sewerage charge	$199.00 per property
Maximum residential sewerage charge	$753.30 per property

Water Corporation – Metropolitan Drainage Services

Table B14. Drainage Services – Metropolitan Customers

	2011/12
Minimum drainage charge per property	$85.25
Annual service charge:	
Residential customers	0.506 cents per dollar of Gross Rental Value
Non-residential customers	0.272 cents per dollar of Gross Rental Value
Vacant land	0.688 cents per dollar of Gross Rental Value

Aqwest

Table B15. Water Services – Residential Customers

	2011/12
Annual service charge	$121.54
Water use charges	
Water use	
0-150 kL	50.0 c/kL
151-350 kL	93.0 c/kL
351-500 kL	133.0 c/kL
501-700 kL	177.0 c/kL
701-1000 kL	211.0 c/kL
Over 1000 kL	232.0 c/kL

Table B16. Water Services – Commercial Customers

	2011/12
Annual service charge	
Meter size	
20 mm meter	$222.04
25 mm meter	$346.03
40 mm meter	$888.16
50 mm meter	$1,387.74
80 mm meter	$3,552.63
100 mm meter	$5,550.99
150 mm meter	$12,489.73
Water use charges	
0-1000 kL	120.0 c/kL
Over 1000 kL	136.0 c/kL

Table B17. Other Water Service Charges

	2010/11
Vacant Land	
Annual charge	$121.54
Fire Services	
Annual charge	$2.84 per mm of meter size
Water use charge	
- standpipe/hydrant	$1.37 per kL
- for fire fighting purposes	-
- for non-fire fighting purposes	$2.64 per kL

Busselton Water

Table B18. Water Services – Residential Customers

	2011/12
Annual service charge	$157.93
Water use charges	
Water use	
0-150 kL	69.9 c/kL
151-350 kL	97.8 c/kL
351-500 kL	110.5c/kL
501-700 kL	147.4 c/kL
701-1000 kL	205.8 c/kL
Over 1000 kL	230.7 c/kL

Table B19. Water Services – Commercial Customers

	2010/11
Annual service charge	
Meter size	
20 mm meter	$263.63
25 mm meter	$411.93
40 mm meter	$1,054.53
50 mm meter	$1,647.71
80 mm meter	$4,218.13
100 mm meter	$6,590.82
150 mm meter	$14,829.35
Water use charges	
0-1000 kL	116.1 c/kL
Over 1000 kL	130.0 c/kL

Table B20. Other Water Services

	2010/11
Vacant Land	
Annual charge	$157.93
Fire Services	
Annual charge	$157.93
Water use charge	170.4 c/kL

Appendix C. Glossary

AMSER	Asset management systems effectiveness review
ANCOLD	Australian National Committee on Large Dams
Authority	Economic Regulation Authority
BWSA	Bulk Water Supply Agreement
CAPM	Capital Asset Pricing Model
CPI	Consumer Price Index
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSO	Community Service Obligation
ERA	Economic Regulation Authority
ESC	Essential Services Commission (Victoria)
ESCOSA	Essential Services Commission of South Australia
GAWS	Goldfields and Agricultural Water Supply Scheme
GL	Gigalitres, or one billion litres
GRV	Gross Rental Value
ICRC	Independent Competition and Regulatory Commission (ACT)
IPART	Independent Pricing and Regulatory Tribunal (NSW)
IWSS	Integrated Water Supply Scheme
kL	Kilolitre, or one thousand litres
LRMC	Long run marginal cost
ML	Megalitre, or one million litres
NWI	National Water Initiative
OA	Operational audit
SRMC	Short run marginal cost
SSDP	Southern Seawater Desalination Plant
WACC	Weighted Average Cost of Capital
WACOSS	Western Australian Council of Social Services