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Urban Water Charging Stocktake

WATER STORAGE AND DELIVERY CHARGES IN THE URBAN WATER SECTOR IN AUSTRALIA

Report prepared by the NWI Steering Group on Water Charges

The Steering Group on Water Charges is comprised of representatives from: the National Water Commission; the Department of Environment and Water Resources (formerly represented through the Office of Water Resources, the Department of Agriculture Forestry and Fisheries and the Department of Environment and Heritage); the Murray Darling Basin Commission; New South Wales Department of Energy, Utilities and Sustainability; New South Wales Department of Natural Resources; New South Wales Independent Pricing and Regulatory Tribunal; Queensland Department of Natural Resources and Water; Queensland Competition Authority; Victorian Department of Sustainability and Environment; Victoria Essential Services Commission; South Australian Department of Treasury and Finance; South Australian Department of Water, Land and Biodiversity Conservation; Tasmanian Department of Primary Industries and Water; Western Australian Department of Water; Australian Capital Territory Chief Ministers Department; Australian Capital Territory Independent Competition and Regulatory Commission; Northern Territory Treasury; and Northern Territory Natural Resources, Environment and The Arts.

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Preface

This stocktake has been prepared by the National Water Commission, with assistance from the Steering Group on Water Charging. The Steering Group on Water Charging, chaired by the National Water Commission, has been set up under the NWI Committee to progress development of consistent approaches to pricing. Membership of the group includes commonwealth, state and territory government officials and representatives of pricing regulators.

This stocktake is the first step in developing principles to achieve consistency in pricing across jurisdictions. The stocktake is designed to achieve a shared understanding of how water charges are determined in different jurisdictions. It will also provide the basis for the next phase of work, which is to determine the materiality of differences in approaches to components of pricing across states and territories, and to identify areas where consistency in approaches will contribute to better water management outcomes.

The stocktake is in three parts; the first part deals with approaches to setting water charges in the urban (metropolitan and regional) water sector; the second part deals with approaches to setting water charges in the rural water sector; the third part deals with approaches to charging for, and attributing costs of, water planning and management. This section of the stocktake is focussed on the urban water sector.

1 Introduction

The states and territories have committed to the National Water Initiative (NWI) in the area of best practice water pricing and institutional arrangements. A central tenet of these reforms is to achieve consistency in water pricing policies across states and territories and sectors for water storage and delivery, and to achieve consistency in approaches to pricing, and attributing costs of, water planning and management (Clauses 65, 67 and 73 of the NWI refer). Under the NWI, the aim was to achieve consistency in charging arrangements by the end of 2006.

The NWI refers to consistency in 'water pricing'. However, for the purpose of this document the term 'water charges' is used. This is in order to distinguish between charges paid by water businesses and water users for water storage and delivery services and water planning and management activities, and the price determined in the market when water is traded as a commodity.

Consistency may be desirable in a number of areas of charging, and for a number of reasons. For example, to provide consistent pricing signals where water is traded in order to avoid economic distortions and to improve the competitive neutrality of state/territory water regimes (for water-based trade and investment purposes); and to achieve consistent regulatory principles and reduce the risk of regulatory error.

An important factor to consider in developing consistent approaches to charging is the legal and regulatory framework, under which pricing principles are set in each jurisdiction. Some jurisdictions already have quite well developed water charging principles and supporting legal and regulatory frameworks. Consistent charging principles will build on these existing arrangements.

The NWI refers to consistency in pricing policies across sectors and jurisdictions in Australia "where entitlements are to be traded". However, consistency is also important where the operation of water markets is limited: it brings greater transparency to charging practices and offers the opportunity to improve them. For this reason, consideration will also be given to the development of consistent approaches to charging where the operation of water markets is limited.

It is important to note that best practice water pricing policies are seeking to achieve consistency in approaches to charging, rather than consistency in charges.

Under the NWI, governments have agreed to full cost recovery for all metropolitan and regional water systems. Metropolitan systems are to continue moving toward achieving upper bound pricing by 2008. Regional systems are to achieve lower bound pricing and move toward upper bound charging where practicable[1].

The Council of Australian Governments (COAG) definition of lower bound pricing is: the setting of water charges sufficient to recover the operational, maintenance and

[1] The Steering Group on Water Charging is developing a practicality test.

administrative costs, externalities, taxes or tax equivalents (not including income tax), the interest cost on debt, dividends (if any) and provision for future asset refurbishment/replacement. If a dividend is paid, it should be set at a level that reflects commercial reality and stimulates a competitive market outcome.

Upper bound pricing is setting water charges that are above lower bound charges but avoid monopoly rents. The COAG definition of upper bound charging is: a water business should not recover more than the operational, maintenance and administrative costs, externalities, taxes or tax equivalent regimes, and provision for the cost of asset consumption and the cost of capital, the latter being calculated using a weighted average cost of capital[2].

The concepts of upper and lower bound pricing are designed to provide a band within which prices should lie. The lower bound provides for the recovery of costs only, and the upper bound provides for the recovery of costs, including a rate of return on capital, without earning monopoly rents.

While the COAG definitions provide guidance on the setting of water charges, each state has interpreted certain aspects, and their application, differently. The Steering Group on Water Charging is working towards consistency in the setting of upper and lower bound water charges.

Information provided in this stocktake is from a number of sources, including: the National Competition Policy Assessment, 2005, prepared by the National Water Commission; websites of water businesses and economic regulators; State and Territory government departments; and direct from water businesses.

There are a number of gaps in the stocktake, where information on the pricing practices of urban water businesses was not available. For example, information was not available from Queensland on pricing practices of retail water providers (local councils) or non state government owned/controlled wholesale water providers (including those under local government ownership). Detailed information was also not available from Western Australia's non-major urban water utilities.

[2] In upper bound pricing, dividends are provided for through the return on capital. Dividend payments are paid out of profits (or accumulated profits). This practice is considered to mirror commercial reality and is competitively neutral as required by the NWI.

2 The urban water sector

Australia's urban water industry comprises around 300 water businesses. Approximately 70 per cent of Australia's population are serviced by 26 businesses, while the 200 smallest businesses collectively service only three million customers.

The urban water industry is typified as the provision of reticulated potable water to residential, commercial and industrial customers, and the provision of wastewater services, including treatment and disposal. In the urban water supply system, water is typically collected in surface catchments where it is stored in reservoirs or dams or abstracted from groundwater basins. The water is then pumped to a Water Treatment Plant (WTP) where it is treated and delivered to bulk storage facilities, or delivered directly to customers by retail water businesses. Figure 1 depicts diagrammatically, the typical urban water supply system[3].

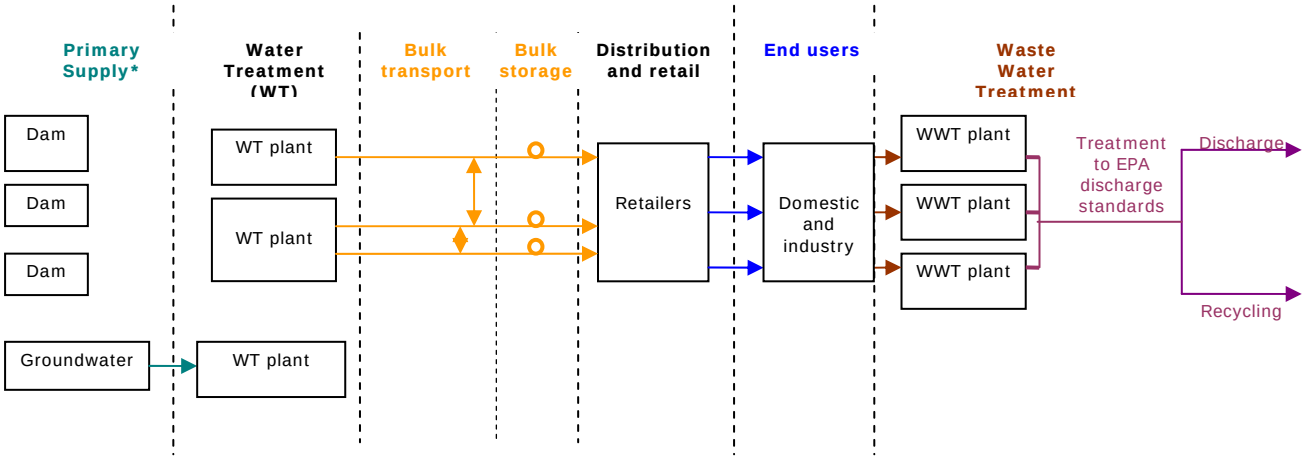

Figure 1 – The Urban Water System

The information presented in this stocktake pertains to storage in dams, primary treatment, bulk transport and bulk storage, distribution and retail services and the associated costs of these activities. It does not provide information on wastewater services or wastewater disposal. It also does not deal with recycled water pricing or stormwater re-use pricing. Pricing principles for recycled water use and stormwater re-use are being considered through a separate study – the NWI requires development of pricing policies for recycled water and stormwater that are congruent with pricing policies for potable water (NWI Paragraph 66 (ii)).

The urban water sector can be divided into major and non-major urban water businesses (consistent with the definition in the Water Services Association of Australia's (WSAA) benchmarking report). Major urban water businesses supply

[3] The diagram deliberately excludes desalinated water supply options as these supply sources are not dealt with in this stocktake.

more than 50,000 connections[4]; non-major urban water businesses supply less than 50,000 connections.

In the urban water sector (and the rural water sector) there are two 'categories' or 'levels' of water supply. Wholesale water is water supplied by a bulk water service provider from its original source, to a retail water service provider who then distributes it to end-users. Retail water businesses therefore, supply water direct to residential, commercial and industrial customers. Vertically-integrated water businesses undertake both wholesale and distribution/retail functions.

In some cases, the degree of vertical integration in urban water businesses is such that one business supplies both wholesale and retail water services (SA Water for example). In other cases, the business of wholesale water provision is separate from retail water provision (e.g. Tasmania, where Hobart Water provides wholesale water services and local councils provide retail water services).

The size and number of urban water businesses differs across jurisdictions. For example, in Queensland and New South Wales there are a large number of small non-major urban water businesses providing water to regional areas (125 and 93 respectively); while in Victoria, the urban water sector is characterised by 18 large businesses supplying water to the entire state.

In some states, significant restructuring of the water industry has occurred in recent times. For example, in Victoria, Melbourne Water has separated into a wholesale business and three retail businesses that supply different regions in greater Melbourne; and, in New South Wales, Sydney Water and the Sydney Catchment Authority have separated.

The extent to which wholesale water businesses are horizontally integrated also varies across jurisdictions. In some states, there is one wholesale supplier for the entire state (e.g. the Water Corporation in Western Australia and SA Water in South Australia). In other States, there are separate wholesale suppliers for the major and non-major urban centres (regional towns) (e.g. in New South Wales, State Water is the wholesale supplier for 36 non major urban water businesses west of the Great Dividing Range, while the Sydney Catchment Authority undertakes this role for the Sydney region and Hunter Water does the same for the Newcastle region). Similarly, in Queensland, SunWater, the Gladstone Area Water Board (GAWB), NQ Water, Caloundra-Maroochy Water Supply Board, Fitzroy River Water, Wide Bay Water Corporation and Mount Isa Water Board (MIWB) supply wholesale water to most urban and rural areas, while SEQWater provides most of the wholesale water for urban use in south-east Queensland. In Victoria, Melbourne Water provides wholesale water to Melbourne and some surrounding regions. Two rural water businesses provide bulk water services to defined regions in the rest of the state.

[4] Generally, a connected property is a property which is connected to a water/sewerage system and billed for water supply/sewage collection (fixed and/or consumption). This includes a connected non-rateable property, and a connected non-metered property. For example, a block of 30 units with a single meter equals thirty (30) connected properties.

The nature of ownership of water businesses differs between jurisdictions. For example in New South Wales, wholesale urban water businesses and the two largest of the major retail urban water businesses, are government-owned statutory authorities; while the smaller non-major urban retail water providers are owned by local councils. There is a similar ownership structure in Queensland. In Victoria all water businesses are government-owned statutory authorities. The nature of ownership arrangements for urban water businesses has changed over time, with an increasing preference for corporatisation of government owned businesses (this shift is even greater in the rural water sector). Corporatisation provides a more commercial focus for operations and operates at arms-length from government.

A summary of the key characteristics of major and non-major, urban wholesale and retail, water businesses in each jurisdiction, is provided at Appendix A.

3 Framework for determining and regulating water storage and delivery charges

3.1 Legal and regulatory framework

The legal and regulatory frameworks that support water charging differ across jurisdictions. Summaries for each jurisdiction are provided at Appendix B. These differences have emerged for a range of reasons. They do not necessarily present problems, but do have the potential to create significant divergence across jurisdictions in the detailed application of pricing principles. That, in turn, would affect the outcomes achieved. The main areas where differences in legal and regulatory frameworks occur are:

1. ***Different decision makers determining charges*** (such as, governments, ministers, economic regulators, local governments, water businesses). For example, in Victoria and New South Wales, independent regulators determine water charges (although in New South Wales, local councils can also set water charges); in the Northern Territory and Western Australia, prices are set by government/ministers; and in Queensland, 110 local governments set their own prices.
2. ***Various statutory forms*** (e.g. heads of power and instruments) under which decision makers determine water charges. The transparency and accessibility of those powers vary from statutory law (as in Victoria), to guidelines (e.g. Tasmania), to by-laws (e.g. Western Australia), to individual water business decisions (e.g. Queensland[5]). The corresponding monitoring and enforcement regimes also differ considerably.
3. ***Mandatory or discretionary application of pricing principles***. For example, some jurisdictions, as a matter of practice – not legal requirement – call on a regulator to advise government on water charges, but the government is free to

[5] Whilst local councils in Tasmania set their prices in accordance with a set of guidelines – the Government Prices Oversight Commission (GPOC) is required to review council's annual reports to ensure compliance with the urban water and wastewater pricing guidelines. Local councils are required by law to supply sufficient financial information in their annual report to ensure GPOC can undertake their review. These reviews will be undertaken biennially starting in 2007.

disregard that advice (e.g. Western Australia). Other jurisdictions are required to follow a set of pricing principles as set by an economic regulator (e.g. Victoria and New South Wales).

4. ***Application of COAG pricing principles***. Some jurisdictions apply additional criteria (outside the COAG/NWI pricing principles) that decision makers are either allowed, or required, to consider. For example, the notice for the Western Australian Economic Regulation Authority's (ERA's) reference on water and waste water pricing in June 2005, required the ERA to have regard to the pricing principles of the 1994 COAG water reform agreement. It also required consideration of the legitimate business interests of investors and service providers in relevant markets; the Western Australian Government's Uniform Pricing Policy; and the current structure and level of urban water and wastewater prices.
5. ***Services covered by legal and regulatory frameworks***. Terminology used for rights and water services differs; the actual services subject to price regulation also differ across jurisdictions. The rationale for inclusion, or exclusion, of particular services is not always clear. Further, any authorities or companies involved may perform a combination of wholesale and retail functions in different areas. In these cases, the distinctions between rural and urban, wholesale and retail, are not clearly reflected in the regulatory frameworks.

3.2 Economic regulation and pricing determinations

A list of the Economic Regulators in each jurisdiction is provided in Table 1; their roles vary depending on the applicable legislation. In New South Wales, Victoria, and the Australian Capital Territory, the economic regulators, the Independent Pricing and Regulatory Tribunal (IPART), the Essential Services Commission (ESC) and the Independent Competition and Regulatory Commission (ICRC) respectively, play a role in setting water charges for major and non-major, urban retail and wholesale, water businesses.

In Victoria all major and non-major urban retail and wholesale water businesses have their water charges determined by the ESC, while in New South Wales it is only the two major urban water wholesale businesses, State Water and Sydney Catchment Authority, and the four major urban retail water businesses, Sydney Water Corporation, Hunter Water Corporation, Wyong and Gosford City Councils, that have their water charges determined by IPART. In the Australian Capital Territory, the ICRC sets water prices for all retail customers. There are no wholesale water businesses in the Australian Capital Territory.

Table 1: Economic Regulators by jurisdiction

Jurisdiction	Economic Regulator
New South Wales	Independent Pricing and Regulatory Tribunal (IPART)
Victoria	Essential Services Commission (ESC)
Queensland	Queensland Competition Authority (QCA)
South Australia	Essential Services Commission of South Australia (ESCOSA)

Tasmania	Government Prices Oversight Commission (GPOC)
Western Australia	Economic Regulation Authority (ERA)
Australian Capital Territory	Independent Competition and Regulatory Commission (ICRC)
Northern Territory	Utilities Commission

In Western Australia, South Australia, Tasmania and the Northern Territory, the government sets water charges. In Western Australia, these charges are based, in part, on the recommendations of the ERA. In South Australia the economic regulator, the ESCOSA, only has a role in reviewing the price setting processes underpinning the government's water pricing decisions.

In Tasmania, the economic regulator GPOC, recommends maximum water charges. These charges are only set for wholesale water businesses. In the Northern Territory, the government may seek advice from the economic regulator, the Utilities Commission, in setting water charges.

In Queensland, the government and the economic regulator, the QCA, do not play a role in setting urban water charges; instead, water charges are set through negotiation between customers and water businesses. The QCA can be requested by the Premier or Treasurer, to investigate the pricing practices of water businesses. It can undertake an investigation of SEQWater without the need of a referral from the Ministers.

New South Wales

IPART was set up under the *Independent Pricing and Regulatory Tribunal Act 1992.* IPART determines the maximum water charges to apply for metropolitan water, sewerage and stormwater services, for both wholesale and retail water providers. Water businesses are obliged to implement the water charges determined by IPART, unless the approval of the Treasurer is obtained to set a lower charge. IPART has undertaken several price determinations since its inception in 1992.

Pricing determinations are made for each of the major urban retail water businesses - Sydney Water Corporation, Hunter Water Corporation, Gosford City Council and Wyong Shire Council. Determinations are also made for wholesale water services supplied by the Sydney Catchment Authority and State Water Corporation.

The most recent price determination for the Sydney Water Corporation and the Sydney Catchment Authority, applies from October 2005 to June 2009. The determinations for Gosford City Council and Wyong Shire Council apply from July 2006 to June 2009, and for Hunter Water from November 2005 to June 2009. The State Water determination applies from October 2006 to June 2010.

Water charges are set internally by the 93 non-major urban retail water businesses. IPART has set the overall framework for determination of water charges by these businesses through its publication *Pricing Principles for Local Water Authorities*.

The Department of Energy, Utilities and Sustainability (DEUS) reports annually, the performance of non-major urban water businesses and has developed the *Best-Practice Management of Water Supply and Sewerage Guidelines*, associated software and tools, to assist the businesses in charging for water supply, sewerage and trade waste services. These guidelines are set out in Appendix C.

Victoria

The ESC was established by the *Essential Services Commission Act* 2001. It determines the water charges and service standards for each wholesale and retail water business in Victoria. The ESC became the economic regulator of the Victorian water sector in January 2004. It released its first determination for urban water charges in June 2005 and for rural water prices in June 2006. Separate determinations were undertaken for the urban and rural sectors. It is expected that, in the future, price reviews will be undertaken concurrently for all Victorian water businesses.

The scheduled charges to apply for urban water, sewerage and related services affect 17 water businesses[6]. Separate determinations made for each business cover the three year period commencing 1 July 2005. They are set out in a Determination that has been issued to each business. The determinations also set out how water charges may be adjusted in each subsequent year of the regulatory period, and other related pricing arrangements.

The price paths set by the ESC for urban water businesses, apply for a three-year period from July 2005-July 2008.

Queensland

QCA was established under the *Queensland Competition Authority Act 1997*. It has the responsibility for monopoly prices oversight, which applies to:

- government monopoly (or near monopoly) businesses, with the QCA holding powers to recommend prices, and
- water suppliers, as defined in the Act, with the QCA holding the power to determine prices.

Through the prices oversight process, the QCA can be requested by the Premier or Treasurer to investigate the pricing practices of the above businesses. However, it can undertake an investigation of SEQWater without the need of a referral from the Ministers.

Retail water charges are set by local governments in accordance with the requirements of the *Local Government Act 1993* (Chapters 8 and 10), the *Local Government Finance Standard 2005* and the Queensland Competition Authority Pricing Principles.

[6] The urban water charges for GWMWater and Lower Murray Water were determined through the rural price review.

South Australia
The South Australian Government sets water and wastewater charges for SA Water. ESCOSA, established under the *Essential Services Commission Act 2002*, reviews the price setting processes underpinning the water and wastewater pricing decisions. As part of this role, ESCOSA considers whether the government's process for setting the charges, has adequately applied the COAG principles.

ESCOSA has, at the direction of the Treasurer, undertaken four inquiries into Government processes for setting SA Water's water and wastewater charges. The first inquiry, concerning urban water charges, began in February 2004.

As water and wastewater services are not, at this time, considered Regulated Services, ESCOSA has no other regulatory role in relation to them.

Western Australia
The ERA is the independent regulatory body in Western Australia, set up under the *Economic Regulation Authority Act 2003.* The Treasurer can request that the ERA investigate any matter involving a regulated industry. This includes water and wastewater pricing for the three major water storage and delivery providers in Western Australia – The Water Corporation, AQWEST and Busselton Water Board. The Western Australian Government, however, has retained the price-setting function for water service providers. It operates through a by-law process approved by the Minister for Water Resources[7].

Tasmania
GPOC in Tasmania was established under the *Tasmanian Government Prices Oversight Act 1995*. GPOC has the responsibility for conducting investigations into the charging policies and practices of: government business enterprises, government agencies, and local government bodies that are monopoly, or near monopoly, suppliers of goods and services in Tasmania. GPOC undertakes an investigation into water charging every three years and recommends maximum charges (and revenues) for the wholesale water authorities. GPOC recommends the wholesale water price structure for Hobart Water, Esk Water and Cradle Coast Water.

The Minister Assisting the Premier on Local Government sets the water charges for the wholesale water providers, based on the recommendations of GPOC.

For local councils providing urban retail water and wastewater services, each council sets its own water and wastewater charges, which are charged to its customers through their annual rates. At present, GPOC undertakes an annual review of compliance by councils using the *Urban Water and Wastewater Pricing*

[7] In 2006-07 the Government approved the Water Corporation's tariffs based on a recent review undertaken by the ERA. However, both AQWEST and Busselton Water Board disagreed with the ERA findings and refused to comply with the ERA water charging recommendations. Subsequently, the government decided not to amend the water charges of these two businesses and instead, simply approved a wholesale charge increase to maintain 'real' charges.

Guidelines 2003, which are based on achieving full cost recovery under the National Competition Policy agreements. The GPOC review will occur biennially from 2007.

Australian Capital Territory
The ICRC is the independent regulator for water charges in the Australian Capital Territory. It was set up under the *Independent Competition and Regulatory Commission Act 1997*. The minister issues a reference to the ICRC to undertake a water charge review. Water charges for ACTEW, are set by the ICRC[8].

Northern Territory
Under the provisions of the *Water Supply and Sewerage Services Act 2001* in the Northern Territory, the Regulatory Minister is responsible for determining uniform water charges for the Power and Water Corporation. In setting the water charges, the Minister can seek advice from the Northern Territory's independent economic regulator, the Utilities Commission.

Under the Act, the Utilities Commission is responsible for monitoring and enforcing compliance with the charging determination of the Regulatory Minister.

3.3 Pricing principles

Not all jurisdictions have in place government mandated, or endorsed, technical guidance specified by COAG, the NWI agreement and related documents, on pricing principles. Even those that do, vary in the consistency of their adherence to the principles[9].

Pricing principles in Victoria are set out in the Water Industry Regulatory Order (WIRO); in Queensland in 'Ministerially approved pricing principles' and the *QCA Act 1997*, section 170ZI; in New South Wales in the *IPART Act* section 15(1); in Tasmania in the Urban Water and Wastewater Pricing Guidelines 2003 and the *Local Government (General) Regulations* 2005, Regulation 36 and, in the Australian Capital Territory, in the *ICRC Act* section 20A (1) (a). A detailed list of these pricing principles is provided in Appendix D.

[8] There is also a volumetric charge, the water abstraction charge, placed on ACTEW for the water it takes from waterways. It is set by the Government based notionally on covering the costs of environmental management, externalities and the scarcity value of water, however, the government has recently acknowledged that the water abstraction charge was increased in order to raise revenue. This charge is passed through directly to ACTEW's customers, and appears on the customers' quarterly water bill.

[9] One such related document is: '*The report of the expert group on asset valuation methods and cost recovery definitions for the Australian water industry*'1995.

4 Determining Revenue Requirements

The first step in setting charges for water storage and delivery services, generally involves an assessment of the "revenue required" by the water agency. This must be sufficient to cover the costs of providing a sustainable and efficient level of services.

In broad terms, the revenue requirement reflects operating costs (operating, maintenance, administration, bad debts, working capital) and capital costs (replacing assets, expansion, depreciation and funding).

The second step is to determine the portion of the revenue requirement is to be recovered through user charges. This recognises that revenue may also be recovered through government contributions, including CSOs.

This chapter discusses the overall approaches to calculating revenue requirements (section 4.1), including the relationship between the revenue requirement and the NWI concepts of upper and lower bound pricing. It then summarises how agencies across Australia assess the two cost categories – that is - costs associated with capital investment (section 4.2) and operating expenditure (section 4.3). Finally, section 4.4 discusses other cost-recovery related elements.

4.1 Approaches to calculating revenue requirements

The revenue requirement for an agency can be determined in different ways. For example, one option is to use a bottom up approach that adds up component costs. Alternatively, the revenue requirement could be established by simply escalating the prior year's actual revenues.

The approaches to calculating revenue requirements for all water storage and delivery agencies throughout Australia are based on "bottom up" methods, which can broadly, be characterised as "building blocks" approaches. However, there are significant differences in the costs included, and in the way component costs are determined.

Some of these differences can be understood through the NWI concepts of 'lower bound' and 'upper bound' pricing (see section 4.1.2). Other differences relate to the way specific costs are calculated, in particular, the costs associated with capital investment (see section 4.2).

4.1.1 Building blocks approaches

The term "building blocks" refers to a broadly based approach to determining revenue requirements. The party setting water charges uses it to derive forward estimates of the revenue needed to permit a defined service to be delivered over the "pricing period".

The term "building blocks" is commonly used by economic regulators to describe the approach used to calculate the efficient cost components that are to be

recovered through prices. In that context, the pricing period is the regulatory period.

The "building blocks" approach is forward-looking and considers estimates of the future costs associated with providing the service. There is usually a clear link between the definition or level of the service (such as service standards and regulatory obligations), cost drivers (such as the number of customers, and number of connections) and the forecast costs.

The cost components included in the "building blocks" may vary. It can depend on the pricing objectives (including the position in relation to upper and lower bound pricing) and on the approach used to fund capital investment.

The "building blocks" approach generally determines a revenue requirement that is then applied over a number of years (e.g. over a five year regulatory period).

The incentives provided through a "building blocks" approach, strongly depend on:

- the detailed approach to establishing each cost block (how much scope exists to reduce assumed costs over time); and
- whether any subsequent adjustment occurs through reconciling actual costs (ex post) with the estimates used to set water charges (ex ante).

For example, benchmarked operating and capital expenditure cost allowances should be set to deliver sufficient revenue to provide:

- the service expectations of customers; and
- any obligations imposed by regulatory agencies.

However, the businesses could be free to determine their own expenditure priorities in light of changing circumstances. This approach would provide incentives for the business to pursue innovation and efficiencies that enable them to outperform the revenue benchmarks; and face penalties if actual costs exceed the cost benchmarks.

4.1.2 Lower bound and upper bound pricing

As mentioned in Chapter 1, the NWI requires metropolitan water businesses to demonstrate continued movement towards upper bound pricing by the end of 2008. Regional water businesses are expected to achieve lower bound pricing, and demonstrate continued movement towards upper bound pricing "where practicable".

Lower bound pricing is when prices are set to recover the minimum revenue (lower bound) required for maintaining a financially sustainable water storage and delivery business. Lower bound pricing is set to recover the following costs:

- recurrent expenditure requirements (operations, maintenance and administration);

- capital expenditure for replacement of existing assets and expanding the stock of assets to meet increases in demand, meet required service standards, and any increases in regulatory obligations; and
- the interest costs on any debt, dividends and tax or tax equivalent payments (if any).

Under *upper bound pricing*, prices are set to recover costs associated with:

- recurrent expenditure requirements (operations, maintenance and administration);
- a return on capital; and
- a return of capital (depreciation).

The determination of the return on capital and the value of the capital on which this return will be sought, are subject to the following limitations:

- the rate of return should be no higher than the Weighted Average Cost of Capital (WACC). Earning a rate of return on capital based on the WACC, provides businesses with a return on debt and equity from which they may pay interest on debt, pay dividends and meet tax or tax equivalence payments. Returns in excess of this are considered to reflect monopoly pricing.
- the value assigned to the initial asset base is the estimate of the value of the assets involved in storing and delivering water (as separate from assets involved in other activities)[10]. There are a number of different ways to determine the value of the Regulatory Asset Base (RAB) but it should not be any higher than the value determined by applying the Depreciated Optimised Replacement Cost (DORC) approach to asset valuation[11][12]. A RAB set in excess of DORC is considered to reflect monopoly pricing.

4.2 Approaches to providing for capital investment

The "building block" approach requires an assessment of the revenue required to fund capital investment.

There are at least two different approaches to calculating the revenue requirement for capital investments:

- the annuity approach; and
- the RAB approach.

[10] There are a number of terms that can be used to describe the value assigned to the asset base for the purpose of setting water prices, including the Regulatory Asset Value (RAV) or Regulatory Asset Base (RAB). In some jurisdictions, these asset bases are not regulated and, in these cases, the term RAB would not be totally accurate. For the sake of consistency though – the term RAB will be used throughout this document.

[11] *Report of the expert group on asset valuation methods and cost recovery definitions for the Australian Water Industry*, 1995

[12] Refer to section 4.2.2 for a description of the DORC.

The choice of approach depends on whether prices are set to reflect lower or upper bound pricing levels.

Annuity approach

The annuity approach forecasts asset replacement and growth costs over a fixed period and converts these to a future annualised charge (assumptions regarding rates of return on, and of, capital are implied within this process). The annuity approach is commonly applied to recover the costs of constructing and renewing non-financial assets over a medium to long time period. It does not directly seek to recover all of the forward capital expenditure associated with long-lived assets or a return on that capital. Depending on the choice of parameters, the annuity approach tends to be more aligned with lower bound pricing. The annuity approach can still provide for return on capital (over the longer term), but tends to result in a different revenue requirement and pricing profile.

RAB approach

The RAB approach includes an allowance for a return of capital (depreciation) and a return on capital[13]. Under the RAB approach the "building blocks" equations are as follows:

> Revenue requirement =
>
> Benchmark operating expenditure (including operations, maintenance, administration costs)
> +
> Return on capital (RAB)
> +
> Return of capital (RAB) or depreciation
>
> The RAB is then updated (or rolled forward) annually, to reflect additional capital expenditure, less asset disposals and regulatory depreciation (see section 4.2.4).

This approach is generally consistent with the NWI principle of upper bound pricing.

Under the RAB approach it is common practice for regulators to apply a 'line-in-the-sand' to determine the initial value of the RAB (which essentially locks in the past rate of return on previous investments), and to then update the RAB each year based on capital additions, disposals and deprecation (see section 4.2.3).

The following section summarises the approach applied by each state to establish the revenue associated with capital investment as part of setting prices.

[13] The 'return of capital' applied to the capital value invested reflects annual consumption of economic benefit or service capacity, and is referred to as depreciation. The 'return on capital' reflects the opportunity cost of the investment.

4.2.1 Summary of approaches to recovering capital expenditure by state

As mentioned earlier, the means by which capital expenditure is recovered differs depending on whether a business is using an annuity approach or a RAB approach.

New South Wales and Victoria use a RAB approach to recover capital investment for regulated water businesses. The approach used by non-regulated, non-major, urban water utilities in New South Wales is guided by the *Local Government Asset Accounting Manual* and the *Reference Rates Manual*.

In Queensland, local governments may utilise the *Local Government 1993*, the *Local Government Finance Standard 2005* and Queensland Competition Authority's pricing principles, to apply the regulatory asset base/rate of return approach. It is not clear what approach local councils in Queensland actually follow to recover capital expenditure.

South Australia, Western Australia (Water Corporation only), the Northern Territory, Tasmania and the Australian Capital Territory all use a RAB approach. As no information was available from Western Australia on the process used to recover capital expenses for AQWEST and Busselton Water Board, it is not clear what approach these water businesses follow to recover capital expenditure.

South Australia, the Northern Territory and Tasmania all calculate a renewals annuity charge for comparative purposes, and to conform to the COAG requirement of lower bound charging.

Where a water business is using a RAB approach to recover capital expenditure, determination of the initial value for the asset base; the process for rolling forward the asset base over time; and the assumptions used to calculate the WACC, all have an effect on the revenue requirement. These components are discussed in sections 4.2.2, 4.2.3, 4.2.4 and 4.2.5 respectively.

4.2.2 Summary to approaches to determining the initial asset base

The responsibility for determining the initial value for the asset base can be with government, an economic regulator, or a water business. Irrespective of the decision-maker, there are a number of matters that need to be considered in establishing the initial asset base. These include:

- the methodology used to value the initial asset base (including decisions on whether and where to draw a 'line in the sand' , e.g. the extent to which past capital expenditure is deemed to be 'sunk' and therefore excluded from the initial asset base);
- the way in which contributed assets are dealt with in the establishment of the initial (or rolled forward) asset base[14].

The initial asset base may be valued in a number of ways, including:

[14] Contributed assets are those assets that are provided/funded by the user, or provided/funded on behalf of users by a third party.

- the DORC methodology; a cost-based approach that involves determining a theoretical set of assets based on current technology, to provide the current level of service. The value of this asset set is then depreciated to reflect asset consumption since construction or acquisition[15];
- an Economic Valuation methodology, which is a value-based approach. It establishes the value of the assets by estimating forward net cash flows of the business at current prices;
- the Optimised Deprival Value (ODV) approach which is a hybrid approach (in that it can use either a cost-based or a value-based approach). For each asset, or group of assets, the value becomes the greater of the market value/sale value or the Economic Value, where the asset is not to be replaced; and
- the Depreciated Actual Cost method where the actual financial cost incurred at the time the expenditure for the physical assets is made, is indexed and depreciated to its present value.

Also, an arbitrary or judgemental decision may be taken on the initial asset value to balance shareholder objectives to price outcomes, or long-term financial sustainability.

In the urban water sector, historical policy decisions meant that some past investments were made on the basis of social and equity objectives, rather than for commercial reasons. To account for this, several jurisdictions have applied a 'line-in-the-sand' approach to valuing assets to assist in determining revenue requirements under the building blocks approach.

Where a 'line in the sand' has been drawn, asset values constructed or acquired prior to that date, are deemed to be sunk (assigned a value of zero), or written down to a level that reflects income earning potential at the time. That value is then incorporated into an opening RAB. The objective of drawing a 'line in the sand', is to maintain prevailing prices (or minimise price increases) in shifting towards a "building blocks" pricing approach. It excludes assets (or portions of assets) that were invested in to meet non-commercial objectives. If a 'line-in-the-sand' is not drawn, less than target (sometimes zero) rates of return on, or of, capital may have to be assumed for such assets.

It is important to note that RABs are used only for price setting purposes. While accounting methodologies may have been used to assist in setting of opening RABs, the value assigned to the RAB does not necessarily equal the accounting asset values reported by authorities in their annual reports.

[15] The annuity method generally uses similar asset optimisation assumptions to a DORC valuation method. Unlike the RAB it represents a forecast of future asset replacement requirements. A pre-determined planning period (i.e. 30 years) is used, to forecast capital expenditure. The opening balance of accumulated annuity funds is also considered, and then the present value of outstanding obligations is converted into an annuity using a discount rate (a return on capital). An annuity approach effectively writes down existing assets to zero value, but ensures cash flows are generated to maintain the service potential of the assets into the future.

The approach taken to establishing the initial asset base differs in each jurisdiction. The various approaches are summarised below. For a more detailed description of the approaches used in each jurisdiction, refer to Appendix E.

New South Wales

In New South Wales an economic valuation approach (reflected by the present value of free cash flows being generated at the time the valuation was made) was used to calculate the initial RABs for the Sydney Catchment Authority, Sydney Water Corporation, Hunter Water Corporation, Gosford and Wyong City Councils and State Water. There were no 'sunk' assets removed from the RAB of all the regulated, major, urban water businesses, apart from State Water, For State Water, assets built prior to 1 July 1997 are largely regarded as 'sunk', and have been removed from the RAB. IPART recognises that investments in State Water prior to this may not have been undertaken on a commercial basis. IPART removes contributed assets from the RABs of all water businesses under its purview. Once the initial RAB was established, only assets funded by the agency (through debt or equity) are able to be added and be reflected in water charges. Charges are set to ensure that these new assets generate their WACC.

For non-major, urban water businesses in New South Wales, the *Local Government Asset Accounting Manual* provides guidance on asset accounting. The *Reference Rates Manual*, 1994 provides guidance on the valuation of water supply and sewerage assets (this manual was updated and extended in 2003).

Victoria

In Victoria, the initial RAB of each water business was set by the Minister for Water, based on recommendations from the ESC. The ESC provided recommendations on the RAB that it considered to be consistent with each businesse's proposed total revenue requirements. The assessment took into account any reviews or changes to forecast expenditures identified through the ESC's review of Water Plans. All assets invested in prior to 1 July 2004 were written down (depreciated) and incorporated into an opening RAB in order to meet a pre-determined revenue requirement reflective of the free cash flows being generated by prices existing at the time the valuation was made. In setting the opening RABs, the Victorian Government applied the following principles:

- prices associated with the RABs should be consistent with the Government's water conservation objectives and have regard to the water conservation incentives created by the market for water;
- prices should ensure water authorities are financially viable;
- prices should reflect the cost of maintaining and improving the level of service received by customers; and
- average price increases should not be unreasonable over the regulatory period.

Queensland

Guidelines are issued by the QCA for valuing the initial asset base of water businesses (see Appendix E). However, the Government and water businesses are not obliged to follow these guidelines.

The Queensland Competition Authority recommended that the RAB of the GAWB be valued using the DORC approach. The optimisation process excludes redundant assets, excess capacity and over-engineering. The GAWB's regulated asset base includes its dam, pipelines, treatment plants, reservoirs, pump stations, buildings, land and easements. In addition, recreation facilities and environmental assets (such as the fish hatchery) have been included in the GAWB's RAB.

Contributed assets are included in the RAB of GAWB, however, rebates are reflected in the charges levied on relevant customers equivalent to the return on capital for the contributed assets.

The MIWB currently recovers the cost of replacing existing infrastructure at its current level of operation. The MIWB does not have a recognised RAB as yet; however the authority has recommended that this should be pursued for 2007.

South Australia

In South Australia, the fair value method is used to calculate the value of the RAB (which is generally consistent with the depreciated replacement cost). SA Water's initial RAB was calculated by removing assets contributed post-corporatisation (i.e. 1995). Identification and valuation of pre-corporatisation contributed assets is problematic. Pre-corporatisation contributed assets are regarded as a legacy issue.

Western Australia

The deprival value is used to calculate the RAB for the Water Corporation. For Water Boards, the ERA made a recommendation on how to value assets. However, the Government decided not to follow the recommendation, instead leaving it up to the water boards to decide how to value their assets.

Tasmania

In Tasmania, the DORC approach was used to calculate the value of the initial asset base for Hobart Water, Esk Water, Cradle Coast Water and Devonport City Council. Twenty-five councils use a fair value approach, while three use a Depreciated Replacement Cost approach. Where asset values are based on the DORC, surplus or under-utilised assets are removed through the optimisation process. While Esk Water, Cradle Coast Water and all 28 local councils remove contributed assets, it appears that Hobart Water retains them as 'revenue' in their books. However, provision is made so that a return is not earned on such assets.

Australian Capital Territory

In the Australian Capital Territory, the RAB for ACTEW was calculated using the ODV approach. Contributed or gifted assets are not included in the RAB. In order to establish a starting point for ACTEW's RAB, the ICRC drew a line in the sand (implying that the decision, once made, was final). The ICRC opted to use an estimate derived from a return on assets test. This approach is a form of an economic valuation approach, which uses prices existing at the time the valuation is made and the anticipated revenue that could be generated by the business, based on best estimates of demand, and assuming no additional investment in the

business is made. The estimate derived from this approach provided an approximation of the financial value of the physical assets as a starting point for regulatory price determination. The ICRC has committed to not revaluing the RAB, which implies that over time the value of ACTEW's RAB will converge to the Depreciated Actual Cost.

Northern Territory
In the Northern Territory, the DORC approach was used for the Power and Water Corporation's regulated water supply and sewerage service assets. Contributed assets were not included in the calculation of the RAB.

4.2.3 Determining the asset base going forward

Generally, at each water charge reset, capital expenditure undertaken since the last price review, plus that proposed to be undertaken over the price path, is added to the RAB, net of any asset disposals and contributed assets. The value of the asset base is indexed by the movement in the CPI each year, to reflect its real value.

The value of the asset base is generally rolled forward using the following approach:

$$RAB_t = (RAB_{t-1} + \text{Prudent Capital Expenditure}_t - \text{Depreciation}_t - \text{Disposal}_t \text{ (discarded assets)}) \times (1 + \text{Indexation (CPI)}).$$

(Where t = the year under consideration).

Generally, at each price reset, an adjustment is made where ex-ante capital expenditure projections differ from ex-post outcomes. Most jurisdictions apply this method to roll the asset base forward however there are some exceptions, as detailed in Appendix F.

4.2.4 Determining efficient capital expenditure

There is generally a desire to ensure that forecast capital expenditure is efficient. The following section outlines the means by which jurisdictions determine efficient capital expenditure. Further detail on efficiency targets in each jurisdiction is provided in Appendix G.

New South Wales
Capital expenditure expected to be incurred over the determination period for each of the major urban retail water businesses and the wholesale water service providers under the purview of IPART, is assessed by IPART for prudence and efficiency. IPART also require some water businesses to report on the 'state of the assets' they manage[16]. Each wholesale water agency is required to make a pricing

[16] For example, as per its Operating Licence 2005-2010, Sydney Water Corporation, once in a licence period, must report to IPART on the state of the assets it manages. This includes information on the expected capacity of the assets to deliver services and the strategies and expected costs of future investment in the assets.

submission to IPART, detailing the expected capital expenditure to be incurred over the determination period. Efficiency targets may be included (see Appendix G).

The non-metropolitan urban water utilities in New South Wales determine their capital expenditure requirements on the basis of a current strategic business plan and 30-year financial plan developed in accordance with the New South Wales Government's *Best-Practice Management of Water Supply and Sewerage Guidelines*, 2004. The Department of Energy, Utilities and Sustainability reviews each utility's strategic business plan and financial plan and identifies matters to be addressed by the utility in its next update of these plans, which is required to be completed within 3 years.

Further, in non-metropolitan New South Wales, each urban water utility is required to publicly exhibit its proposed capital expenditure and its fees and charges in its draft annual management plan and to consider the submissions received on this plan.

Victoria

For Victorian wholesale and retail water service and delivery agencies, the ESC considers the capital expenditure forecast for each business. It examines whether it is adequate over the regulatory period to efficiently deliver the required service levels to its customers, and to meet all regulatory obligations imposed on the business, such as drinking water quality standards and environmental discharge licence requirements. For further detail on the process (see Appendix H).

The key drivers of capital expenditure identified in Water Plans in the period to July 2008 were:

- renewing existing infrastructure to maintain or improve customer service levels;
- constructing or upgrading water and sewage treatment plants, to meet relevant health and environmental standards;
- building new infrastructure to service growth in customer numbers (or demand)
- improving resource security; and
- purchasing plant and equipment and upgrading fixed assets (such as corporate offices and new information technology systems).

Queensland

In Queensland, state government owned/controlled wholesale water service providers (i.e. - SunWater, GAWB and MIWB) determine the level of capital expenditure to be undertaken. They are required to seek Ministerial approval for capital projects above an expenditure threshold. Ministerial approval is only granted once the business has satisfactorily demonstrated that the capital expenditure proposed is efficient, taking into consideration the individual circumstances on a project by project basis. These businesses are also required to submit annual performance plans (1 year focus) and a corporate plan (5 year focus) to their relevant shareholding Minister/s. The plans include a forecast capital expenditure program. The annual performance plan constitutes a performance contract with the shareholding Minister/s.

For retail water providers (local councils), capital expenditure is carried out in accordance with requirements under the *Local Government Act* 1993, the Local Government Finance Standard 2005 and the Queensland Competition Authority's Pricing Principles.

South Australia

SA Water has policies and procedures in place to regulate all capital expenditure. The capital investment process requires the following approvals at the appropriate stage of the project development, before it can proceed:

- entry onto the capital plan;
- project development funding;
- option endorsement; and
- full financial approval.

Investment decisions for water infrastructure are approved by the South Australian Cabinet, either as major projects or by inclusion in the approved Business Plan for SA Water. All capital expenditure is assessed to measure its impact against SA Water's strategic objectives and targets.

Western Australia

The Water Corporation, AQWEST and Busselton Water Board, each provide a submission to the ERA, forecasting expected capital expenditure over a 10 year period. The ERA reviews the forecasts to determine whether expenditure is efficient, cost-effective, and commensurate with the size of the business and the drivers of capital costs. The degree of cost effectiveness is measured, in part, by the level of private sector involvement in capital works and expenditure programs.

For current prices, AQWEST and Busselton Water Board have determined their own capital expenditure program for five years. They have included these needs within normal budget processes.

The ERA does not impose efficiency targets for capital expenditure, due to the lack of data on historical capital expenditure and of a process for determining efficiency targets.

Tasmania

Wholesale Water

GPOC considers that capital expenditure is driven by one of three factors:

- regulatory and operational requirements – e.g. changes in water quality or environmental regulations, or meeting dam safety requirements;
- replacement of existing assets (e.g. pipeline replacement, replacement of pumping equipment); or
- augmentation of the system to meet increased demand (eg extension of the current system into new areas or new capital works to increase the overall capacity of the system).

Wholesale water providers (Hobart Water, Esk Water and Cradle Coast Water) provide GPOC with forecast capital expenditure estimates, and past expenditure details, to inform its investigations. In the past, GPOC has applied a factor of 10 per cent to forecasts of capital expenditure by water businesses after reviewing their previous actual expenditure. GPOC takes account of the fact that infrastructure based businesses do not always complete all forecast capital works within the scheduled period.

Retail Water
Capital expenditure projected to be incurred by retail water providers is not subject to independent review.

Australian Capital Territory
ACTEW provides the ICRC with a capital plan, detailing the proposed capital expenditure over the upcoming price determination period. The ICRC evaluates ACTEW's proposed capital expenditure for prudency and efficiency before accepting ACTEW's capital plan and before rolling capital expenditure from the previous regulatory period into the RAB. In addition, the 2004 price direction requires ACTEW to submit yearly capital expenditure reports.

Efficiency targets are included in the capital expenditure forecasts for ACTEW. In the 2004 price direction, the ICRC undertook plans to improve the efficiency of ACTEW's capital expenditure program including yearly monitoring of the program.

Northern Territory
As a Government Owned Corporation, the Power and Water Corporation is required to operate on a commercial basis. It must negotiate a capital investment program with the shareholding Minister as part of its Statement of Corporate Intent. The capital investment program is developed after consideration of demand projections, strategic priorities, agreed financial performance targets, and service standards.

4.2.5 Providing for a return on capital
Where a water business is on a path towards, or at, the upper bound of full cost recovery, provision should be made for the cost of capital, using the WACC. As mentioned previously, the WACC represents the return on debt and equity. It is the rate that investors – both the providers of debt and of equity – require to be compensated for the non-diversifiable risks associated with the assets in which they invest.

Earning a rate of return on capital through the WACC, provides businesses with returns in excess of those required to maintain minimum financial viability (lower bound). From this they may choose to pay interest on debt and/or dividends, or to retain funds in the business to promote future investment.

Differences in the WACC as applied across water businesses are largely due to differences in prevailing market conditions at the time they were calculated. For example, the current bond rate is used as the nominal risk free rate. Therefore,

differences in bond rates (and other market factors) will lead to variations in the WACC across jurisdictions.

Generally, the Capital Asset Pricing Model (CAPM) is used to determine equity[17] betas. Equity betas are used to compare the risks a business incurs in investing in, and owning, assets, against the risk of the market as a whole.

The cost of the debt component of the capital structure will vary, depending on the debt to equity ratio of an efficient supplier benchmark appropriate to the business under consideration, and the prevailing interest rates.

Table 2 outlines the various WACCs being applied across jurisdictions. The tables presented in Appendix I, provide a more detailed summary of the parameters used to calculate WACCs in each jurisdiction. It is these parameters, as well as the form of the WACC (i.e – pre-tax or post-tax) that results in variations between jurisdictions. Where a range is presented, the range reflects the different WACCs being applied by businesses within the jurisdiction.

Table 1 - Weighted Average Cost of Capital applied across jurisdictions

Jurisdiction	WACC
New South Wales	5.3% - 7.1% Pre-Tax Real
Victoria	5.2% Post-Tax Real
Queensland	Gladstone Area Water Board – 8.02%, Nominal – Post-Tax
South Australia	6% - 7% Pre-Tax Real (2005-07)
Western Australia	3.14% - 3.31% Post-Tax Real
Tasmania	4.5% to assets acquired before 1 July 1998 and 7% to all other assets real pre-tax.
Northern Territory	7.59%
Australian Capital Territory	7.1% Pre-Tax Real

4.2.6 Providing for a return of capital (depreciation)

Where a water business is on a path towards, or at, the upper bound of full cost recovery, provision should be made for the cost of asset consumption, i.e. depreciation. Depreciation reflects the progressive consumption of the service potential embodied in an asset. A reinvestment decision at the end of the useful life of an asset will be made based on expected cash flows to be generated from a replacement asset[18].

[17] Equity betas provide a measure of the variability of return on an investment relative to the market as a whole. They are used to compare the risks a business incurs in investing in, and owning, assets against the risk of the market as a whole.

[18] If a water business is using the annuity approach to recover capital expenditure, the annual annuity generates sufficient cash to fund a replacement, when the original asset reaches the end of its useful life. As a consequence, no additional adjustment is required to provide for depreciation.

Most water businesses apply a straight-line depreciation approach to calculate depreciation. Differences arise in the implied life of the asset over which depreciation is calculated. A summary of approaches to calculating the life of the asset for depreciation is provided in Appendix J.

4.3 Operating, maintenance and administration costs

For a regulated business, allowances for operating costs are usually set to represent efficient service delivery, based on the scale of operation and the nature of the activity being undertaken. Operating costs are generally evaluated on an individual basis and usually benchmarked against comparable organisations.

The manner in which operating costs are determined, is independent of the manner in which capital and the cost of capital are determined and recovered. The discussion on operating, maintenance and administration costs therefore applies to all businesses, regardless of the approach they use to calculate and recover capital expenditure and the cost of capital.

New South Wales

Wholesale water

In New South Wales, allowances for operating costs of the wholesale urban water agencies, (the Sydney Catchment Authority, Hunter Water Corporation and State Water Corporation), that are to be passed on to consumers are determined by IPART[19]. Each wholesale water agency provides a submission to IPART detailing their expected operating costs `over the determination period. These costs are examined by IPART and its independent consultants. From this investigation, efficient operating costs for the water businesses are determined.

Efficient operating costs are determined by including efficiency factors – e.g. the expected decrease in costs due to increased productivity (see Appendix K for the efficiency factors used).

Retail water

For retail water service providers in New South Wales, IPART determines the efficient operating costs for the Sydney Water Corporation, Hunter Water Corporation, and Gosford and Wyong Councils[20]. As with the wholesale water determination, IPART and their independent consultants review submitted forecast operating costs, to determine whether or not they are efficient (see Appendix K).

As indicated in Appendix C, each non-major urban water utility projects its future efficient operating costs on the basis of its historical costs, maintenance cost reductions due to asset renewals, telemetry and efficiency gains, and new assets that will increase the base costs. Operating cost increases due to higher future levels of service, and compliance and monitoring costs are also included.

[19] The most recent determination for the Sydney Catchment Authority was for four years from 1 October 2005 to 30 June 2009. The State Water wholesale water determination is to apply from 1 October 2006 to 30 June 2010.

[20] The Sydney Water Corporation and Hunter Water determination, cover the period 1 October 2005 to 30 June 2009, and those for Gosford and Wyong Councils from 1 July 2006 to 30 June 2009.

In non-metropolitan New South Wales, each urban water utility is required to publicly exhibit its proposed operating expenditure and its fees and charges in its draft annual management plan and to consider the submissions received on this plan.

Victoria

Wholesale water
In Victoria, Melbourne Water, Goulburn-Murray Water and Southern Rural Water provide submissions to the ESC detailing expected operating costs over the determination period[21]. As in New South Wales, these costs are examined by an independent consultant, and an allowance for efficient costs is determined (see Appendix K).

Retail water
The 16 urban retail water businesses in Victoria submit water and business plans to the ESC for price determination. The process for determining operating cost allowances is the same as for wholesale water businesses.

Queensland

Wholesale water
The operating costs of the GAWB are subject to pricing oversight by the QCA. The QCA undertook its most recent price determination for the GAWB in 2004. The regulatory review period to apply to the determination is to be five years. The QCA Ministers accepted the recommendations regarding efficient operating costs. The QCA analysis considered the efficient operating costs for each segment of GAWB's water supply system.

The expenses of the MIWB are determined on a least cost basis. The board includes individuals employed by the two main customers, which acts as a direct mechanism to ensure an efficient cost structure is maintained due to the direct scrutiny of costs.

No information was available on the process adopted for determining operating costs for SunWater.

South Australia

Competitive tendering can achieve price and quality outcomes that are efficient. South Australia has outsourced a number of functions, including the management of metropolitan water and wastewater services and the operation of regional treatment plants. Approximately 70% of South Australia's urban operating costs (excluding labour), are subject to competitive tender.

[21] The last determination period was from 1 July 2006 to 30 June 2008.

South Australia's most significant contract is the United Water International contract, whereby United Water International manages Adelaide's water and wastewater systems. This contract represents around 21 per cent of South Australia's total urban operating costs (before interest and depreciation). The contract has in it provisions for pricing reviews to reset the fixed cost component every five years.

Western Australia

Retail water
In Western Australia, the Water Corporation, AQWEST and Busselton Water Board provide submissions to the ERA forecasting operating expenditure over a 10 year determination period. The ERA reviews the forecasts to determine reasonable and efficient cost projections.

However, as AQWEST and Busselton Water Board do not presently comply with the ERA recommendations, the costs relevant to their prices are determined internally and approved by the Minister for Water Resources.

Tasmania

Wholesale water
In Tasmania, the wholesale water providers (Hobart Water, Cradle Coast Water and Esk Water), provide submissions to GPOC during each pricing investigation, detailing historical and forecast operating expenditure. GPOC reviews the information and determines efficient cost levels. Operating costs include the costs of collecting, treating, testing and pumping water, direct costs of maintaining the system, overhead costs, and salaries.

No explicit efficiency factor is included in the operating costs of these three water service providers. Efficiency is measured instead by benchmarking the operations and costs of the three agencies against each other.

Retail water
Operating costs for local councils include: the direct costs of water licence fees, labour; materials; and services employed for water activities. The costs also include minor indirect costs of providing corporate support services, such as human resources, administration and building occupancy. GPOC does not specify efficiency targets for operating expenditure.

Australian Capital Territory

In the Australian Capital Territory, the operating costs of ACTEW are examined by the ICRC and independent consultants to determine efficient levels. Operating costs include:

- operating and maintaining bulk water storage and transfer system;
- operating and maintaining water treatment facilities and the water reticulation network;

- handling fault calls from customers, repairing assets, and restoring water supply;
- handling complaints about the quality and reliability of supply, and communicating with customers on distribution matters;
- reading meters and recording customers' consumption;
- undertaking customer billing activities;
- managing the company and its relations with external stakeholders; and
- providing information technology systems to support corporate planning and financial and human resource management functions.

Northern Territory

The Power and Water Corporation provides operating cost data to the Utilities Commission to determine the required community service obligation. The data provided is usually from the Power and Water Corporation's audited public accounts.

4.4 Other elements

The combination of operation, maintenance, administration, capital expenditure and the cost of capital (where water businesses use a RAB approach) determines the revenue requirement of a water business. As mentioned previously, allowances are made for contributed assets and government funding, including government capital works grants and operating subsidies in determining revenue requirements.

By the end of each financial year, taxes or tax equivalents must be paid, and dividend payments may be made by water businesses to shareholders and/or the relevant state/territory government. Provision for taxes is included either directly or implicitly within the calculation of the revenue requirement[22].

For a water business that is at, or close to, the upper bound of cost recovery, the normal process for determining payment of dividends, tax equivalents and other finance related costs is provided in Figure 2.

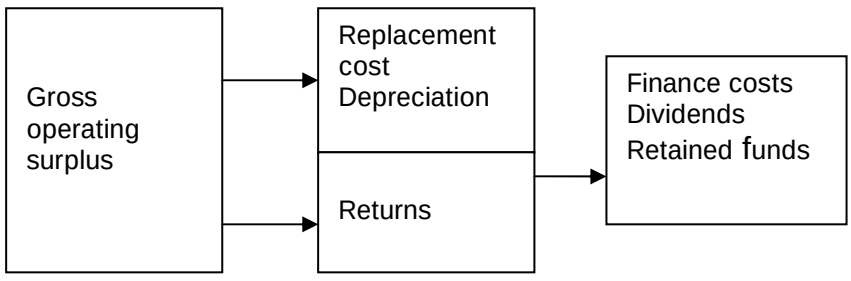

Figure 2. Elements of full cost recovery

[22] However, where a pre-tax WACC is applied to an asset base, taxes are by definition excluded.

The following sections discuss the payments of dividends and provision for taxation payments by water businesses[23].

4.4.1 Taxes

Privately owned, urban water businesses pay taxes in accordance with standard taxation practices applicable to all businesses.

Publicly owned water agencies (which include Water Boards, Local Councils and Government-owned wholesale and retail service providers) pay tax equivalents, under the National Tax Equivalence Regime (NTER). This regime is an administrative arrangement under which relevant taxation laws (Federal tax Laws and relevant amendments) will be applied notionally to NTER entities, as if they were subject to those laws. The objective of the NTER is to promote competitive neutrality. Australia's business tax rate is currently 30 per cent. For non-major urban water businesses in New South Wales, tax equivalents are determined by the business in accordance with Appendix C.

Where jurisdictions employ the use of a pre-tax WACC, tax equivalent payments are not a line item in the revenue requirement, but will be provided for implicitly as part of the return on capital.

4.4.2 Dividend payments

The payment of dividends is provided for in both lower and upper bound pricing. In upper bound pricing, dividends are provided for through the return on capital.

Dividend payments are paid out of profits (or accumulated profits). This practice is considered to mirror commercial reality and is competitively neutral as required by the NWI.

As discussed above under the RAB approach, dividend payments are not a separate cost item or building block. The capacity to pay dividends may be considered as a factor in determining the initial asset base. It is possible, however, that actual dividend payments may vary from those assumed in the WACC from year to year. The actual ability of the business to pay dividends can be retrospectively used to assess the performance of the business.

Where a business is using an annuity approach to recover capital expenditure, dividends are a separate item, as part of the minimum revenue requirement.

New South Wales

In New South Wales, dividend payments are determined by negotiation between shareholders (Ministers of the state government, as representatives of the people of

[23] In certain circumstances, the regulator or price setter may wish, or be required, to include allowances for other costs that are not incurred and therefore not included within the water business' financial accounts, such as provision for environmental externalities or resource management costs.

New South Wales) and the management boards of each government water business. Ultimate determination is reserved for the shareholders.

Negotiations typically include consideration of:

- maintaining an acceptable level of financial risk, as indicated by the individual credit rating for each business;
- ability to service debt;
- capacity to finance the approved capital programme;
- the need for sufficient flexibility for contingencies; and
- dividend preferences of shareholders.

The *Public Finance and Audit Act 1983* provides the legislative basis for dividend payments. The Act gives the Treasurer the power to require prescribed government businesses to pay dividends to the consolidated fund. This would not preclude the Treasurer requiring only the provision for payment of dividends, if so desired.

The New South Wales Treasury's financial distribution policy adopts the private sector definition of dividends, as provided by the *Corporations Act 2001*, whereby a dividend may only be paid out of the profits of the company. A notional upper-limit for dividend payments is thus the current year profits plus retained earnings. In general, however, annual dividend payments are unlikely to exceed current year profits.

The Gosford City Council and Wyong Shire Council dividend payments are made to the Councils from their water and sewerage businesses, subject to satisfying various reporting and approval requirements. Provision is made for the councils to pay dividends of 50 per cent of pre-tax profits, up to a maximum of $30 per customer.

Victoria

Dividends in Victoria are paid by water businesses to the government and are determined by the current government dividend policy. A commercial dividend arrangement, based on profitability and the government's dividend benchmarks for government business enterprises, applies to Victoria's water businesses.

Dividends for Victoria's government business enterprises are determined using two general benchmarks:

- dividend = 50 per cent of net profit after tax, and
- dividends + income tax paid or payable = 65 per cent of profit before tax.

The first benchmark is based on a review of the commercial dividend pay-out rate of selected private sector entities. The second is considered the appropriate distribution benchmark for water businesses because most of them are not yet paying tax.

Individual dividend levels may vary from the benchmarks, due to the liquidity of the water business, its capital requirements, and gearing and interest cover.

The dividend policy reflects the principle that dividends should only be paid out of current or accumulated profits. This ensures that sufficient funds are retained in the business to enable it to conduct its water storage and delivery services to customers.

Queensland

For the state government owned/controlled wholesale water businesses (i.e. SunWater, MIWB and GAWB), dividend payments are negotiated by the board and the shareholders. The board generally recommends the dividend payment that is to be made to the shareholders and the shareholders then accept, or reject the recommendation. In reviewing recommendations, the shareholders generally consider: the ability to service debt, the capacity to finance any approved capital programme, the need for sufficient flexibility for contingencies, and dividend preferences of shareholders.

Dividend payments for retail water businesses in Queensland, are negotiated between the management board of the relevant Local Government Owned Corporation and the shareholders (often the local government). Under the *Local Government Act* 1993, the board must recommend to the shareholders that the corporation either pay a stated dividend, or not pay a dividend for that financial year. Following consultation between the board and the shareholders, the shareholders then approve the recommendation or suggest a different dividend payment.

The Local Government Owned Corporation dividend payment for the financial year must not exceed its profits, after provision has been made for any income tax or its equivalents.

Western Australia

The Water Corporation pays the Western Australian Department of Treasury and Finance 85 per cent of after tax profits (including developers' cash contributions). The figure of 85 per cent is calculated so that the dividend provision rate is approximately 100 per cent before developers' cash contributions.

The intent is to return value to the shareholder, while ensuring there are sufficient available funds and access to borrowings for future business needs. This dividend policy, therefore, assumes continued access to commercially attractive borrowings at an appropriate gearing level.

AQWEST and the Busselton Water Board do not pay dividends at present.

South Australia

South Australia's dividend policy ensures that dividends are calculated after consideration of the capital structure targets for each public non-financial corporation.

Specifically, SA Water's dividends are based on:

- a debt to total assets ratio in the range of 15-25 per cent for the next 4-5 years (from 2006-07), with a target ratio of 20 per cent; and
- a dividend payout ratio of 95 per cent, based on actual after-tax profit.

The target capital structure takes into account factors such as:

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

Tasmania

The wholesale water businesses are joint authorities, owned by those councils that use its services. The owner-councils are responsible for determining the dividend policy for their respective wholesale water business. All dividends (and income tax equivalents) are paid to the owner-councils and not to the Tasmanian Government.

Australian Capital Territory

As an incorporated body, ACTEW is bound by the *Corporations Act 2001*, which stipulates that it may only pay dividends from profits (including accumulated retained profits). The Australian Capital Territory Government requires ACTEW to pay 100 per cent of post-tax profit as a dividend to the government, subject to a consideration of factors such as the cash needs of the business and its requirements for capital restructure and capital expenditure.

The Australian Capital Territory Government reviews these factors annually, when negotiating ACTEW's statement of corporate intent, to determine whether the 100 per cent dividend policy should apply. As a result, ACTEW does not always pay a dividend equal to 100 per cent of after tax profits.

Northern Territory

Under the *Government Owned Corporations Act 2001*, annual dividend payments are agreed between the shareholding Minister (the Treasurer) and the Power and Water Corporation Board.

Although the Act does not specify the annual dividend to be paid, the Northern Territory's Government Business Division Dividend Policy Statement acts as a reference for the Power and Water Corporation. This policy sets an ordinary dividend benchmark of 50 per cent of after tax profits. However, the Power and Water Corporation Board may choose to vary this dividend payout ratio depending on:

- debt levels;
- needs for future capital expenditure; or

- whether, and to what extent, the Northern Territory Government elects to receive a lesser amount due to community service obligations.

Also, the shareholding minister may direct the board of the Power and Water Corporation to declare a special dividend, where there are sufficient resources to pay an extra amount.

There is no policy in place for treatment of dividends should the Power and Water Corporation sustain a loss.

No end use is specified for the Power and Water Corporation dividends. These monies are transferred to the Central Holding Authority.

5 Meeting revenue requirements through water charges

5.1 Structure of charges

Setting a structure for charges is the first step in setting water charges. All jurisdictions use a combination of fixed and variable charges for passing on wholesale and retail water charges. Generally, the fixed charge is determined as the residual component to be recovered after the revenue from water usage charges has been estimated; this differs between jurisdictions and between wholesale and retail water providers.

In New South Wales, Victoria, Queensland, South Australia and the Australian Capital Territory, inclining block tariffs are incorporated in the variable charge component for some water businesses.

Appendices L and M provide an overview of residential and non-residential urban water tariffs respectively.

New South Wales

Wholesale water
The usage based charge for State Water is fixed at 60 per cent of total charges.

The Sydney Catchment Authority and State Water Corporation do not use inclining block tariffs for their usage charges.

Retail water
Sydney Water Corporation applies an inclining two-tiered block tariff for residential customers. Gosford City Council and Wyong Shire Council do not use inclining block tariffs. Hunter Water Corporation uses a declining block tariff for large industrial users.

All but two of the non-major urban water businesses in New South Wales apply fixed and variable charges (these two businesses are currently examining the cost-effectiveness of providing pay-for-use charging and domestic water metering for their customers).

Victoria

Wholesale water
Wholesale water usage charges levied by Melbourne Water to its retail water agencies, are predominantly based on a two-part tariff structure, consisting of fixed and variable components.

Retail water
Ten urban retail water businesses levy a flat usage based charge (Melbourne Water, Westernport Water, Barwon Water, Central Highlands Water, East Gippsland Water, Goulburn Valley Water, Grampians Wimmera Mallee Water, North East Water, South Gippsland Water and Gippsland Water).

Seven urban retail water businesses charge residential customers on the basis of an inclining block tariff structure (City West Water, South East Water, Yarra Valley Water, Coliban Water, Wannon Water (except for the Hamilton zone which was formerly Glenelg Water), Western Water and Lower Murray Water).

Queensland

Wholesale water
Both the GAWB and the MIWB use a two part tariff structure comprising a fixed and variable component.

Information was not available from SunWater.

Retail water
Brisbane City Council uses an inclining block tariff with three tiers to charge for water consumption.

Information was not available from other retail water providers in Queensland.

South Australia

The water usage component of SA Water's two-part tariff has two tiers.

Western Australia

The Water Corporation is in the process of phasing-in a three-part, inclining block tariff over an eight year period (with seven years remaining). The first two blocks represent the low-end and high-end of the estimated Long Run Marginal Cost (LRMC) 'range'. The third block is designed to act as a disincentive to excessive water use.

AQWEST and the Busselton Water Board have a number of inclining block tariffs for the volumetric component of their water tariff.

Tasmania

Wholesale water
Cradle Coast and Esk Water apply a flat usage fee to customers, with no inclining blocks.

Retail water
Most councils do not use inclining block tariffs for the usage charge. However, there are some councils that have a hybrid charging methodology. They have a fixed charge (e.g. based on AAV) up to a specified threshold, and then apply an excess water charge over that specified threshold.

Australian Capital Territory

ACTEW applies a three-tier inclining block tariff to the usage component of water charges.

Northern Territory

The Power and Water Corporation does not use an inclining block tariff for water consumption.

5.2 Calculating charges

Once a pricing structure has been set, the next step is to calculate prices, i.e. translate revenue into pricing structures. Revenue requirements are generally met through a level of water charges that takes account of the forecast nature and level of demand, over a fixed period. Implicit in this, is that the authority responsible for setting prices undertakes some form of demand forecasting. Both IPART and the ESC undertake demand forecasting. There are a range of approaches that can be used to develop forecasts and some key assumptions that affect outcomes. For example: the approach to factoring-in drought forecasts against long-term averages; whether peak demand pricing is being used; and how water restrictions are factored into forecasts.

An important consideration in calculating water charges is the time period over which they apply. As outlined in Section 3.2, when making pricing determinations, economic regulators generally set a price path of between 2 and 3 years. This reflects a balance between the need to keep water charges to customers relatively constant, while at the same time, ensuring the level of risk that the water business faces by setting prices over a pre-determined period is not too high.

In calculating expected changes to water charges, several jurisdictions apply broad charging increments (e.g. an average increase of x per cent per annum) to current water charges. This approach implicitly assumes that the existing charging structure is appropriate. It also assumes that the level of revenue generated from the revised water charges, is considered to be efficient for the business concerned.

A summary of approaches to calculating the variable and fixed component of water charges is provided below.

5.2.1 Water usage charges

Approaches to calculating water usage charges differs between jurisdictions, with some utilising inclining block tariffs to manage demand. A summary of the inclining block tariffs applying across jurisdictions is provided in Appendix L.

New South Wales

Wholesale water
Water usage charges for State Water are calculated on a valley by valley basis for regulated water.

Retail water

Sydney Water Corporation, Hunter Water Corporation, Gosford City Council and Wyong Shire Council set water usage charges to reflect the LRMC of water supply as estimated by IPART (see Appendix L).

Non-major urban water businesses in New South Wales set water usage charge on the basis of the LRMC (see Appendix L for further details). All New South Wales non-major urban water businesses have now abolished their free water allowances.

Victoria

Wholesale water
The single-tier usage charge for Melbourne Water to two of its three retail water agencies is set at greater than the estimated LRMC of supply (131 per cent) to reflect demand management goals. The wholesale water usage charge from Melbourne Water to Western Water is made up of two tiers. These tiers were negotiated having regard to the LRMC of supply, but are not explicitly linked to the LRMC.

Retail water
Different methods for determining the usage charge for water are in place for the urban retail water providers in Victoria. Few businesses have estimated the LRMC of providing water. The ESC has expressed concern about the ability of proposed tariffs to present appropriate signals about the costs of providing services. For future determinations, businesses will be asked to calculate LRMC over the regulatory period to inform decisions regarding future price levels.

Queensland

Wholesale water
The GAWB calculate the usage component of their water charge based on the estimated LRMC of supply.

For the MIWB, the usage charge is designed to cover the costs of the supply network. The usage charge includes a capital component and an operating and maintenance component attributable to the delivery network.

Information was not available from SunWater.

Retail water
Information was not available on the process for calculating retail water usage charges in Queensland; other than that local governments calculate the variable charge for water in accordance with the Queensland Competition Authority's pricing principles.

South Australia

Wholesale water
SA Water is a vertically integrated company, and wholesale water charges are not set.

Retail water
The second tier of SA Water's water usage charge is estimated to be not less than SA Water's estimated LRMC for water supply to Adelaide.

In summary, the estimate of the LRMC is based on estimates of the following:

- short run operating and maintenance costs;
- future augmentation cost;
- opportunity cost of water; and
- cost of environmental externalities.

Given that water is an essential service, the first tier is set by taking into account perceived equity, affordability, and social policy considerations.
Western Australia

Retail water
For the Water Corporation, AQWEST and Busselton Water Board, the ERA recommends that the water usage charge should reflect the estimated LRMC of balancing supply and demand, and needs to be progressively adjusted. The ERA recommended that usage charges for the Water Corporation's residential water services be revised to reflect a range in estimates of the LRMC of water supply.

An eight year phase-in towards LRMC pricing, as recommended by the ERA pricing inquiry, was approved by the government in 2006-07 for the Water Corporation. However, no such pricing reform was approved for AQWEST or the Busselton Water Board.

Tasmania

Wholesale water
GPOC recommends that the volumetric price at each node (supply point), should reflect the LRMC equal to the Short Run Marginal Cost (SRMC) plus the Marginal Capacity Cost (MCC). However, where:

- there is no significant variation in the nodal volumetric costs between nodes, or where the loss of efficiency is not significant, it is acceptable to use a regional average of LRMC for the volumetric charge, and/or

- the application of an LRMC is significantly different to the volumetric price currently charged to councils (thus it is likely to have significant impact on customers consumption) it is acceptable to phase in the application of the LRMC to monitor impacts on demand.

Hobart Water sets a seasonal volumetric rate, which is, in part, based on the seasonal average of operating costs for each quarter. All retail customers of Hobart Water face the same rate for this component of the volumetric charge. Hobart Water calls this charge the 'SRMC' although GPOC considers this categorisation is not correct. Nodal pricing is not undertaken.

Esk Water uses the regional average of the SRMC and MCC to determine the volumetric charge, as an approximation to nodal pricing. Cradle Coast uses the regional average of the SRMC to determine the volumetric rate for its customers.

Retail water
There are three main issues in the 2003 Urban Water and Wastewater Pricing Guidelines that should be taken into account when considering the volumetric charge: the threshold level, rates based on regions and customers without meters. As with the wholesale water businesses, the usage component of the two-part tariff should reflect a council's LRMC of supply.

Australian Capital Territory

Retail water
In the 2004 price direction the ICRC indicated that there are a variety of conditions that the ICRC considered when determining the structure of water tariffs from 2004 until 2008. This set of considerations includes among others being commensurate with government policy, being responsive to social and equity matters and reflecting marginal costs. The ICRC in its final decision concluded that the structure of the average price schedule that consumers face should exhibit a U-shape so that average price of water would fall for the initial kilolitres consumed then rise for large volume water consumers.

In addition, there is a volumetric charge, the water abstraction charge, placed on ACTEW for the water it takes from waterways. It is set by the Government based on covering the costs of environmental management, externalities and the scarcity value of water. Under the *Independent Competition and Regulatory Commission Act 1997*, this charge is passed directly through to ACTEW's customers, without review by the ICRC.

Northern Territory

The Power and Water Corporation charges a flat volumetric fee, which is indexed annually (to the CPI). Originally, the volumetric charge was determined with reference to the variable components of the total supply costs, and to tariff structures being applied in other jurisdictions.

5.2.2 The fixed charge component

In almost all water businesses, in all jurisdictions, the fixed charge is calculated as the residual after revenue from the variable charge component has been estimated.

New South Wales

Wholesale water
For the Sydney Catchment Authority, the fixed charge is determined as the residual component to be recovered after the revenue from the usage charges has been estimated. As a residual, the fixed charge is designed to ensure that the revenue requirement for the water utility is met, but not exceeded.

State Water Corporation's operating licence requires that the fixed charge is no greater than 40 per cent of the revenue earned by 1 July 2008. This is done on a valley by valley basis.

Retail water
For Sydney Water Corporation, Hunter Water Corporation, Gosford City Council, Wyong Shire Council and the non-major urban water businesses, the fixed or supply charge for water is calculated as the residual component.

Victoria

Wholesale water
Regardless of the method for determining the variable charge for the wholesale water businesses, the fixed charge is determined as the residual component to meet (but not exceed), the revenue requirement of the water business.

Retail water
As with the wholesale water authorities, the fixed charge for all urban retail water businesses is determined as the residual component to ensure that the revenue requirement is met (but not exceeded).

Queensland

Wholesale water
The QCA recommended a 100 per cent take or pay component be incorporated in to the access charge for GAWB customers. Where actual demand exceeds the contracted volume; inclining load factors are applied to the total charge.

For the MIWB, the access charge is allocated to customers based on their annual forward water reserve and is charged monthly. The source charge includes a capital component (to cover depreciation and a return on the investment) as well as an operating and maintenance component attributable to water storages.

Information was not available from SunWater.

Retail water
Information was not available on the process for calculating fixed water charges in the retail sector in Queensland, other than that local governments calculate the fixed charge for water in accordance with the Queensland Competition Authority's pricing principles.

South Australia

Retail water
Consistent with the use of a two-part tariff, the fixed water charge levied by SA Water supplements its usage charge by recovering its remaining revenue target.

Western Australia

Retail water

The fixed charge for urban water services is set as the residual, after the variable revenue is estimated, so as to enable the water businesses to recover their revenue targets.

Tasmania

Wholesale water
If nodal pricing is not used to determine the fixed charge, then GPOC proposes that the fixed charge be allocated according to the weighted number of connections in the retailer's networks. This mechanism will approximate nodal pricing and not bias the location decisions of those wanting new connections. GPOC accepts other, albeit less preferred, mechanisms that were not a 'de-facto volumetric charge'.

Hobart Water has moved away from using the 'three-year rolling average' as a method to allocate the fixed charge. Instead, it has 'hardwired' the allocation of the fixed charge on the basis of the historical average consumption levels over a given period. This period will be updated over time.

Esk Water and Cradle Coast Water use a ten-year rolling average to allocate the fixed charge.

The rolling average is used to determine the proportion of costs to be allocated. The annual fixed costs are then allocated using the predetermined proportions. Hence the revenues each year from the fixed charge should not result in any over, or under, recoveries.

Retail water
There are a number of different methods adopted by councils for allocating the fixed charge component to customers. These include an equal allocation between customers of a particular class (per connection), allocation in proportion to pipe size (the potential call on the network) and allocation based on property values (AAV).

Of the 16 councils reporting two-part tariffs, nine based the fixed charge on an equal charge per connection within a class, four on AAV (with three of these setting a minimum charge), two on pipe size, and one uses a combination of pipe size and property value.

Australian Capital Territory

Retail water
The ICRC set the fixed charge component of the water tariffs at $75 for the duration of its 2004 price determination.

Northern Territory

Originally, the fixed charge was determined with reference to the fixed components of total supply costs and tariff structures applying in other jurisdictions.

5.3 Revenue shortfalls and efficient pricing

In deciding on the level of water charges, a number of factors, aside from those mentioned above, are taken into consideration. These include whether to implement locational pricing; how to factor in social equity considerations; and how to smooth prices over price paths so as to avoid sudden price shocks.

In some jurisidictions, water pricing principles require that socio-economic considerations are factored into pricing decisions. Further, environmental and other public benefit outcomes may also be required to be taken into account in pricing decisions.

Where social equity considerations result in a water business not recovering the full costs of providing water storage and delivery services to users through its charges, subsidies may be provided to these businesses by government. This may be either as a direct operating subsidy, to cover the revenue shortfall, or as a CSO, to recognise that water may be provided to some regions/customers at less than full cost.

Different levels of price discrimination are used by most water businesses. Some degree of cross-subsidisation between customers may arise when nodal pricing is not used to charge water users. However, the costs of implementing nodal pricing may outweigh the benefits.

5.3.1 Socio-economic considerations, community service obligations and subsidies

New South Wales

In making its pricing determinations, IPART is required to consider the social impact of its determinations and recommendations. It is also obliged to protect consumers from abuses of monopoly power by water agencies.

The New South Wales Government provides rebates on water and sewerage charges to eligible pensioners and concession card holders. The value of these concessions is paid to water businesses as a CSO. Sydney and Hunter Water Corporations also administer Account Payment Assistance Schemes, under which bill relief is provided to customers in financial need, as assessed by welfare agencies.

New South Wales has also indicated that CSOs are paid to State Water for the cost share for non-chargeable water users – these are public good activities that are not attributable to extractive water users.

Victoria

In the Victorian water industry, CSOs are limited to the provision of concessions to eligible concession card holders, rebates to certain not-for-profit organisations and payments under the utility and relief grants scheme.

In addition to these CSOs, the following socio-economic considerations are taken into account:

- opening RABs were set having regard to a number of principles, including a requirement that they should not result in unreasonable average price increases over the regulatory period;
- the Water Industry Regulatory Order requires that prices take into account the interests of customers, including low income and vulnerable customers; and
- water authorities have developed hardship arrangements to provide further assistance over and above those provided by the Victorian Government through the existing concession arrangements presented above. For example, customers facing financial difficulties may be entitled to pay their bill in instalments. Some water authorities offer assistance packages to large households to help them conserve water and reduce their water bills.

Queensland

SunWater supplies wholesale water to councils throughout Queensland (except the south-east). SunWater's original charter and subsequent Statements of Corporate Intent, have endorsed a transitional approach to the introduction of commercial prices for some local councils. This applies where the introduction of commercial prices immediately would impose hardship upon residents. The Queensland Department of Local Government, Planning, Sport and Recreation (DLGPSR) administers the Small Communities Assistance Program (SCAP) which provides a subsidy to small communities (under 5000 connections), where full cost recovery pricing for water and sewerage services imposes an annual water charge in excess of $570 (for 2006/07), based on a reasonable level of use.

At SunWater's corporatisation, the Queensland Government agreed to pay a CSO each year from 2000-01 to 2004-05, to cover the cost of increased regulatory obligations.

Western Australia

The ERA governing legislation, the *Economic Regulation Authority Act 2003* (the Act) requires it to consider the long term interests of customers on price, quality and reliability of services and to be aware of the need to promote transparent decision making processes when making recommendations about future pricing policies. The Government further emphasises its focus on social issues by specifically directing the ERA to consider such matters in the individual terms of reference it issues for each inquiry.

The Act's focus on the public interest and the terms of reference, are reflected in the recommendations contained in the ERA's recent reports on urban and rural water and wastewater pricing. It was found that real price increases for water services are necessary to reflect the increasing costs of developing new water sources and ensuring security of supply for Western Australia.

Being mindful of the social impacts of pricing issues, the ERA has, on a number of occasions, proposed measures to lessen the impact of the likely price increases on customers with a lower capacity to pay. It has suggested measures such as the phasing in (or smoothing) of price increases, rather than imposing them as step increases.

Such methods to address the social impacts of pricing reforms are generally accepted in Western Australia. They have also been approved by the Government recently to introduce long run marginal cost pricing in metropolitan potable water services over the next seven years.

Concessions are available in Perth for pensioners and seniors. The Water Corporation receives a CSO to fund these concessions.

CSOs are also provided to the Water Corporation to recover revenue shortfalls, which result from the application of the uniform pricing policy throughout regional areas in Western Australia.

South Australia

One of the most important considerations of the South Australian Government in setting water and wastewater prices is the extent to which all customers are capable of paying for these essential services. South Australia considers broader equity and social justice considerations to be an important part of their price determination process. In determining water prices, the South Australian government considers socio-economic factors through:

- ensuring that SA Water provides pensioner concessions that are funded from the annual budget; and
- applying a two-tiered charge to ensure that essential water services are affordable.

Consideration is given to the capacity of users to pay water supply charges through the use of a property value based water supply charge for commercial properties.

The South Australian government determines whether it is appropriate for a CSO to be implemented, according to criteria specified by the Steering Committee on National Performance Monitoring of Government Trading Enterprises which, by definition:

> Arises when a government specifically requires a public enterprise to carry out activities relating to outputs or inputs which it would not elect to do on a commercial basis, and which the government does not require other businesses in the public or private sectors to generally undertake or which it would only do commercially at higher prices.

CSO's funded by the South Australian Government for urban water include the following:

- administration of the Save the River Murray Levy;

- service charge exemptions and concessions that are provided to places of worship, charitable organisations, sporting clubs and Commonwealth, State and Local governments;
- administration of the pensioner concession scheme; and
- statewide pricing.

As a result of the government's state-wide pricing policy, water and wastewater services are provided to some country locations at less than total economic cost. The South Australian Government provides SA Water with a CSO payment to cover the shortfall it incurs in providing these services. These payments constitute more than 90 per cent of the total CSO payments made to SA Water.

For SA Water, the CSO payment currently represents about 50 per cent of total regional water revenue.

The South Australian Government's new CSO policy includes principles such as:

- CSOs will be valued on a 'cost per unit of output' approach;
- CSO payments are to be transparent and clearly reported; and
- CSOs will be subject to an annual review.

The statewide pricing CSO paid to SA Water is calculated as the shortfall between the revenue raised from regional customers under the state-wide pricing policy, and the avoidable cost of providing regional services. The avoidable cost will consist of operating costs, depreciation and return on assets. The return on assets is determined on the basis of the lower range of the WACC (2006-07) applied for water charging purposes (6 per cent). Annual adjustments will be made to the CSO amount to reflect asset revaluations, capital expenditure and changes in water charges.

Tasmania

Ten councils receive CSO payments ranging between $5 000 and $123 000 for water businesses. On the whole, CSOs account for a very small fraction of the total revenue recovered by water businesses.

In Tasmania a CSO is created when a council requires a significant business activity to undertake a non-commercial function in order to achieve a council policy objective. In determining whether a CSO exists, the following factors are considered:

- the function, service or concession provided, allowed or performed must arise as a direct result of a direction from council; and
- the function, service or concession provided, allowed or performed would not be undertaken if the significant business activity were a business in the private sector operating in accordance with sound commercial practice.

In Tasmania for a CSO to exist there must be:

- a specific policy directive from the council;

- a net cost to the significant business activity from providing the function, service or concession; and
- a function, service or concession imposed on the significant business activity which would not be performed as part of its normal commercial activities.

From the council's perspective, the key issues are whether a CSO:

- is appropriate and effective in terms of meeting the social objectives and priorities of the council;
- is most appropriately delivered by a significant business activity, or some other provider; and
- has a minimal impact on the council's budget.

Examples of council CSOs may be:

- the costs borne by councils' water business in providing recreational facilities at water reserves for the use of the general public; or
- subsidies provided to a specified class or classes of water user as a matter of council social policy (through reductions in the fixed charges for these customers, or reductions in the first block of the variable charges for these customers).

There are some special commercial activities which may appear non-commercial in nature but which are excluded from the definition of CSOs. Examples are:

- costs incurred in meeting regulatory requirements that are also incurred by private sector enterprises;
- market segmentation initiatives to maximise profit; and
- good corporate citizen activities.

Contributions made by Hobart Water to recreational facilities and reserves, such as Tolosa Reservoir, Water Works, and Risdon Brook Dam are provided for through a CSO.

Australian Capital Territory

The ICRC took into account social and equity matters in designing its water tariffs in its 2004 price determination. This included lowering the annual fixed charge from $125 to $75 and maintaining a low volumetric charge for the first 100 kilolitres of water. The ICRC is required to have consideration for the socio-economic effects of its price determinations in accordance with the *Independent Competition and Regulatory Commission Act 1997.*

Concessions are provided for certain groups, mainly pensioners, for water charges and are administered by the Department of Disability, Housing and Community Services. The rebates apply to the fixed water charges, and not to the water abstraction charge.

Northern Territory

Information was not available on how the Northern Territory considers socio-economic factors in water charging decisions.

The Northern Territory Government provides a CSO to the Power and Water Corporation for the provision of services to customers who are in receipt of the Northern Territory Government's Pension Concession Scheme. In addition, the payment is to fund a proportion of the revenue shortfall incurred by the Corporation in supplying water and wastewater services as gazetted uniform tariffs across all water users.

5.3.2 Cross-subsidies

There are many definitions or means by which a cross-subsidy can be explained or defined. At the simplest level, a cross subsidy can be said to exist when the consumption (payment) of one user, or a group of users, subsidises the consumption (payment) by another.

Alternatively, and as Baumol and Sidak[24] (1994: 62) note:

> A cross-subsidy is present when the average incremental revenue contributed by a product or firm is insufficient to cover its average incremental cost, but the firm nevertheless earns sufficient revenue from all its products to cover its cost of capital together with its other outlays.

Under this definition, a cross subsidy does not exist as long as cost recovery is within a band where the price floor equates to the incremental (or avoidable) cost and the price ceiling equates to stand-alone cost[25].

Definitions in some jurisdictions may differ slightly from the above definition. The question of whether a cross-subsidy exists will depend on the definition applied.

New South Wales

New South Wales has reported that it uses the Baumol and Sidak definition and is unaware of any cross subsidies in its water charging arrangements for major urban centres

Victoria

Cross subsidies exist when a backlog sewerage or new town sewerage scheme is provided by a metropolitan or regional urban water authority at less than its full cost. The costs associated with these schemes are identified in the water plans, which authorities submit to the ESC. Any shortfall in revenue is recovered from the broader customer base. This approach ensures that the compulsory sewerage schemes required for public health and environmental purposes are affordable.

[24] Baumol, W.J and J.G Sidak, 1994, *Toward Competition in Local Telephony*, Washington DC: AEI Press

[25] Calculation of the incremental and stand alone cost of serving each customer or small group of customers may be difficult. For this reason it may be difficult to identify the extent to which cross subsidies exist between sectors and between customers across different water supply schemes and within a water supply scheme.

Customers are made aware of the cross-subsidies through the water businesses' consultation processes, required as part of the process to develop water plans and subsequently through the ESC's extensive consultation process.

Queensland

The *Local Government Act 1993* requires the largest 18 local governments with significant water and sewerage business activities, to identify and publicly report cross subsidies that exist between different classes of customers.

For the remaining 107 councils with water and sewerage business that is not considered significant (they generate in aggregate expenditure less than $48.6 million), the identification and reporting of cross subsidies is not required under legislation.

South Australia

South Australia adopts a state-wide postage stamp pricing policy for water supplied to metropolitan and regional South Australia. In the 2006-07 Transparency Statement the South Australian Government reported that it is unlikely that significant cross-subsidies arise under the current water and wastewater pricing structure because in most cases customers would be paying less than the stand-alone cost.

A CSO payment is provided to SA Water to recover the revenue shortfall attributable to customers in regional areas of South Australia.

Other examples of where cross-subsidies may arise include:

- two-tiered water consumption charges to residential customers – as all customers pay a fixed charge, it is unlikely that the average charge to residential customers would be below the avoidable cost of supplying water.
- property-based water supply charge applied to commercial customers – commercial customers incur a two-part tariff that includes a water use charge and a fixed charge that is based on property value, and there may be examples of customers paying substantial amounts for relatively low total water demands (for example, major shopping centres). Nevertheless, these customers would, in most cases, still be paying less than the stand-alone cost of installing their own water system to the appropriate quality, health and environmental standards.

Western Australia

The Western Australian Government provides water at a uniform price across the state – up to 350 Kilolitres per household per year. Consumption above this level is partially subsidised. Both the Uniform Pricing Policy, and the proportion of the cost of consumption above 350 Kilolitres per annum that is subsidised, are funded via a transparent CSO payment direct to the Water Corporation. This does not represent a cross-subsidy between the metropolitan and non-metropolitan areas but rather, a social policy decision by the government and implemented through a transparent CSO payment.

The application of uniform charging for residential water users for major and non-major urban areas meant that cross subsidisation between user groups occurs in the regional areas. The revenue shortfall in the regional areas is accounted for via a transparent CSO.

Tasmania

Cross subsidies exist to a degree due to the volumetric charging component of the two-part tariff for Hobart Water, Cradle Coast Water and Esk Water. However, GPOC is of the view that this averaging approach results in little loss of efficiency in the case of Cradle Coast and Esk Water.

GPOC acknowledges that a small number of councils have revenue collections outside the upper and lower bound band and as a result, are cross-subsidising (or being cross subsidised) by the general rate base. In most cases, these councils have a relatively small revenue base and small changes in actual total revenues (compared to budgeted revenues) can push cost recovery outside of the upper and lower bounds.

Australian Capital Territory

All customers in the Australian Capital Territory face the same tariff schedule, however, the ICRC are not aware of any cross subsidies in its water charging arrangements for customers within the Australian Capital Territory. The ICRC monitors the sale of bulk water to ensure that Australian Capital Territory customers are not cross-subsidising customers outside the Australian Capital Territory.

Northern Territory

A uniform tariff policy has been adopted across the Northern Territory, which has resulted in the cross subsidisation of higher cost supply schemes.

Appendix A: Characteristics of Major and Non-Major Urban Water Businesses

The following section provides a brief description of major and non-major urban water businesses involved in supplying water services to urban and regional centres. The details are summarised in the tables below.

New South Wales

Major urban water storage and delivery
In New South Wales, the Sydney Catchment Authority supplies water in bulk to the Sydney Water Corporation, which, in turn, supplies water and sewerage services to residential and industrial customers in the Sydney metropolitan area.

The Hunter Water Corporation provides wholesale and retail water and wastewater services to almost 209 000 residential, commercial and industrial customers from five local government areas – Newcastle, Lake Macquarie, Maitland, Cessnock and Port Stephens. In addition, wholesale water is supplied to Gosford, Wyong and Dungog Councils.

The Gosford-Wyong Joint Water Authority supplies water in bulk to the Gosford City Council and the Wyong Shire Council, who, in turn, provide water to residential, commercial and industrial customers. The transfer system between Hunter and Gosford-Wyong will shortly also enable transfers of water from Wyong to Hunter when warranted.

Non-major urban water storage and delivery
The Sydney Catchment Authority also supplies water in bulk to a number of smaller customers outside the Sydney metropolitan area: including Wingecarribee Shire Council and Shoalhaven City Council. It also directly supplies a small number of customers who draw water directly from major water supply pipelines and conduits.

State Water provides a regulated untreated wholesale water supply to over 34 local water businesses (mostly local government councils). As noted above, Hunter Water Corporation also provides a fully treated wholesale water supply to Dungog Council.

The main sources of supply for the 93 New South Wales non-major urban water businesses providing reticulated water supply, include:

- wholesale storage dams;
- groundwater;
- fully treated wholesale water from a wholesale water supplier;
- regulated untreated wholesale water from State Water Corporation wholesale storages; and
- regulated untreated wholesale water supply [26].

[26]Cobar Council receives a regulated untreated wholesale water supply from Cobar Water Board, which also supplies mining operations in and around Cobar.

Victoria

Major urban water storage and delivery
Melbourne Water supplies wholesale water to three retail water businesses in the Melbourne region – City West Water, South East Water and Yarra Valley Water. These three retail businesses, in turn, supply water and wastewater services to the Melbourne populace.

Non-major urban water storage and delivery
For bulk supplies, Melbourne Water also supplies some wholesale water to Gippsland Water and Western Water. Goulburn Murray Water and Southern Rural Water supply wholesale water to regional urban authorities that supply country towns in Victoria. Many regional authorities also have their own storages.

Central Highlands Water, Gippsland Water, South Gippsland Water, East Gippsland Water, Western Water, Coliban Water, Barwon Water, Westernport Water, Wannon Water and Goulburn Valley Water, supply water and wastewater services to customers in regional Victoria.

Queensland

Major urban water storage and delivery
SEQWater provides wholesale water to Brisbane City Council, Gold Coast City Council, Logan City Council, Beaudesert Shire Council, Caboolture Shire Council, Esk Shire Council, Gatton Shire Council, Ipswich City Council, Kilcoy Shire Council, Laidley Shire Council, Pine Rivers Shire Council and Redcliffe City Council. These councils, in turn, provide water and wastewater services to residential customers.

Non-major urban water storage and delivery
SunWater provides bulk water supplies to 38 local governments across Queensland. SunWater also supplies water to major industry including mines and power stations.

The Gladstone Area Water Board provides wholesale water to various industrial, commercial and local government customers. The two local councils that are supplied bulk treated water are Gladstone City Council and Calliope Shire Council.

The Mount Isa Water Board provides wholesale water to industrial customers and the Mount Isa City Council

NQ Water provides wholesale water to Townsville and Thuringowa Councils who, in turn, provide water and wastewater services to residential customers. This is a joint, council controlled, water service provider.

The Caloundra-Maroochy Water Supply Board provides wholesale water services to the Sunshine Coast region and the Esk-Gatton-Laidley Water Supply Board provides water to the local councils in its vicinity.

Fitzroy River Water is the commercial water and wastewater business unit of the Rockhampton City Council.

Wide Bay Water Corporation is the first local government owned corporation in Queensland, providing water and wastewater services to the city of Hervey Bay. The corporation is wholly owned by Hervey Bay City Council and governed by an independent Board of Directors working under the Queensland Local Government Owned Corporations Act.

South Australia

Major urban water storage and delivery
SA Water is a vertically integrated water business, which provides water and wastewater services to residential, commercial and industrial customers in the Adelaide metropolitan area.

Non-major urban water storage and delivery
SA Water also provides water and wastewater services to residential, commercial and industrial customers in regional South Australia.

Western Australia

Major urban water storage and delivery
The Water Corporation is a vertically integrated water business and supplies water and wastewater services to residential and industrial customers in the Perth metropolitan area.

Non-major urban water storage and delivery
AQWEST and Busselton Water Board supply retail water services to residential and industrial customers in the Bunbury and Busselton regions respectively[27].

The Water Corporation supplies water and wastewater services to residential and industrial customers in regional centres in Western Australia.

Tasmania

Major urban water storage and delivery
Hobart Water provides wholesale water to Hobart, Glenorchy, Clarence, Kingborough, Brighton, Derwent Valley, Sorell and the Southern Midlands City Councils. These councils, in turn, provide water and wastewater services to residential and industrial customers in metropolitan areas.

Non-major urban water storage and delivery
Esk Water provides wholesale water services to George Town, Launceston City, Meander Valley and West Tamar City Councils. These councils, in turn provide water and wastewater services to residential and industrial customers in regional areas. Cradle Coast Water provides wholesale water services to Circular Head, Waratah-Wynyard, Central Coast, Devonport, Latrobe and Kentish City Councils.

[27] The Water Corporation provides wastewater services to the residential and industrial customers in the Bunbury and Busselton regions.

These councils in turn provide water and wastewater services to residential and industrial customers in regional areas.

Other councils in Tasmania access water either directly from rivers and streams, under a water licence issued under the *Water Management Act 1999*. There is also a small reliance on groundwater supplies. Councils who access groundwater are currently not required to have a water licence.

Australian Capital Territory

Major urban water storage and delivery
ACTEW provides retail water and wastewater services to residential and industrial customers in Canberra. ACTEW provides bulk water to Queanbeyan, New South Wales. ActewAGL provides water and wastewater services under contract to ACTEW Corporation. ACTEW have ownership of the Australian Capital Territory's water and wastewater assets. ActewAGL formed in October 2000 when Australian Gas Light Company (AGL), a private sector group, and ACTEW Corporation, a government owned enterprise, entered into a joint utility venture. Ownership of ActewAGL is shared equally between AGL and ACTEW Corporation.

Northern Territory

Major urban water storage and delivery
The Power and Water Corporation (Darwin operations) provides urban water and wastewater services to residential and industrial customers in the Darwin metropolitan area.

Non-major urban water storage and delivery
The Power and Water Corporation also provides water and wastewater services to residential and industrial customers in Katherine, Tennant Creek and Alice Springs.

Table 1. Wholesale urban water businesses

Jurisdiction	Organisation responsible	Services provided	Corporate Form	Area of operations	Number of customers serviced	Av annual water volumes supplied (GL)
New South Wales	Sydney Catchment Authority	Wholesale storage and delivery	State-owned statutory authority	The hydrological water catchments from which water is harvested,	Sydney Water (99.3% supplied to Sydney Water) & two local councils, and a number of smaller retail customers	Supplied 647 GL in 2003/04
	StateWater	Wholesale storage and delivery (mostly by run-of-river)	State Govt-owned corporation	Non-metropolitan New South Wales	Regulated raw water supply provided to Albury, City, Balranald, Berrigan, Bogan, Corowa, Country Energy, Cowra, Deniliquin, Dubbo, Dungog, Forbes, Gloucester, Goldenfields, Griffith, Gundagai, Gwydir, Hay, Inverell, Jerilderie, Lachlan, Leeton, Murray, Muswellbrook, Parkes, Richmond Valley, Riverina, Singleton, Snowy River, Tamworth Regional, Tumut, Upper Hunter, Wakool, Walgett, Warren, Wellington and Wentworth Councils.	Supplied 79 GL in 2003/04
	Rous County Council	Wholesale storage, delivery and water treatment	County council	North Coast	Fully treated supply piped to Ballina, Byron, Lismore and Richmond Valley councils.	Supplied 11.5 GL in 2003/04
	Goldenfields County Council	Wholesale storage, delivery and water treatment	County council	Riverina	Fully treated supply piped to Cootamundra, Harden and Young Councils. Also provided a reticulated retail supply to 8,060 residential properties and 2,140 non-residential properties in 2003/04 in the areas of Coolamon, Junee, Narrandera, Temora, West Wyalong Councils.	Supplied 3.9 GL in 2003/04 Supplied 5.7GL of retail supply in 2003/04

Jurisdiction	Organisation responsible	Services provided	Corporate Form	Area of operations	Number of customers serviced	Av annual water volumes supplied (GL)
	State Water (Fish River Water Supply)	Wholesale storage, delivery and water treatment	State Govt-owned corporation	Oberon	Fully treated supply piped to Oberon Council. Piped water supply provided to Delta Power, Sydney Water Corporation and Lithgow Council.	Supplied 11.7 GL in 2003/04
	Cobar Water Board	Wholesale water storage and delivery	Water supply Authority	Cobar	Raw water piped to Cobar Council and the Cobar mines.	Supplied 4.3 GL in 2003/04
Victoria	Melbourne Water	Wholesale storage, wholesale water, wastewater, & stormwater	State govt-owned Corporation	Metropolitan Melbourne	Melbourne's 3 metropolitan water retailers	Supplied 500 GL in 2003/04
	Southern Rural Water	Wholesale storage, wholesale water & wastewater, retail water & wastewater and rural water supply for irrigation customers	State-owned statutory authority	Southern rural Victoria, from the Great Divide to the coast, including Werribee, Hamilton Leongatha, and Maffra.	Western Water and Gippsland Water	Supplied 300 GL in 2003/04
	Goulburn Murray Water	Wholesale storage, wholesale water & wastewater, retail water & wastewater and rural water supply for irrigation customers	State-owned statutory authority	Northern Regional Victoria including Shepparton and Cobram	Coliban Water and Goulburn Valley Water	Supplied 1 809 GL in 2003/04
Queensland	SEQ Water	Wholesale storage & wholesale water	SEQWater is a public corporation owned by the Queensland Government (20%), Brisbane City Council (45%), & 11 other local governments in south east Queensland (35%).	South East Queensland	16 major customers	Supplied 280 GL to local govts in 2003/04
	Sunwater	Wholesale storage & wholesale water supplier	State govt-owned corporation	All regions of Queensland except the	Serviced 6,000 customers in 2003/04	Supplied 1,908 GL in 2003/04

Jurisdiction	Organisation responsible	Services provided	Corporate Form	Area of operations	Number of customers serviced	Av annual water volumes supplied (GL)
		mainly for irrigation & mines		south east.		
	Gladstone Area Water Board	Wholesale storage & wholesale water	State government owned	Various industrial, commercial and local government customers including Gladstone City Council and Calliope Shire Council		
	Mount Isa Water Board	Wholesale storage & wholesale water	State government owned	Industrial customers and Mount Isa City Council		
	NQ Water	Wholesale storage & wholesale water	Local government owned	Industrial customers and Townsville and Thuringowa Councils	4	
	Fitzroy River Water	Wholesale storage & wholesale water and wastewater	Local government owned	Rockhampton City Council		
	Wide Bay Water Corporation	Wholesale storage & wholesale water	Local government owned	City of Hervey Bay		
South Australia	SA Water	Wholesale storage & wholesale water	State Govt-owned corporation	Throughout metropolitan & country SA	See urban water section	Supplied 166 GL in 2003/04
Western Australia	Water Corporation	Wholesale storage & wholesale water	State Govt-owned corporation	Metropolitan Perth, surrounding towns & regional areas	See urban water section	Supplied 231 GL in 2003/04
Tasmania	Hobart Water	Wholesale storage & wholesale water	Joint authority owned by 8 local councils in Hobart & southern Tasmania	Hobart & surrounds in southern Tasmania	8 customers (local councils) - serviced 82,000 properties in 2003/04	Supplied 41 GL in 2003/04
	Cradle Coast Water	Wholesale storage & wholesale water	Joint authority owned by 6 local councils	North-Western Tasmanian coast, incl Devonport (excluding	6 customers (local councils) - services 29 000 properties in 2003-04	Supplied 14 GL in 2003/04

Jurisdiction	Organisation responsible	Services provided	Corporate Form	Area of operations	Number of customers serviced	Av annual water volumes supplied (GL)
				Burnie)		
	Esk Water Authority	Wholesale storage & wholesale water	Joint authority owned by 4 local councils	Launceston & Tamar Valley	4 customers (local councils) - serviced 33 000 properties in 2003-04	Supplied 14 GL in 2003/04
ACT	ACTEW	Wholesale storage & wholesale water	Joint venture between ACTEW & AGL. ACTEWAGL operates & maintains ACTEW's water & wastewater assets. ACTEW is ACT Govt-owned holding company but corporatised.	Canberra, bulk water sales to Queanbeyan & surrounding area	See urban water section	Supplied 52 GL in 2003/04
Northern Territory	Power and Water Corporation	Wholesale storage & wholesale water	NT Govt-owned corporation	Northern Territory cities & towns	See urban water section	Supplied 35 GL in 2003/04

Table 2. Retail urban water businesses

Jurisdiction	Organisation responsible	Services provided	Corporate Form	Area of operations	Number of customers/ properties serviced	Av annual water volumes supplied (GL)
New South Wales	Sydney Water	Wholesale storage, wholesale water & wastewater, retail water & wastewater, & some stormwater	Statutory Govt-owned Corporation	Sydney metropolitan area, Illawarra & the Blue Mountains	Served 1.54 million residential properties & 90,000 businesses in 2003/04	Supplied 345 GL of water to residents and 217 GL of water to businesses, industry & councils in 2003/04
	Hunter Water	Wholesale storage, wholesale water & wastewater, retail water & wastewater, & some stormwater	Statutory Govt-owned Corporation	Newcastle & surrounds, & Port Stephens	Served 193,000 residential properties & 16,000 businesses* in 2003/04	Supplied 40 GL of water to residents & 32 GL to businesses, industry & councils in 2003/04
	Gosford City Council	Wholesale storage, wholesale water & wastewater, retail water & wastewater	Owned & operated by Gosford City Council	Central Coast - New South Wales	Served 285,000 residents & 16,000 businesses in 2003/04	Supplied 33 GL of water to residents, businesses, industry & councils in 2003/04
	Wyong Shire Council	Wholesale storage, wholesale water & wastewater, retail water & wastewater	Owned & operated by Wyong Shire Council	Central Coast - New South Wales	Served 285,000 residents & 16,000 businesses in 2003/04	Supplied 33 GL of water to residents, businesses, industry & councils in 2003/04
					* Note: 'Businesses' refers to all non-residential properties served including commercial, industrial, rural and institutional properties.	
	Non-major urban water businesses (93 businesses providing urban retail water supply services and 99 businesses providing urban	Wholesale storage, wholesale water & wastewater, retail water & wastewater	101 local government councils and one (1) water supply authority under the *Water Management Act*.	Throughout New South Wales	Served 667,000 residential properties and 70,000 businesses in 2003/04	Supply 185GL of water to residents and 98GL of water to businesses, industry and councils.

Jurisdiction	Organisation responsible	Services provided	Corporate Form	Area of operations	Number of customers/ properties serviced	Av annual water volumes supplied (GL)
	retail sewerage services)[28]					
	Other Local Government Suppliers (95)	Wholesale storage, wholesale water & wastewater, retail water & wastewater	Local Government	Throughout New South Wales	N/A	N/A
Victoria	City West Water	Retail water & wastewater	Govt-owned Corporations Law company	Melbourne CBD & western suburbs	Served 0.27 million residential properties & 31,000 businesses in 2004/05	Supplied 52 GL to residents & 47 GL to businesses & councils in 2004/05
	South East Water	Retail water & wastewater	Govt-owned Corporations Law company	South eastern suburbs of Melbourne & Mornington Peninsula	Served 0.54 million residential properties & 49,000 businesses in 2004/05	Supplied 100 GL to residents & 39 GL to businesses & councils in 2004/05
	Yarra Valley Water	Retail water & wastewater	Govt-owned Corporations Law company	Northern & eastern suburbs of Melbourne & Dandenong Ranges	Served 0.58 million residential properties & 48,000 businesses in 2004/05	Supplied 113 GL to residents and32 GL to businesses & councils in 2004/05
	Grampians Wimmera Mallee	Wholesale storage, wholesale water & wastewater, retail water & wastewater and rural water supply for irrigation customers	State Govt-owned statutory authority	Wimmera & Mallee, Horsham(western Victoria)	Served 0.025 million residential properties & 4600 businesses in 2004/05	Supplied 6 GL to residents & 4 GL to businesses & councils in 2004/05
	Lower Murray Water	Wholesale water & wastewater, retail water & wastewater and rural water supply for irrigation customers	State Govt-owned statutory authority	North-western Victoria - Mildura	Served 0.025 million residential properties & 3500 businesses in 2004/05	Supplied 14 GL to residents & 5 GL to businesses & councils in 2004/05
Victoria (con't)	Barwon Water	Wholesale storage,	State Govt-owned	Geelong & surrounding	Served 0.11 million	Supplied 23 GL to

[28] Refer to *2003/04 NSW Water Supply and Sewerage Benchmarking Report* (www.deus.nsw.gov.au). With the exception of the 10 reticulators shown in Section 1.2, all the NSW retailers provide their own water treatment. With the exception of the 32 businesses receiving a regulated, untreated, wholesale water supply from State Water Corporation and Cobar, Council (Section 1.2), all the NSW retailers also provide their own wholesale storage and delivery. 99 businesses provide urban retail sewerage services. Each utility also carries out its own sewage treatment and management of the treated effluent and biosolids.

Jurisdiction	Organisation responsible	Services provided	Corporate Form	Area of operations	Number of customers/ properties serviced	Av annual water volumes supplied (GL)
		wholesale water & wastewater, retail water & wastewater	statutory authority	towns	residential properties & 9,800 businesses in 2004/05	residents and 13 GL to businesses & councils in 2004/05
	Coliban Water	Wholesale storage, wholesale water & wastewater, retail water & wastewater	State Govt-owned statutory authority	Bendigo, surrounding towns	Served 56,000 residential properties & 6,100 businesses in 2003/04	Supplied 12 GL to residents and 6 GL to businesses & councils in 2004/05
	Central Highlands Water	Wholesale storage, wholesale water & wastewater, retail water & wastewater	State Govt-owned statutory authority	Ballarat & surrounding towns	Served 50,000 residential properties & 4,900 businesses in 2004/05	Supplied 9 GL to residents and 4 GL to businesses & councils in 2004/05
	Gippsland Water	Wholesale storage, wholesale water & wastewater, retail water & wastewater	State Govt-owned statutory authority	Gippsland towns – Warragul, Moe, Traralgon & Sale	Served 51,200residential properties & 5,200businesses in 2004/05	Supplied 11GL to residents and 2 GL to businesses & councils in 2004/05
	Goulburn Valley Water	Wholesale storage, wholesale water & wastewater, retail water & wastewater	State Govt-owned statutory authority	Shepparton & surrounding towns	Served 46,000 residential properties & 6,200 businesses in 2004/05	Supplied 14 GL to residents and 11 GL to businesses & councils in 2004/05
	Western Water	Wholesale storage, wholesale water & wastewater, retail water & wastewater	State Govt-owned statutory authority	Towns to the north west of Melbourne's outskirts such as Sunbury, Melton & Bacchus Marsh	Served 40,600 residential properties & 4,500 businesses in 2004/05	Supplied 9 GL to residents and 2 GL to businesses & councils in 2004/05
	Westernport Water	Wholesale storage, wholesale water & wastewater, retail water & wastewater, & gas services	State Govt-owned statutory authority	Phillip Island & nearby mainland towns	Served 14,500 residential & 900 business properties in 2004/05	Supplied 1 GL to residents and 1 GL to businesses & councils in 2004/05
	Wannon Water (formed from the merger of Glenelg Water, Portland Water and South West Water)	Wholesale storage, wholesale water & wastewater, retail water & wastewater	State Govt-owned statutory authority	Warrnambool, Portland, Hamilton and surrounding towns	Served 33,100 residential & 5,700 business properties in 2004/05	Supplied 7 GL to residents & 9 GL to businesses & councils in 2004/05
	South Gippsland Water	Wholesale storage, wholesale water &	State Govt-owned statutory authority	South East Victoria, Forster and Wonthaggi	Served 13,300 residential & 2,800 business	Supplied 3 GL to residents & 2 GL to businesses &

Jurisdiction	Organisation responsible	Services provided	Corporate Form	Area of operations	Number of customers/ properties serviced	Av annual water volumes supplied (GL)
		wastewater, retail water & wastewater			properties in 2004/05	councils in 2004/05
	East Gippsland Water	Wholesale storage, wholesale water & wastewater, retail water & wastewater	State Govt-owned statutory authority	Far Eastern Victoria, Bairnsdale and Lakes Entrance	Served 18,400 residential & 2,800 business properties in 2004/05	Supplied 3 GL to residents & 2 GL to businesses & councils in 2004/05
	North East Water	Wholesale storage, wholesale water & wastewater, retail water & wastewater	State Govt-owned statutory authority	North Eastern Victoria, Wangaratta and Wodonga	Served 37,000 residential & 4,200 business properties in 2004/05	Supplied 10 GL to residents & 6 GL to businesses & councils in 2004/05
Queensland	Brisbane Water	Wholesale storage, wholesale water & wastewater, retail water & wastewater, & stormwater	Independent business unit of Brisbane City Council	Metropolitan Brisbane	Served 0.38 million residential properties & 34,000 businesses in 2003/04	Supplied 97 GL to residents and 73 GL to businesses & councils in 2003/04
	Gold Coast Water	Wholesale storage, wholesale water & wastewater, retail water & wastewater	Commercialised business unit of Gold Coast City Council	Gold Coast	Served 191,000 residential properties & 11,000 non-residential properties in 2003/04	Supplied 38 GL to residents and 23 GL to businesses & councils in 2003/04
	Maroochy Water Services	Wholesale storage, wholesale water & wastewater, retail water & wastewater	Business unit of Maroochydore Shire Council	Sunshine Coast	Served 47,000 residential properties & 11,000 non-residential properties in 2003/04	Supplied 11 GL to residents and 3 GL to businesses & councils in 2003/04
	Ipswich Water	Wholesale wastewater, & retail water & wastewater	Commercialised business unit of Ipswich City Council	Ipswich (immediately west of Brisbane) & surrounding suburbs	Served 47,000 residential properties & 4,000 non-residential properties in 2003/04	Supplied 12 GL to residents and 12 GL to businesses & councils in 2003/04
	Logan Water	Wholesale storage, wholesale water & wastewater, retail water & wastewater	Commercialised business unit of Logan City Council	Gold Coast	Served 64,000 residential properties & 3,000 non-residential properties in 2003/04	Supplied 15 GL to residents and 3 GL to businesses & councils in 2003/04
	Citiwater	Wholesale water & wastewater, retail water & wastewater	Business unit of Townsville City Council	Townsville & surrounding towns	Served 94,000 residents in 2003/04 & 31,400 properties in total	Supplied 29 GL to residents, businesses & councils in 2003/04
	Cairns Water	Wholesale water, wholesale water & wastewater, retail water	Commercialised business unit of Townsville City	Cairns & surrounding towns	Served 53,000 residential properties & 4000 non-residential properties in	Supplied 25 GL to residents, businesses & councils in 2003/04

Jurisdiction	Organisation responsible	Services provided	Corporate Form	Area of operations	Number of customers/ properties serviced	Av annual water volumes supplied (GL)
		& wastewater	Council		2003/04	
	Other Local Government Suppliers	Wholesale storage, wholesale water & wastewater, retail water & wastewater	Local Government	Throughout Queensland	N/A	N/A
South Australia	SA Water	Wholesale storage, wholesale water & wastewater, retail water & wastewater	Govt owned corporation	Throughout metropolitan and country South Australia	Served 0.59 million residential properties & 34,000 non-residential properties in 2003/04	Supplied 140 GL to residents and 30 GL to non-residential properties in 2003/04
Western Australia	Water Corporation	Wholesale storage, wholesale water & wastewater, retail water & wastewater, & stormwater	State Govt-owned corporation	Metropolitan Perth	Served 615,085 residential properties & 113,962 non-residential properties in 2003/04	Supplied 161 GL to residents and 67 GL to businesses & councils in 2003/04
	Busselton Water Board	retail water	State Government statutory authority	Busselton & surrounding areas	Served 8,000 residential properties and 2,000 non-residential properties in 2003/04	Supplied 4 GL to residents, businesses & councils in 2003/04
	AQWEST-Bunbury Water	retail water	State Government Statutory Authority	City of Bunbury.	Served 12,000 residential properties and 2,000 non-residential properties in 2003/04	Supplied 7 GL to residents, businesses & councils in 2003/04
	WaterCorp	Wholesale storage, wholesale water & wastewater, retail water & wastewater, & stormwater	State Govt-owned corporation	Metropolitan Perth	Served 0.54 million Residential properties & 72,000 non-residential properties in 2003/04	Supplied 161 GL to residents and 67 GL to businesses & councils in 2003/04
	Busselton Water Board	Retail water & wastewater	Independent statutory authority	Busselton & surrounding areas	N/A	Supplied 4 GL to residents, businesses & councils in 2003/04
	AQWEST-Bunbury Water	Retail water	State Government Statutory Authority	City of Bunbury.	N/A	N/A
Tasmania	There are 28 local council suppliers of retail water services in Tasmania: • 18 are supplied	Retail water & wastewater	Council-owned & integrated	For the 18 supplied by wholesale water authorities see Hobart Water, Cradle Coast & Esk in wholesale	For the 18 supplied by wholesale water authorities see Hobart Water, Cradle Coast & Esk in wholesale	For the 18 supplied by wholesale water authorities see Hobart Water, Cradle Coast & Esk in wholesale suppliers

Jurisdiction	Organisation responsible	Services provided	Corporate Form	Area of operations	Number of customers/ properties serviced	Av annual water volumes supplied (GL)
	by Wholesale Water Authorities, • 10 operated as integrated businesses			suppliers Remaining 10 cover a range of regional towns	suppliers Remaining 10 cover a range of regional towns: connections 29,642 in 2003/04	Remaining 10 cover a range of regional towns: 30 GL in 2003/04
ACT	ACTEW	Wholesale storage, wholesale water & wastewater, retail water & wastewater	See wholesale water section	Canberra, Queanbeyan & surrounding area	Served 127,000 residential properties & 9,000 non-residential properties in 2003/04	Supplied 39 GL to residents and 13 GL to businesses & councils in 2003/04
Northern Territory	Power and Water	Wholesale storage, wholesale water & wastewater, retail water & wastewater	NT Govt-owned corporation	Northern Territory cities & towns	Served 38,000 residential properties & 5,000 non-residential properties in 2003/04	Supplied 17 GL of water to residents and 18 GL of water to businesses & councils in 2003/04

Appendix B: Legal and Regulatory Framework

Table 1(b) – Australian Capital Territory, New South Wales, Northern Territory and Queensland

	ACT	New South Wales	NT	QLD
Who sets prices?	The Independent Competition and Regulatory Commission (ICRC) issued a four-year price direction in 2004 which determines the price path for four years. The ICRC expects in 2007 the minister will direct it to review ACTEW's water and wastewater services and determine prices to apply from 1 July 2008	Independent Pricing and Regulatory Tribunal[29] for metropolitan, and bulk water charges 101 local government councils and one water supply authority under Water Management Act set their own prices	Discretionary power with Regulatory Minister (Treasurer) to regulate prices Otherwise, Power and Water Corporation Utilities Commission[30] has monitoring and enforcement role	Local governments
Under what head of power?	*Independent Competition and Regulatory Commission Act 1997 (ACT)* Licence issued under the *Utilities Act 2000 (ACT)*	Metropolitan and bulk water charges - *Independent Pricing and Regulatory Tribunal Act* For councils, powers set by resolution, in accordance with *Water Management Act, Local Government Act 1993,* and guidelines issued from time to time by the Department of Energy, Utilities and Sustainability	*Water Supply and Sewerage Services Act (2000)* Tariffs and charges regulated by Government, via a Water and Sewerage Pricing Order issued by Minister Utilities Commission monitors and enforces compliance with pricing order: *Utilities Commission Act 2000 (NT)* Can be restrictions on pricing specified in directions or	*Local Government Act 1993* (Chapter 8,9,10&11*), Local Government Finance Standards 2005 (*parts 9,10,11&12 and Sch 1) *Local Government Regulation* (Part 8)

[29] IPART's role in regulating Water, Wastewater and Stormwater services in NSW includes: setting maximum prices for metropolitan Water Sewerage and Stormwater Services; regulating prices for the Bulk Water supplied by the Sydney Catchment Authority; administering operating licences for Water Service Providers, and regulating the charges that State Water and the Department of Natural Resources may levy for delivering Bulk Water.

[30] In 2001, the Utilities Commission was assigned a regulatory role in the water and sewerage industries with the passage of the *Water Supply and Sewerage Services Act 2000*. That Act and regulations require and allow the Commission to undertake certain regulatory functions in water supply and sewerage services within a sole provider model. Activities relate mainly to licensing, although the Minister may assign some price and service standard monitoring functions to the Commission under his regulation powers.

	ACT	New South Wales	NT	QLD
			notifications issued in accordance with sections 28, 29, 30 *Government Owned Corporations Act.*	
Are there pricing principles?	Yes	Yes	May have been considered, but not apparent / explicit in instruments – the pricing order that took effect on 1 July 2006 is silent in relation to pricing principles	The Department of Local Government has issued Full Cost Pricing Principles, but application is limited.
Who sets principles?	Developed and applied by ICRC	Parliament (Act); also some discretion with independent regulator IPART For Local Water Utilities – Minister for Water Utilities	Minister	Minister for Local Government Planning and Support
In what instrument?	ICRC Act section 20 A (1) (a)	IPART Act – s15(1) For Local Water Utilities – *Best Practice Management of Water Supply and Sewerage Guidelines, May 2004* (guidelines made under the *Local Government Act 1993*	Pricing Order issued pursuant to *Water Supply and Sewerage Services Act* or in analysis that underpins Minister's decision	QCA's Ministerially approved Statement of Regulatory Pricing Principles for Water Sector assists local councils set prices consistent with regulatory practice. If the QCA makes a water pricing determination for private water sector suppliers and SEQWater for a monopoly service: *QCA Act 1997, s170ZI* sets out matters to be considered. Price oversight for local governments and other government owned water businesses comes under Part 3 of the QCA Act, and the Authority has only recommendatory powers. The Minister makes the determination.

	ACT	New South Wales	NT	QLD
Who applies them? *(e.g. regulator, Minister)*	Independent state-based economic regulator (ICRC)	Independent state-based regulator (IPART) for entities it regulates Individual Local Water Utilities	Minister	110 Local Governments set their own prices in relation to water and waste services – *Chapter 10 of the Local Government Act 1993 applies* Premier and Treasurer can refer *monopoly services* to independent state-based regulator *(*Queensland Competition Authority)[31]
Binding or discretionary?	Discretionary - depends on terms of referral to ICRC	Binding	Discretionary A pricing order may regulate prices in any manner the Minister considers appropriate[32]	*Discretionary* QCA 2000 stated that the principles are a "*broad statement of regulatory intent, to be applied with a discretion that reflects particular circumstances*" Confirmed in Qld NWI implementation plan However if QCA makes a *water pricing determination* it *must* have regard to matters set out in Act
Applied to what?	Depends on terms of referral	IPART regulation applies to: metropolitan water supply, wastewater and stormwater services; bulk water supply; recycled water	"Regulated services" - water supply services, sewerage services and related services supplied by providers operating in a gazetted water supply licence area.	Not clear

[31] Through the prices oversight process, the Queensland Competition Authority either investigates the pricing practices of government monopolies or simply monitors the prices charged by them. The Authority can only perform these functions on request from the Premier and Treasurer (the Ministers).

[32] Water Supply and Sewerage Services Act - Sect 60.

Table 1(b) –South Australia, Tasmania, Victorian and Western Australia

	SA	TAS	VIC	WA
Who sets prices?	The Government, through Cabinet, sets urban water prices. The pricing decisions are promulgated in the Government Gazette.	Water businesses: • 28 local governments - for retail water supply • 3 bulk water authorities However, government could ask Government Prices Oversight Commission to investigate pricing policies	Essential Services Commission	Minister for Water Resources (has powers to approve prices proposed by Water Corporation, AQWEST and Busselton Water Board and can use the recommendations provided by the ERA for guidance)
Under what head of power?	The *Waterworks Act 1932* (urban water prices) and the *Sewerage Act 1929* (urban wastewater prices).	*Local Government Act 1993 (Tas)* Part 9, Division 3 *Government Prices Oversight Act 1995 (Tas)*	*Essential Services Commission Act* 2000 (Vic); *Water Industry Act 1991 (Vic)*	Water Corporation charges calculated in accordance with by-laws made by Minister under the *Water Agencies (Powers) Act 1984.* In making regulations and by-laws to set water access licence fees or water service rates, Minister may be informed by the report of the Economic Regulation Authority under the *Economic Regulation Authority Act* 2003 (WA).
Are there pricing principles?	The pricing principles in the 1994 CoAG Strategic Framework, including the 1994 CoAG water pricing guidelines and the NWI apply in South Australia.	In October 2005, GPOC was directed by the Minister for Finance, under the *Government Prices Oversight Regulations 1998*, to inquire into matters relating to pricing policies of local government water and wastewater businesses. The Terms of Reference for the inquiry set out the specific issues for GPOC to consider and report upon, including pricing principles. Some principles included in *Urban Water Pricing Guidelines* for local	Yes	Yes (custom to include in Terms of Reference for ERA inquiries in relation to water pricing)

	SA	TAS	VIC	WA
		government		
Who sets principles?	CoAG sets South Australia's urban water pricing principles – i.e. South Australia applies the 1994 CoAG Strategic Framework, including the 1994 CoAG water pricing guidelines and the NWI. Additionally, as part of its annual pricing decisions, Cabinet considers a methodology for setting prices formally taking the CoAG / NWI pricing principles into account.	Government	Minister recommends to Governor in Council	Minister
In what instrument?	The 1994 CoAG Strategic Framework, including the 1994 CoAG water pricing guidelines and the NWI and annual price setting methodology document.	Urban Water Pricing Guidelines for local government Regulation 36 of the Local Government (General) Regulations 2005 requires that councils' annual reports include: • a statement reporting on a council's plans in relation to water supplied by it for domestic consumption; and • sufficient financial information to demonstrate that it is applying the pricing guidelines in relation to water supplied by it for domestic consumption and provision of wastewater services as specified in the Urban Water and Wastewater Pricing Guidelines for Local Government issued by the Government Prices Oversight	Order in Council (Water Industry Regulatory Order)	Terms of Reference for investigation by ERA inquiries

	SA	TAS	VIC	WA
		Commission .		
Who applies them? *(e.g. regulator, Minister, supplier)*	The Government, through Cabinet, applies the urban water pricing principles, with independent review of pricing processes by the Essential Services Commission of South Australia[33].	Local government, with oversight by GPOC reporting to the Premier	Independent state-based economic regulator (ESC)	ERA undertakes analysis; but Minister chooses whether or not to apply
Binding or discretionary?	Discretionary, although once urban water prices have been gazetted, they are binding on SA Water.	*Assume discretionary* – though monitoring regime suggests full compliance is expected That is, if the guidelines are not binding on local government in setting prices, then assumed to be discretionary	Binding	*Discretionary* Though the ERA must consider matters set out in relevant referral from Government (including pricing principles), ERA has *advisory role only* – prices are set at the discretion of the Minister in by-laws. In theory, by-laws can establish prices without reference to pricing principles
Applied to what?	SA Water's urban (metropolitan and regional) water and wastewater charges	Urban water and waste water charges	Retail water services Retail recycled water services Retail sewerage services Storage operator and bulk water services Bulk sewerage services Bulk recycled water services Metropolitan drainage services	Water and wastewater charges for Water Corporation, AQWEST and Busselton Water Board

[33] Since the 2004-05 urban water and wastewater pricing decisions, ESCOSA has, at the direction of the South Australian Treasurer, undertaken inquiries into Government processes for setting SA Water's urban water and wastewater (sewerage) charges

	SA	TAS	VIC	WA
			Irrigation drainage services Connection services Services to which developer charges apply Diversion services	

Appendix C: Water Supply and Sewerage Pricing in Non-Metropolitan New South Wales

1. IPART Pricing Principles

In its *Pricing Principles for Local Water Authorities* 1996, the New South Wales Independent and Regulatory Tribunal (IPART) sets out the overall framework for pricing and cost-recovery for water supply and sewerage services by the non-metropolitan Local Water Utilities (LWUs) in New South Wales. The IPART principles address the requirements of the Council of Australian Governments' Strategic Framework for Water Reform.

The *IPART Pricing Principles* strongly endorse the following New South Wales Government initiatives for LWUs:

- annual performance reporting of water supply and sewerage, which has been in place since 1986. IPART also requested that the Department of Energy, Utilities and Sustainability (DEUS) provide it with an annual performance summary for each LWU (for an example LWU Report, refer to page 49 of the 2004/05 New South Wales Performance Monitoring Report).
- strategic business planning and financial planning by LWUs in accordance with guidelines and software[34] issued by DEUS in 1993. These guidelines require each LWU to consult its community on the levels of service to be provided for water supply and sewerage services. LWU services need to comply with regulatory requirements (e.g. environment, health, occupational health and safety, dam safety etc.) and provide the levels of service the community wants and is willing to pay for. The strategic business plan and its associated financial plan, document the LWU's proposed asset management, including a capital works plan, operation plan and maintenance plan. The Business Plan determines the annual revenue required to achieve full cost-recovery over the next 30 years.

The *IPART Pricing Principles* note that the New South Wales Government's *Policy Statement on Application of National Competition Policy to Local Government* (1996) subjects business activities of local government having a turnover of over $2M/a, to the corporatisation principles of the COAG *Competition Principles Agreement*, including adopting a corporatisation model for business activities, an appropriate return on capital invested, debt guarantee fees and federal, state and local government taxes and charges.

The Department of Local Government's *Pricing and Costing Guideline, 1997* facilitates council compliance with the *Competition Principles Agreement*. The *Local Government Asset Accounting Manual* provides guidance on asset

[34] The financial planning software and guidelines were enhanced and updated in October 2000.

accounting and the separation of maintenance and capital expenditures. The *Reference Rates Manual*, 1994 provides guidance on valuation of water supply and sewerage assets and was updated and extended in 2003.

2. Water Supply and Sewerage Pricing

To facilitate early implementation of best-practice water supply, sewerage and trade waste pricing and full cost-recovery by LWUs, DEUS released *Water Supply, Sewerage and Trade Waste Pricing Guidelines* and the *Developer Charges Guidelines for Water Supply, Sewerage and Trade Waste* in December 2002. These Guidelines provide detailed guidance on:

- designing and implementing water supply and sewerage tariffs based on long run marginal cost; and
- determining appropriate water supply and sewerage developer charges.

Page 7 of the *Pricing Guidelines* states:

> "To determine the appropriate level of annual income from water supply, sewerage and liquid trade waste charges, each LWU needs to prepare a strategic business plan with a 30-year financial plan. The *New South Wales Financial Planning Model* (FINMOD) enables each LWU to readily prepare such a financial plan. After inputting proposed developer charges and liquid trade waste charges, FINMOD enables the LWU to determine the lowest level of typical residential bills (in current year's $) to ensure the long-term financial sustainability of the business. This would involve providing the levels of service negotiated with the community and meeting projected recurrent costs (OMA – operation, maintenance and administration), the projected capital cost of new and replacement infrastructure and any dividend and tax-equivalent payments."

DEUS has conducted a series of regional workshops for LWUs on water and sewerage pricing and developer charges. It has provided water supply pricing software, and sewerage and trade waste pricing software, as well as a pricing coordinator to assist the LWUs to implement best-practice pricing. As a result, all LWUs have now abolished their water allowance. Seventy-seven per cent of LWUs have completed a sound strategic business plan and a financial plan; demonstrating the long-term financial sustainability of their water supply and sewerage businesses. DEUS is now working with the 19 LWUs, with over 1,000 connected properties that are not yet achieving full cost-recovery. All these LWUs have agreed to phase in full cost-recovery within the next 3 years. DEUS is continuing to monitor and follow up with each LWU.

3. Best-Practice Management Guidelines

In 2004, the Government issued the *Best-Practice Management of Water Supply and Sewerage Guidelines*. These guidelines consolidate earlier initiatives to promote best-practice planning and management practices by

LWUs. It sets out 6 key criteria, which LWUs should meet to achieve best-practice:

- Strategic Business Planning and Financial Planning;
- Water Supply, Sewerage and Trade Waste Pricing, Developer Charges and Liquid Trade Waste Management;
- Demand Management;
- Drought Management;
- Performance Reporting; and
- Integrated Water Cycle Management (IWCM).

LWUs complying with the *Best-Practice Guidelines* will have demonstrated effective, affordable and sustainable water supply and sewerage services and full compliance with National Competition Policy and the NWI.

For water supply, compliance as at June 2005 was 58% for business and financial planning, 58% for pricing, 92% for performance reporting, 49% for demand management and 51% for drought management. 27% of LWUs have complied with all the required criteria. In addition, around 28% of LWUs have at least commenced preparation of an IWCM strategy

4. Publications

The documents and tools referenced above, provide the necessary guidance for LWUs on pricing, planning and managing their water supply and sewerage businesses.

The following Government publications have been provided to LWUs to facilitate best-practice water supply and sewerage pricing, planning and management.

1. Strategic Business Planning Guidelines for Water Supply and Sewerage, 1993 (DEUS)
2. Pricing Principles for Local Water Authorities, 1996 (IPART)
3. Policy Statement on Application of National Competition Policy to Local Government, 1996 (New South Wales Government)
4. Pricing and Costing Guideline, 1997 (DLG)
5. Local Government Asset Accounting Manual, 1999 (DLG)
6. Planning Community Involvement in Water and Sewerage Projects, 1995 (DEUS)
7. New South Wales Financial Planning Model (FINMOD), Overview of Financial Planning and User Manual, 2000 (DEUS)
8. Best-Practice Water Supply, Sewerage and Trade Waste Pricing Guidelines, 2002 (DEUS)
9. Best-Practice Developer Charges for Water Supply, Sewerage and Stormwater, 2002 (DEUS)

10. New South Wales Reference Rates Manual for Valuation of Water Supply, Sewerage and Stormwater Assets, 2003 (DLWC)
11. Best-Practice Management of Water Supply and Sewerage Guidelines, 2004 (DEUS)
12. Integrated Water Cycle Management, 2004 (DEUS)
13. Liquid Trade Waste Management Guidelines, 2005 (DEUS)
14. 2004/05 New South Wales Water Supply and Sewerage Performance Monitoring Report (DEUS)
15. 2004/05 New South Wales Water Supply and Sewerage Benchmarking Report (DEUS)

Appendix D: Pricing Principles

Box 1 – Victoria Water Industry Regulatory Order (WIRO)

1. Provide for sustainable revenue stream, but:
- no monopoly rents
- no inefficient expenditure

2. Allow recovery of:
- operational, maintenance and administrative costs
- expenditure on renewing and rehabilitating existing assets

3. Allow rate of return on assets:
Initially – Minister determines
- initial value of the RAB
- costs associated with existing debt incurred to finance recent expenditure (rural authorities only)

Ongoing – Regulator determines
- return on investments to augment existing / construct new assets

4. Provide incentives for sustainable water use through pricing signals:
- include costs associated with future supplies and periods of peak demands and/ or restricted supply and
- choices regarding alternative supplies for different purposes

5. Take into account interests of customers, including low income / vulnerable customers

6. Create incentives to:
- pursue efficiency improvements
- promote sustainable water use

7. Accessible - understandable by customers

Box 2 – New South Wales IPART Act section 15(1)

IPART must have regard to:

(a) cost of providing the service

(b) protection of consumers from abuse of monopoly power

(c) appropriate rate of return and dividends

(d) affect on general price inflation

(e) improved efficiency in supply of services

(f) ecologically sustainable development

(g) impact on borrowing, capital and dividend requirements

(h) impact of any arrangements on pricing policies

(i) need to promote competition

(j) considerations of demand management

(k) the social impact on customers

(l) standards of quality, reliability and safety of the services

Box 3 - Queensland

General Pricing Principles

Prices of water delivered to an end user should:

1. Be cost reflective
   - reflect costs of providing the service
   - where demand exceeds supply, potentially incorporate a value for the resource
2. Be forward looking
   - represent least cost now to provide requisite service level over the relevant period
3. Ensure revenue adequacy
   - meet revenue needs of business where possible
4. Promote sustainable investment (opportunity to enjoy an appropriate return on investment)
5. Ensure regulatory efficiency
   - pricing method to minimise regulatory intrusion and compliance costs
6. Take into account matters relevant to the public interest

QCA Act s170ZI

QCA must have regard to:

(a) the need for efficient resource allocation;

(b) the need to promote competition;

(c) the protection of consumers from abuses of monopoly power;

(d) decisions by the Ministers and local governments under part 3, about pricing practices of government monopoly business activities involving the supply of water;

(e) the legitimate business interests of the water supplier;

(f) the legitimate business interests of persons with rights to be supplied;

(g) in relation to the monopoly water supply activity:

(i) efficient cost to serve

(ii) the actual cost to serve

(iii) service quality

(iv) water quality

(h) the appropriate rate of return on assets;

(i) the effect of inflation;

(j) the impact of prices on the environment

(k) demand management;

(l) social welfare and equity considerations

- CSOs
- accessibility
- social impact of pricing practices;

(m) not discouraging socially desirable investment / innovation

(n) legislation / policies re:

- ecologically sustainable development
- OH&S, IR

(p) economic and regional development issues, including employment and investment growth.

Box 4 – Australian Capital Territory ICRC Act Section 20A (1) (a)

ACTEW must set water prices in accordance with the following pricing principles:

a) revenue recovery and stability:

- the tariff structure should enable ACTEW to recover the revenue commensurate with the CPI-X controls and not unduly subject ACTEW to risks associated with revenue instability

b) reflect community expectations:

- the tariff structure should reflect general community expectations regarding price signals, water usage and the environment

c) commensurate with government policy:

- the water tariff should reflect existing government policy. [The ACT has a target of 25 per cent reduction in per capita consumption of mains water by 2023 and the tariff structure should be consistent with meeting this outcome]

Box 5 – Tasmania

Urban Water and Wastewater Pricing Guidelines 2003

a) Water services should be financially independent of the other operations of local government;

b) Where services deliverers are required to provide water services to classes of customers at less than full cost, this must be fully disclosed and, ideally, be transferred to the water service deliverer as a CSO from general council revenue;

c) Consumers should have the means to influence their bills by controlling the amount of water they consume, therefore where it has been shown to be coat effective, councils should introduce two-part tariffs; and

d) Water pricing arrangements should:

1. be transparent and able to be monitored through the local government strategic planning and reporting processes;

2. reflect the true economic (including environmental) costs of water service provision thereby contributing to environmentally sustainable outcomes;

3. include a component to reflect an appropriate return on investment; and

4. provide a mechanism for users to have input into their level of service by reflecting their willingness to meet the cost of future investment in augmentations and water quality improvements.

Local Government (General) Regulations 2005 (Regulation 36)

Regulation 36 states council annual reports are to include:

1. A statement reporting on a council's plans in relation to water supplied by it for domestic consumption; and

2. Sufficient financial information to demonstrate that it is applying the pricing guidelines in relation to water supplied by it for domestic consumption and provision of wastewater services as specified in the *Urban Water and wastewater Pricing Guidelines* for the Local Government issued by GPOC.

Appendix E: Establishing the Initial Asset Base

The means by which jurisdictions establish the initial asset base are summarised below. Key considerations in establishing the initial asset base include: how to value the asset base, how contributed assets are dealt with in the RAB, and the extent to which assets are excluded from the RAB on the grounds that these investments are now sunk.

New South Wales

Wholesale water

Valuing the asset base

In New South Wales, the initial RAB for the Sydney Catchment Authority and State Water is calculated on the basis of an economic value. That value reflects the present value of free cash flows being generated by market prices at the time of valuation.

Contributed assets

IPART removes all contributed assets from the RAB of the Sydney Catchment Authority, Hunter Water and State Water. Only assets funded by the agency (through debt or equity) are able to enter the RAB and hence be reflected in water charges.

Sunk assets

For the Sydney Catchment Authority there are no pre-determined 'sunk' assets which are removed from the RAB. However for State Water, assets built prior to 1 July 1997 are largely regarded as 'sunk' and do not feature in IPART's calculation of the RAB. This is because IPART recognises that investments in State Water prior to this may not have been undertaken on a commercial basis.

Retail water- major urban

Valuing the asset base

To value the RAB for retail water services provided by Hunter Water Corporation, Sydney Water Corporation and Gosford and Wyong Councils IPART uses the same approach as for wholesale water.

Contributed assets

IPART removes all contributed assets from the RAB of these water businesses.

Sunk assets

For these retail water businesses, any difference between the replacement cost valuation of past investments and the economic value at the time the initial RAB was established, (line-in-the-sand value) is regarded as sunk and not considered for pricing purposes. Efficient capital expenditure incurred following the establishment of the initial RAB, is included in the RAB.

Businesses are entitled to earn a real pre-tax rate of return on capital consistent with the WACC.

This approach ensures that a water business is able to recover, over the life of its infrastructure, the efficient cost of infrastructure provided after the initial RAB was established plus a normal rate of return, reflective of the WACC.

Retail water- non-major urban
The Modern Equipment Engineering Replacement Assets (MEERA) is used to value the asset base for the non-major urban water business assets. However, this is not used in setting water charges.

Victoria

Wholesale water
Valuing the asset base
In Victoria, the initial RAB of each water business was set by the Minister for Water. The ESC provided recommendations on the RAB that it considered to be consistent with the proposed total revenue requirements for each business, taking into account any reviews or changes to forecast expenditures, identified through the ESC's review of Water Plans.

The approach adopted by the ESC to estimate the initial RAB, was to determine a value that will deliver a specific outcome related to either:

- the annual average change in water charges over the regulatory period; or
- the expected return on past investments (for assets in place prior to 1 July 2004).

In setting the opening RAB for each authority, the Minister for Water applied the following principles:

- prices should be consistent with the Government's water conservation objectives and have regard to the water conservation incentives created by the market for water;
- prices should ensure water authorities are financially viable;
- prices should reflect the cost of maintaining and improving the level of service received by customers; and
- average price increases should not be unreasonable over the regulatory period.

Contributed assets
The ESC removes all contributed assets from the RAB.

Retail water
The process outlined above is followed for all urban retail water businesses in Victoria.

Queensland

Valuing the asset base

The QCA recommends the use of the DORC when calculating the RAB for a water service and delivery agency. The DORC values an asset at the current cost of an 'optimised' asset, less accumulated depreciation. An 'optimised' asset is one that most efficiently produces a specified level of service.

Wholesale Water

No information was available on the process used in Queensland for determining the initial asset base for wholesale water providers.

Retail Water

Local governments are required to calculate their RAB according to the QCA's pricing principles and provisions under the *Local Government Act 1993* and the *Local Government Finance Standard 2005*.

Contributed assets

The QCA recommends the inclusion of contributed assets in the RAB of water businesses, however, an offsetting mechanism is used so that a return is not generated on these assets. Reasons for this approach include:

- once assets are passed to a business entity, that entity assumes responsibility for their management and the risks and obligations associated with that responsibility; and
- such a practice is consistent with the financial reporting practices of the [mainly] local government businesses that deliver most urban water services.

Sunk assets

Local governments would determine 'sunk assets' in accordance with the QCA's pricing principles. This information will need to be sought from relevant, individual local governments.

South Australia

Valuing the asset base

SA Water uses the fair value method[35] to calculate the RAB for SA Water. ESCOSA considers that the fair value method is consistent with the deprival value method recommended by COAG. In practice, SA Water's RAB is the written down replacement cost[36], less post-corporatisation contributed assets.

Contributed assets

[35] The fair value is the price the asset would sell at in a competitive open market, where both the buyer and seller are 'willing but not anxious'. It reflects the value of the asset in its next best alternative use.

[36] The written down replacement cost is the cost of replacing the asset in its current state with a replica or similar asset with identical service potential.

SA Water's initial RAB was calculated by removing post-corporatisation (1995) contributed assets. Identification and valuation of pre-corporatisation contributed assets is problematic. Pre-corporatisation contributed assets are regarded as a legacy issue.

Western Australia

Valuing the asset base

The ERA recommends the use of the deprival value method to measure the RAB for the Water Corporation, AQWEST and Busselton Water Board. The deprival value is the value of future economic benefits that would be foregone if the entity is deprived of an asset. If the asset lost is to be replaced, it can be valued at its market value, replacement cost or reproduction cost, depending on the circumstances.

For the Water Corporation, a preliminary RAB has been prepared, to be finalised as part of the 2007-08 budgetary process. However, for AQWEST and Busselton Water Board, a RAB is not used.

Contributed assets

The ERA, in its determination of the RAB for the Water Corporation, AQWEST and Busselton Water Board, recommended treating developer contributions both as revenue in the year that they occur, and as capital expenditure to the asset value of the business. However, it is not clear to what extent AQWEST and Busselton Water Board followed these recommendations.

Sunk assets

No sunk assets are removed from the RAB of the Water Corporation.

Tasmania

Valuing the asset base

Wholesale water

GPOC initially used the DORC to calculate the RAB for Hobart Water, Esk Water and Cradle Coast Water.

Where asset values are based on the DORC, surplus or under-utilised assets are removed through the optimisation process.

Contributed assets

GPOC's preferred approach is to remove contributed assets from the asset base. While Esk Water and Cradle Coast Water remove contributed assets, it appears that Hobart Water retains contributed assets as 'revenue' in their books. However, provision is made so that no return is earned on such assets.

Retail water

Twenty five councils apply a fair value basis for asset valuation. The remaining three councils use the depreciated replacement cost (DRC) as

consistent with ARMCANZ Guidelines for asset valuation. The asset base of all councils is adjusted to take account of all capital contributions.

The Urban Water Pricing Guidelines allow for the use of the DRC method but give preference to the use of the DORC method. Devonport is the only council using the DORC method. Some councils have considered the capacity of their water and wastewater systems and concluded that there was no discernible excess capacity that would be removed through an 'optimisation' process (in which case, the use of DRC is equivalent to the DORC).

Australian Capital Territory

Retail water

Valuing the asset base

The ICRC uses the Optimised Deprival Value (ODV) method to value the RAB for ACTEW. The ODV is defined as the costs that the asset owner would incur, or the revenue that the asset owner would forgo, were they to be deprived of the asset and its associated revenue stream.

The ICRC undertook a 'return on assets' test, as a means of estimating, over a 40-year period, the likely revenue that could be generated by the asset in its existing form (taking into account the demand projections that were made at that time). This revenue stream could then be discounted back to the implied value of the asset base for the purposes of the ODV assessment. Excess capacity and inefficiencies are removed through the optimisation process.

Contributed assets

Contributed assets are not included in ACTEW's RAB.

Northern Territory

Valuing the asset base

In the 2001 community service obligation valuation, the Utilities Commission used the DORC valuation methodology for the Power and Water Corporation's regulated water supply and sewerage service assets.

Contributed assets

The Northern Territory does not include contributed assets in the calculation of the RAB.

Appendix F: Determining the Asset Base Going Forward

New South Wales

At each water charge reset, capital expenditure undertaken since the last price review, plus that proposed to be undertaken over the price path, is added to the RAB, net of any asset disposals, contributed assets and regulatory depreciation. The value of the asset base is indexed by the movement in the CPI each year, to reflect the real value of the asset base.

At each price reset, an adjustment is made where ex-ante capital expenditure projections differ from ex-post outcomes.

The same process is followed by IPART for the Hunter Water Corporation, Sydney Water Corporation, Gosford City Council and Wyong Shire Council.

Victoria

The ESC recommends that the RAB be rolled forward each year by adding any capital expenditure that the business has undertaken since the last valuation and deducting regulatory depreciation and any asset disposals.

Queensland

For revaluation each year, the QCA recommends rolling forward the asset base by inflating the RAB with a defined index, such as the CPI, and removing the accumulated depreciation. Additional (and reasonable) asset expenditure during the period is also added.

South Australia

The initial RAV is rolled forward taking into account capital expenditure, inflation (using the CPI) and depreciation.

Western Australia

The ERA recommends that the RAB is 'rolled-forward' each determination period, by adjusting for efficient new capital expenditure, depreciation, asset disposals and inflation (using the CPI).

Tasmania

GPOC rolls forward the RAB of each of the wholesale water suppliers by indexing by the CPI, adding in capital expenditure and deducting depreciation and asset sales.

Australian Capital Territory

The RAB is rolled forward each year allowing for asset write-offs, depreciation, and inflation (using the CPI).

Northern Territory

As part of the Annual Statement of Corporate Intent process, Power and Water Corporation's water assets are rolled forward by adjusting for subsequent asset acquisitions, asset disposals, annual depreciation and inflation (using the CPI).

Appendix G: Capital Expenditure Efficiency Targets

New South Wales

Wholesale
For the Sydney Catchment Authority, an independent consultant determined that capital expenditure should be able to achieve efficiencies of between 3.5 per cent in 2005-06 and 9.5 per cent in 2008-09.

For State Water, no efficiency targets were set at the last determination.

Retail
The independent consultant recommended that capital expenditure of the Sydney Water Corporation be progressively reduced over time by a capital efficiency factor. This factor ranges from 3.5 per cent in 2006 to 9.0 per cent in 2009.

For Hunter Water, an independent consultant determined that capital expenditure should be able to achieve efficiencies of between 3.5 per cent in 2006 and 9.0 per cent in 2009.

For the Gosford City Council the independent consultant determined that capital expenditure should be able to achieve efficiencies of between 2.5 per cent in 2005-06 and 10 per cent in 2008-09. For the Wyong City Council efficiencies of between 2.5 per cent in 2005-06 and 11 per cent in 2008-09 were recommended.

Victoria

Wholesale
For urban wholesale water businesses, the ESC does not use efficiency targets to determine efficient capital expenditure. For details on how the ESC determines capital expenditure, see Attachment 2.

Retail
The same process as above is used for urban retail water businesses.

Queensland

The application of an efficiency factor was considered for GAWB as part of the QCA review. It was accepted that the application of an efficiency factor was not appropriate due to the fact that GAWB's operating cost base is relatively small. Furthermore, the pricing investigation identified that GAWB's benchmarked unit operating costs were lower compared to the utilities used for comparison in the study.

South Australia

No efficiency targets are included in the capital expenditure forecasts for SA Water.

Western Australia

Retail
The ERA does not impose efficiency targets for capital expenditure due to the lack of data on historical capital expenditure and of a process for determining efficiency targets.

Tasmania

Wholesale
GPOC assesses the efficiency of both forward capital and operating expenditures as part of it pricing investigations for the bulk water authorities.

Australian Capital Territory

Retail
Efficiency targets approved by the ICRC are included in the capital expenditure forecasts for ACTEW.

Appendix H: Victorian Capital Expenditure Process

There are three broad steps involved in the ESC's approach to assessing capital expenditure forecasts. The first step involves ensuring that any significant changes to expenditure levels are driven by realistic forecasts and verified obligations. To do this, the Commission requires that any new capital expenditure reflect clear obligations imposed by regulatory agencies, or the need to upgrade or invest in new infrastructure to meet the service expectations of customers. Businesses are required to set out the target service levels they propose to deliver over the regulatory period. They must show evidence of consultation with customers regarding their willingness to pay for service improvements.

Specifically, when assessing proposed capital expenditure forecasts, the ESC considers the detailed capital program that each business proposes to undertake over the regulatory period, as set out in its Water Plan. It considers whether:

- the proposed expenditure reflects trends in historical expenditure; the reasons underpinning any difference in the expected level from those trends; and other relevant factors (such as changes in the asset age profiles or in service levels);
- there is evidence of, and consistency with, well developed asset management planning and processes, to demonstrate that forecasts have been determined over a planning horizon that extends beyond the three year regulatory period;
- the expenditure associated with new obligations clearly reflects additional obligations that are required by the Minister for Water, other regulators (such as the EPA, DHS), or customers; and
- the proposed expenditure program is deliverable over the regulatory period.

In order to ensure that the expenditure forecasts represent efficient expenditure and that the proposed projects are deliverable over the regulatory period, the ESC engages independent consultants to review expenditure and demand forecasts for each business. Businesses are provided with an opportunity to comment of the consultants' draft findings to further clarify any issues.

Once the deliverable outcomes have been identified, the ESC determines the revenue required to generate these outcomes. The revenue must ensure that businesses remain financially viable yet do not earn monopoly profits; the revenue should enable the businesses to meet their operational and investment obligations efficiently.

The final step is then to determine the maximum prices for services to allow the business to earn the determined revenue requirement. Generally, these

price determinations take the form of an individual price cap where the prices charged by a business overall cannot be greater than this cap. Prices are then adjusted annually, throughout the regulatory period, with an inflation-linked price path.

Table 1: Main capital expenditure projects for retail water businesses, Victoria

City West Water	South East Water	Yarra Valley Water	Barwon Water	Central Highlands Water	Coliban Water	East Gippsland Water	Gippsland Water
Augment/extend water and sewerage network	Augment/extend water network	Water and sewerage replacement/renewal	Geelong northern retarding facility	Ballarat South sewer improvement scheme	Kyneton re-use scheme	Small town scheme water quality upgrades	Gippsland Water Factory
Water renewals / sewer renewals	Augment/extend sewerage network	Augment/extend water and sewerage network	Augment/extend sewerage network	Maryborough wastewater treatment plant re-use scheme	Water supply augmentation	Mitchell River Water Supply System Strategy works	Treatment plant constructions and upgrades
Recycling projects	Water renewals	Sewerage backlog - Dandenong Ranges and Yarra Valley	Wurdee Boluc water quality improvement project	Daylesford recycling	Pipeline construction	Wastewater treatment plant upgrades	Pipeline construction
	Sewer renewals	Recycling projects	Works to enclose water supply distribution system	Maryborough water treatment works improvements	Backlog sewers - Heathcote	Water and sewer renewals / replacement	Seaspray sewage scheme
Goulburn Valley Water	North East Water	South Gippsland Water	Wannon Water	Western Water	Westernport Water	GWMWater	Lower Murray Water
Kilmore - Sunday Creek Reservoir upgrade and raising	Construction of wastewater treatment facility.	Regional Saline wastewater project	Pipeline works	Melton wastewater treatment plant	Pipeline connection to Melbourne Water system	Wimmera Mallee Pipeline	Waste water treatment plant augmentation

City West Water	South East Water	Yarra Valley Water	Barwon Water	Central Highlands Water	Coliban Water	East Gippsland Water	Gippsland Water
Kilmore - headwork upgrade	Harrieteville, Mt Beauty and Wangaratta clearwater storage	Wastewater Treatment Plant upgrades	Wastewater treatment plant constructions and upgrades	Melton Blamey drive outfall sewer	Sewer extension	Waste water treatment plant review and upgrade	Decommissioning of treatment plant
Shepparton - Biosolids management facility	Yarrawonga-Tungamah-St James-Devenish pipeline.	Coalition Creek reservoir dam risk reduction works	Water supply scheme	Wastewater purification plant	Water renewals / replacement	Safety standards improvement	Water mains replacement
Treatment plant construction		Yarram off stream storage	Water reuse project	Sunbury water supply pipeline	Sewer renewals / replacement	Distribution channel structure remediation	Robinvale high pressure system
Augmentation of waste water plants		Implementation of a regional CITEC / SCADA / telemetry system					

Appendix I: WACC Parameters

New South Wales

Wholesale water
Parameters used for the most recent WACC determination for Sydney Catchment Authority, Sydney Water Corporation, Hunter Water Corporation and State Water Corporation are provided in the tables below.

WACC parameters for Sydney Catchment Authority, Sydney Water Corporation and Hunter Water Corporation

Parameter	Variable
Nominal risk free rate	5.2%
Real risk free rate	2.6%
Inflation	2.5%
Market risk premium	5.5-6.5%
Debt margin and allowance for debt raising costs	1.17-1.27%
Debt to total assets	60%
Dividend imputation factor, or gamma	0.5-0.3
Tax rate	30%
Asset beta	-
Debt beta	0
Equity beta	0.8-1.0
Cost of equity (nominal post-tax)	9.6-11.7%
Cost of debt (nominal prê-tax)	6.4-6.5%
WACC (real pre-tax)	**5.7-7.1%**

WACC parameters for State Water Corporation

Parameter	Variable
Nominal risk free rate	5.7%
Real risk free rate	2.6%
Inflation	3.1%
Market risk premium	5.5-6.5%
Debt margin and allowance for debt raising costs	1.1-1.2%
Debt to total assets	60%
Dividend imputation factor, or gamma	0.5-0.3
Tax rate	30%
Equity beta	0.8-1.0
Cost of equity (nominal post-tax)	10.1-12.2%
Cost of debt (nominal prê-tax)	6.8-6.9%
WACC (real pre-tax)	**5.6-7.1%**

Retail water
Parameters used for the most recent WACC determination for Gosford City and Wyong Shire Councils are provided in the table below.

WACC parameters for Gosford City Council and Wyong Shire Council

Parameter	Variable
Nominal risk free rate	5.3%
Real risk free rate	2.3%
Inflation	2.9%
Market risk premium	5.5-6.5%
Debt margin and allowance for debt raising costs	1.1-1.2%
Debt to total assets	60%
Dividend imputation factor, or gamma	0.5-0.3
Tax rate	30%
Asset beta	0
Debt beta	0
Equity beta	0.8-1.0
Cost of equity (nominal post-tax)	9.7-11.8%
Cost of debt (nominal prê-tax)	6.4-6.5%
WACC (real pre-tax)	**5.3-6.7%**

Victoria

Parameters used by ESC for the most recent WACC determination for all Victorian water businesses (wholesale and retail) are provided in the table below.

Victorian WACC for all water businesses

Parameter	Value
Real risk free rate	2.7%
Equity beta	0.75
Market risk premium	6.0%
Debt margin	1.2%
Financing structure	60%
Franking credit value	0.5
WACC real post-tax	5.2%

Queensland

Wholesale water
QCA define the after tax WACC for a company (assuming that dividend imputation credits are not included in the company's cash flows) as follows:

WACC after tax = (1-t)[re /(1-t(1-g)) · E/(E+D) + rd· D/(E+D)]
Where:
re = expected after tax return on equity
rd = before tax cost of debt

D = market value of debt
E = market value of equity
t = corporate tax rate
g = assumed utilisation of franking credits (adapted from Officer 1994).

WACC parameters for the Gladstone Area Water Board

Parameter	Value
Nominal risk free rate	5.41%
Market risk premium	6.0%
Debt margin	1.36%
Capital structure	50%
Dividend imputation or gamma	0.5
Equity beta	0.64

South Australia

Parameters used by South Australian Department of Treasury and Finance for the 2006-07 WACC determination for SA Water are provided in the table below.

Values of WACC input parameters

Assumptions	**Low**	**High**
Market risk premium (Rm-Rf, MRP)	5%	6%
Risk free interest rate Rf (real)		
Risk free interest rate Rf (nominal)	5.95%	5.95%
Corporate tax rate	30%	30%
Gamma	0.5	0.5
Inflation forecast (I)	2.5%	2.5%
Debt margin (DM)	1%	1.2%
Allowance for debt raising costs	-	-
Cost of debt (pre-tax nominal) (Kd)	6.95%	7.15%
Cost of debt (post-tax nominal) (Kd (1-T))	4.87%	5.01%
Debt: Entity value (D/V)	50%	60%
Asset beta (Ba)	0.40	0.45
Debt beta (Bd)	0.2	0.1
Equity beta (Be)	0.60	0.98
Cost of equity (post-tax nominal) (Ke)	8.95%	11.80%
WACC results		
Nominal post-tax	6.12%	6.89%
Real pre-tax	6.09%	7.16%

Western Australia

Parameters recommended by ERA for the Water Corporation, AQWEST and Busselton Water Boards are provided in the table below.

Parameters used by ERA to determine WACC for the Water Corporation, AQWEST and Busselton Water Board

CAPM Parameter	Water Corporation Values (as at Nov 05)	AQWEST and Busselton Values
Nominal Risk Free Rate	5.23%	5.23%
Real Risk Free Rate	2.42%	2.42%
Inflation Rate	2.74%	2.74%
Debt Proportion	60.0%	40.0%
Equity Proportion	40.0%	60.0%
Cost of Debt; Debt Risk Premium	1.000%	1.000%
Cost of Debt; Debt Issuing Cost	0.125%	0.125%
Cost of Debt; Risk Margin Australian Market	1.125%	1.125%
Risk Premium	6.00%	6.00%
Debt Beta	0.19	0.19
Equity Beta	0.80	0.60
Asset Beta	0.43	0.44
Corporate Tax Rate	30.0%	30.0%
Franking Credit	50.0%	50.0%
Nominal Cost of Debt	6.36%	6.36%
Real Cost of Debt Nominal Pre-Tax Cost of	3.51%	3.51%
Equity	11.80%	10.39%
Real Pre-Tax Cost of Equity	8.81%	7.44%
Nominal After-Tax Cost of Equity	10.03%	5.83%
Real After Tax Cost of Equity	7.09%	5.92%
Nominal Pre-Tax WACC	8.53%	8.77%
Real Pre-Tax WACC	**5.63%**	**5.87%**
Nominal After-Tax WACC	5.97%	6.14%
Real After Tax WACC	3.14%	3.31%

Tasmania

Wholesale water

Parameters used by GPOC for Hobart Water, Esk Water and Cradle Coast Water are provided in the table below.

WACC parameters used by GPOC for Hobart Water, Esk Water and Cradle Coast Water

Parameter	Low	Medium	High
Nominal risk free rate (10 year bond rate, 45 day rolling average to 31 March 2004)	5.53	5.53%	5.53%
Implied inflation rate	2.14%	2.14%	2.14%

Real risk free rate	3.32%	3.32%	3.32%
Market risk premium	6.0%	6.0%	6.0%
Debt margin	0.7%	0.7%	0.7%
Nominal market return	11.53%	11.53%	11.53%
Debt to equity	50%	50%	50%
Dividend imputation factor	0.5	0.5	0.5
Asset beta	0.3	0.45	0.55
Debt beta	0.12	0.12	0.12
Tax rate	30%	30%	30%
Equity beta	.4950	0.7725	0.9575
Nominal post tax cost of equity	8.5%	10.17%	11.28%
Nominal pre-tax cost of debt	6.23%	6.23%	6.23%
WACC post tax nominal	5.68%	6.37%	6.82%
WACC pre-tax nominal	8.12%	9.09%	9.75%
WACC post tax real	3.47%	4.14%	4.59%
WACC pre-tax real	5.85%	6.81%	7.45%

Retail water

GPOC recommends a benchmark WACC of 7 per cent to determine the *upper bound* for local councils in earning a return on water business capital. The benchmark rate is determined by reference to that applied to the Bulk Water Authorities and urban water suppliers in other jurisdictions.

Australian Capital Territory

Parameters used by ICRC in the most recent determination of the WACC for ACTEW are provided in the table below.

WACC parameters used by ICRC for ACTEW

Parameter	Value
Risk free rate	5.62%
CPI	2.17%
Real risk free rate	3.38%
Market risk premium	6.0%
Debt margin	1.245%
Gearing	60%
Gamma	0.50
Asset base	0.40
Debt beta	0.06
Tax rate	30%
Equity beta (calculated)	0.90
WACC (nominal post tax)	6.51%
WACC (pre-tax nominal)	9.31%
WACC (pre-tax real)	7.0%

Appendix J: Depreciation

Depreciation reflects the progressive consumption of the service potential embodied in an asset. Most water businesses apply the straight line method to calculate depreciation. Differences arise in the life of the asset over which depreciation is calculated.

New South Wales

Wholesale water
The straight-line depreciation method is used to calculate the return of capital (depreciation) allowance for the Sydney Catchment Authority and for State Water.

For the Sydney Catchment Authority, depreciation is applied to existing assets with estimated lives of 70 years, and to new assets with estimated lives of 100 years.

For State Water, depreciation is applied to existing assets (prior to 1 July 2004) with estimated lives of 160 years, and to new assets (post 1 July 2004) with estimated lives of 75 years.

Retail water
The straight-line depreciation method is used to calculate depreciation for the Sydney Water Corporation, Hunter Water Corporation, Gosford City Council and Wyong Shire Council.

For these water businesses, depreciation is applied to existing assets with estimated lives of 70 years, and to new assets with estimated lives of 100 years.

Victoria

Wholesale water
The straight-line depreciation method is applied to the inflation-indexed asset bases of Melbourne Water, Southern Rural Water and Goulburn Murray Water. Depreciation is applied to the average effective life span of the asset base of each water business.

However, the ESC will consider whether in future it should review the classification of assets by each of the businesses, with a view to achieving greater standardisation of asset classes and types. This would enable a more comparable regulatory depreciation allowance to be calculated for each of the businesses.

Retail water
Straight line depreciation is also applied over the effective life span of the asset bases of retail water storage and delivery agencies in Victoria.

Queensland

Wholesale water
Straight line depreciation is used for all assets over the condition-based remaining asset lives of both the Gladstone Area Water Board and the Mount Isa Water Board.

Retail water
Treatment of return of capital (depreciation) is carried out in accordance with Queensland Competition Authority's pricing principles.

South Australia

Depreciation is estimated by using the straight line method and is included in the calculation of the upper revenue bound for SA Water.

Western Australia

Wholesale water
The Water Corporation applies a straight-line depreciation schedule based on the indexed RAB and standard asset lives.

Retail water
The ERA recommends straight line depreciation allowances for AQWEST and Busselton Water Board on the assumption of an average remaining life of 40 years for existing assets and an average life for new assets of 65 years.

Tasmania

Wholesale water
GPOC estimates depreciation for Hobart Water, Esk Water and Cradle Coast on the basis of the straight-line method, using the useful life of each asset type.

For Hobart Water, the economic life of non-current infrastructure assets is between 10 and 140 years.

Retail water
For council assets valued using the deprival value, depreciation is based on the economic loss of service potential, as measured by conventional depreciation methods.

Australian Capital Territory

The ICRC uses the straight-line approach to calculate depreciation for ACTEW. For existing water assets, an estimated life of 44 years is used; for new assets an estimated life of 66 years is used.

Northern Territory

In the 2001 community service obligation valuation, the Utilities Commission used the straight line depreciation method.

Appendix K: Operating Expenditure Efficiency Targets

New South Wales

Wholesale water
For the Sydney Catchment Authority, the efficiency factor was zero for 2005-06 to account for the drought, and 1.9 per cent for 2006-07. For State Water, efficiency factors of three per cent per year are expected.

Retail water
For the Sydney Water Corporation where operating expenditure is linked to capital expenditure, an efficiency target of 3.5 per cent for 2005-06 was set, and 0 to 0.1 per cent where costs are not dependent on capital expenditure. For Hunter Water, the efficiency target ranged from 0.4 per cent in 2005-06 to 3.3 per cent in 2008-09. For Gosford City Council the efficiency target was set at 1.2 per cent per year and at one per cent per year for the Wyong Shire Council.

Victoria

Wholesale water
For Melbourne Water, Southern Rural Water and Goulburn Murray Water, an efficiency factor of one per cent per year is included for business as usual operating costs.

Retail water
As with the wholesale water price determinations, the ESC includes an efficiency factor of one per cent per year for business as usual operating costs.

Western Australia

Retail water
An efficiency factor of 1.25 per cent per year in real terms was included for AQWEST, Busselton Water Board and the Water Corporation.

Australian Capital Territory

Retail water
In addition, an efficiency factor of one per cent has been included for ACTEW's operating costs each year.

Appendix L: Retail Water Tariffs (Residential)

New South Wales

Water Business	Type of Tariff (05/06)	Access Charge (or Minimum)		Usage Charges											
New South Wales		($)		Step 1 (kL)		Charges (c/kL)		Step 2 (kL)		Charges (c/kL)		Step 3 (kL)		Charges (c/kL)	
		05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7
Major Urban Utilities															
Sydney Water	Inclining Block	76	64	<400	<400	120	126	>400	>400	148	163				
Hunter Water	Declining Block	32	35	<1000	<1000	109	114	>1000	>1000	103	110				
Gosford	Two Part	81	83	All	All	93	112								
Wyong	Two Part	92	108	All	All	93	112								
Non-Major Urban Utilities															
Shoalhaven	Inclining Block	95	79	<450	<450	70	80	>450	>450	105	120				

Water Business	Type of Tariff (05/06)	Access Charge (or Minimum)		Usage Charges											
New South Wales		($)		Step 1 (kL)		Charges (c/kL)		Step 2 (kL)		Charges (c/kL)		Step 3 (kL)		Charges (c/kL)	
		05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7
Rous (Bulk Supplier) (No Sge)	Two Part	104	108	All	All	96	96								
Tweed	Two Part	90	95	All	All	82	104								
Port Macquarie-Hastings (Unfiltered)	Inclining Block	113	110	<270	<270	125	138	>270	>270	250	276				
Riverina (Groundwater) (No Sge)	Two Part	80	80	All	All	70	72								
Coffs Harbour (Unfiltered)	Inclining Block	200	104	All	<365	136	182		>365		200				
Albury City	Inclining Block	84	84	<250	<225	45	47	>250	>225	90	94				
Tamworth Regional	Inclining Block	150	155	<450	<450	80	83	450 to 900	450 to 900	85	88	>900	>900	85	90
Clarence Valley	Two Part	90	96	All	All	98	105								
Eurobodalla (Unfiltered)	Two Part	220	240	All	All	120	130								
Wingecarribee	Inclining Block	197	99	<150	<300	53	124	150 to 5000	300 to 5000	143	185	>5000	>5000	143	169
Queanbeyan (Reticulator)	Inclining Block	238	247	<176	<176	100	145	>176	>176	150	195				

Water Business	Type of Tariff (05/06)	Access Charge (or Minimum)		Usage Charges											
New South Wales		($)		Step 1 (kL)		Charges (c/kL)		Step 2 (kL)		Charges (c/kL)		Step 3 (kL)		Charges (c/kL)	
		05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7
Dubbo	Inclining Block	175	110	<550	<550	70	87	>550	>550	105	131				
Orange	Inclining Block	102	102	<450	<450	141	141	>450	>450	212	212				
Goulburn Mulwaree	Inclining Block	256	208	<292	<292	70	126	>292	>292	157	181				
Bathurst Regional	Inclining Block	250	259	>45	<300	50	43	>255	>300	80	85				
Lismore (Reticulator)	Two Part	100	100	All	All	111	122								
Bega Valley (Unfiltered)	Two Part	125	135	All	All	110	140								
Ballina (Reticulator)	Inclining Block	95	95	<350	<350	82	90	>350	>350	105	120				
Kempsey (Groundwater)	Two Part	265	265	All	All	86	89								
Country Energy	Inclining Block	185	185	<400	<400	71	76	>400	>400	220	236				

Water Business	Type of Tariff (05/06)	Access Charge (or Minimum)		Usage Charges											
New South Wales		($)		Step 1 (kL)		Charges (c/kL)		Step 2 (kL)		Charges (c/kL)		Step 3 (kL)		Charges (c/kL)	
		05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7
MidCoast (Unfiltered)	Two Part	140	130	All	All	120	135								
Byron (Reticulator)	Two Part	101	103	All	All	108	120								
Goldenfields (Reticulator) (No Sge)	Two part	204	204	All	All	106	110								

Victoria

Water Business	Type of Tariff (05/06)	Access Charge (or Minimum)		Usage Charges											
Victoria		($)		Step 1 (kL)		Charges (c/kL)		Step 2 (kL)		Charges (c/kL)		Step 3 (kL)		Charges (c/kL)	
		05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7
Major Urban Utilities															
South East Water	Inclining Block	44	45	<160	<160	78	81	160-320	160 -320	92	96	>320	>320	144	155
Yarra Valley Water	Inclining Block	58	61	<160	<160	78	82	160-320	160 -320	92	96	>320	>320	136	142
Barwon Water	Two Part	130	141	All	All	83	90								
Gippsland Water	Two Part	79	82	All	All	92	94								
City West Water	Inclining Block	97	101	<160	<160	78	82	160-320	160 -320	92	96	>320	>320	136	142
Western Water	Inclining Block	128	132	<160	<160	77	81	160-320	160 -320	91	95	>320	>320	134	140
Central Highlands Water	Inclining Block	74	79	All	All	99	107								

Water Business	Type of Tariff (05/06)	Access Charge (or Minimum)		Usage Charges											
Victoria		($)		**Step 1** (kL)		**Charges** (c/kL)		**Step 2** (kL)		**Charges** (c/kL)		**Step 3** (kL)		**Charges** (c/kL)	
		05/6	**06/7**	**05/6**	**06/7**	**05/6**	**06/7**	**05/6**	**06/7**	**05/6**	**06/7**	**05/6**	**06/7**	**05/6**	**06/7**
Coliban Water	Inclining Block	112	115	<200	<200	61	67	200 -400	200-400	74	81	>400	>400	121	133
Goulburn Valley Water	Two Part	101	107	All	All	51	55								
Non-major Urban Utilities															
East Gippsland Water	Two Part	133	144			78	85								
Lower Murray Water	Seasonal Inclining Block Summer (S) and Winter (W)	125	129	<600 (S) <200 (W)	<600 (S) <200 (W)	25	26	600-1200 (S) 200-400 (W)	600-1200 (S) 200-400 (W)	45	47	>1200 (S) >400 (W)	>1200 (S) >400 (W)	58	62
GWMWater	Two Part	228	260	All	All	95	100								
North East Water	Two Part	107	110	All	All	58	64								
South Gippsland Water	Two Part	262	274	All	All	78	88								

Water Business	**Type of Tariff (05/06)**	**Access Charge (or Minimum)**		**Usage Charges**											
Victoria		($)		**Step 1** (kL)		**Charges** (c/kL)		**Step 2** (kL)		**Charges** (c/kL)		**Step 3** (kL)		**Charges** (c/kL)	
		05/6	**06/7**	**05/6**	**06/7**	**05/6**	**06/7**	**05/6**	**06/7**	**05/6**	**06/7**	**05/6**	**06/7**	**05/6**	**06/7**
Wannon Water	Inclining Block	176	185	All	All	65	69	<300	<300	98	103	>300	>300		
Westernport Water	Two Part	228	244	All	All	107	110								

Queensland

Water Business	Type of Tariff (05/06)	Access Charge (or Minimum)		Usage Charges											
Queensland		($)		**Step 1** (kL)		**Charges** (c/kL)		**Step 2** (kL)		**Charges** (c/kL)		**Step 3** (kL)		**Charges** (c/kL)	
		05/6	**06/7**	**05/6**	**06/7**	**05/6**	**06/7**	**05/6**	**06/7**	**05/6**	**06/7**	**05/6**	**06/7**	**05/6**	**06/7**
Major Urban Utilities															
Brisbane Water					<200		91		200 to 300		94		>300		120

South Australia

Water Business	Type of Tariff (05/06)	Access Charge (or Minimum)		Usage Charges											
South Australia		($)		Step 1 (kL)		Charges (c/kL)		Step 2 (kL)		Charges (c/kL)		Step 3 (kL)		Charges (c/kL)	
		05/6	06/7	05/6	06/7	05/06	06/7	05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7
Major Urban Utilities															
SA Water	Inclining Block	145	148	<125	<125	46	47	>125	>125	106	109				

Tasmania

Water Business	Type of Tariff (05/06)	Access Charge (or Minimum)		Usage Charges											
Tasmania		($)		Step 1 (kL)		Charges (c/kL)		Step 2 (kL)		Charges (c/kL)		Step 3 (kL)		Charges (c/kL)	
		05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7
Major Urban Utilities															
Hobart City Council	Single	0													
Glenorchy City Council	Single	246													
Clarence City Council	Single	258													
Launceston City Council	Two Part/ Progressive Block	75		<365		35		>365		45					
Devonport City Council	Two Part	220		All		35									

Australian Capital Territory

Water Business	Type of Tariff (05/06)	Access Charge (or Minimum)		Usage Charges											
Australian Capital Territory		($)		Step 1 (kL)		Charges (c/kL)		Step 2 (kL)		Charges (c/kL)		Step 3 (kL)		Charges (c/kL)	
		05/6	06/7	05/6	06/7	05/6	06/07	05/6	06/7	05/6	06/7	05/6	06/7	05/6	06/7
Major Urban Utilities															
ACTEW		75	75	<100	<100	58	66	100 to 300	100 to 300	113.5	129	>300	>300	153	174

Western Australia

WATER BUSINESS	Usage Charges															
WESTERN AUSTRALIA	**Step 1**	(c/Kl)	**Step 2**	(c/Kl)	**Step 3**	(c/Kl)	**Step 4**	(c/Kl)	**Step 5**	(c/Kl)	**Step 6**	(c/Kl)	**Step 7**	(c/Kl)	**Step 8**	(c/Kl)
Major Urban Utilities																
Water Corporation	<150	49	150 to 350	73	350 to 550	95	550 to 950	127	>950	159						
Non-Major Urban Utilities																
AQWEST	<150	39	151 to 350	69	350 to 500	100	500 to 700	131	700 to 1000	157	>1000	228				
Busselton Water	<150	42	150 to 350	61	350 to 550	67	550 to 750	80	750 to 1150	132	1150 to 1550	189	1550 to 1950	219	>1950	253

Northern Territory

Water Business	Type of Tariff (05/06)	Access Charge (or Minimum)		Usage Charges											
Northern Territory		($)		**Step 1** (kL)		**Charges** (c/kL)		**Step 2** (kL)		**Charges** (c/kL)		**Step 3** (kL)		**Charges** (c/kL)	
		05/6	**06/7**	**05/6**	**06/7**	**05/6**	**06/7**	**05/6**	**06/7**	**05/6**	**06/7**	**05/6**	**06/7**	**05/6**	**06/7**
Major Urban Utilities															
Power and Water Corporation	Two Part	103	106	>0	>0	68	69								
Non-Major Urban Utilities															
Power and Water Corporation	Two Part	103	106	>0	>0	68	69								

Appendix M: Non-Residential Water Tariffs

The following section provides a summary of non-residential water tariffs across jurisdictions.

For the purposes of this document, non-residential customers include industrial (excluding mining and quarrying) and other commercial (non-residential) customers.

Across each jurisdiction, non-residential water tariffs comprise a fixed, annual water access or water service charge and a volumetric (or usage) charge. Both the access charge component and the usage charge component, may be payable quarterly, tri-annually, bi-annually or annually. For simplicity, the figures presented reflect the annual charge payable.

New South Wales

The access or service fee used in each of the four metropolitan water authorities (Sydney Water, Hunter Water, Gosford City Council and Wyong Shire Council) in New South Wales is calculated on the meter size.

Sydney Water, Gosford City Council and Wyong Shire Council use a flat rate usage charge. Hunter Water uses a declining block usage charge.

Appendix Table 1 outlines access and usage charges across the four metropolitan water authorities in New South Wales.

Table 1: Non-residential water tariffs in New South Wales

Water Authority	Access/Service Charge ($/Annum)	Usage Charge ($/KL)
Sydney Water	Meter size dependent – ranging from $64 (20mm) - $1 610 (100mm)	$1.26/KL
Gosford City Council	Meter size dependent – ranging from $98 (20mm) - $2 095 (100mm)	$1.12/KL
Wyong Shire Council	Meter size dependent – ranging from $107 (20 mm) - $2 304 (100mm)	$1.12/KL
Hunter Water	Meter size dependent – ranging from $35 (20mm) - $876 (100mm)	0-1000 KL - $1.14 >1000 KL - $1.10 >50000 KL - $0.91-$1.05 (location dependent)

Victoria

The access or service fee used across the retail water authorities in Victoria, varies between a flat-rate, a flat-rate per KL, or a flat fee calculated on the meter size.

The usage charge is recovered either through an inclining block tariff; a flat-rate; or a flat-rate or inclining block tariff that varies depending on the location of a customer within the water authorities' jurisdiction.

Table 2: Non-residential water tariffs in Victoria

Water Authority	Access/Service Charge ($/annum)	Usage Charge ($/KL)
City West Water	$148	$0.91/KL
South East Water	$0.1135/KL	$0.95/KL
Yarra Valley Water	$94	$0.84/KL
Grampians Wimmera Mallee	Location and meter size dependent – ranging from $250 (20mm) - $8000 (100mm)	Location dependent – ranging from $0.50 - $1.00/KL
Lower Murray Water	Meter size dependent – ranging from $125 (20mm) - $2 765 (100mm)	0-150KL - $0.25/KL >150KL - $0.45/KL
Barwon Water	$141	$0.90/KL
Coliban Water	Meter size dependent – ranging from $116 (20mm) - $2170 (100mm)	Location dependent – ranging from $0.46 - $0.73
Central Highlands Water	$79	Location dependent – ranging from $0.45 - $1.07/KL
Gippsland Water	Meter size dependent – ranging from $82 (20mm) - $2 039 (100mm)	$0.94/KL
Goulburn Valley Water	Meter size dependent – ranging from $107 (20mm) - $2 677 (100mm)	$0.55/KL
Western Water	Meter size dependent – starting from $132 (20mm)	$0.89/KL
Westernport Water	$244 (20mm) - $16 816 (100mm)	$1.10/KL
Wannon Water	Location and meter size dependent – ranging from $175 (20mm) - $4 391 (100mm)	Location dependent – ranging from $0.26 - $1.30/KL
South Gippsland Water	Location dependent – ranging from $183 - $274	Location dependent – ranging from $0.88 - $1.08/KL

East Gippsland Water	$144 (20mm) - $3 610 (100mm)	$0.85/KL
North East Water	Location dependent – ranging from $110 (20mm) - $3 369 (100mm)	Location dependent – ranging from $0.64 - $0.67/KL

Queensland
The access or service fee applied by the major urban water authorities in Queensland is calculated based on either a flat rate, or on a flat-rate calculated on the size of the meter.

Across Queensland, the usage charge varies between a flat rate, an inclining block tariff, or a declining block tariff.

Table 3 outlines the access and usage charges for non-residential tariffs being applied across the major urban water authorities in Queensland.

Table 3: Non-residential water tariffs in Queensland

Water Authority	Access/Service Charge ($/Annum).	Volumetric/Usage Charge ($/KL/annum)
Brisbane Water	$113	0-200KL - $1/KL 201-400KL - $1.02/KL >400KL - $1.32/KL
Logan Water	$165 (20mm) - $4 125 (100mm)	$0.86/KL
Ipswich Water	$210 (20mm) - $5 250 (100mm)	0-320KL - $0.88/KL 321-480KL - $1.24/KL >480KL - $1.39/KL
Gold Coast Water	$215	$1.16/KL
Maroochy Water	$146 (20mm) - $3 650 (100 mm)	$0.90/KL
CitiWater	$689	0-100 000KL - $1.99/KL >100 000KL - $1.55/KL
Cairns Water	$148	$0.81/KL

South Australia
In 2006-07, South Australia‘s water access or service charges are set to equal 0.094% of the property value, with a minimum annual charge of $164.

In 2006-07, the usage charge in South Australia is calculated through the use of an inclining block tariff, with the first 125KL/annum charged at $0.47/KL. Additional water use above 125KL/annum is charged at $1.09/KL.

Western Australia
In the past, Western Australia has used the Gross Rental Value to determine the access charge applicable for non-residential water connections. Western

Australia is currently undertaking a restructure of charges for non-residential water tariffs. The new tariffs are being phased in annually, between 1 July 2005 and 1 July 2010. As part of the restructuring process, the use of Gross Rental Values to determine access charges will be phased out and the new access or service charges will vary depending on the size of the meter. A usage charge will be phased in.

The usage charge in Western Australia will be calculated through the use of a location dependent, inclining block tariff.

Table 4 outlines the structure of the new charges as they will apply once fully phased in.

Table 4: Non-residential water tariffs in South Australia

Water Authority	Access/Service Charge ($/Annum).	Volumetric/Usage Charge ($/KL/annum)
Water Corporation	Meter size dependent – ranging from $494 (20mm) - $12 338 (100mm)	Metropolitan 0-600KL - $0.76/KL 601KL – 1 100 000KL - $0.84/KL >1 100 000KL - $0.82/KL Non-metropolitan 0-300KL - $0.88 - $1.43 (location dependent) >300KL - $1.53 - $2.96 (location dependent)
Busselton Water Board	Meter size dependent – ranging from $346 (20mm) - $8 561 (100mm)	0-1000KL - $0.77/KL >1000KL - $1.10/KL
AQWEST - Bunbury Water	Meter size dependent – ranging from $333 (20mm) - $8 325 (100mm)	0-1000KL - $0.72 >1000KL - $1.05

Northern Territory

In the Northern Territory, the Power and Water Corporation charges an annual access fee dependent on meter size. The access or service charge ranges from $105 (up to a 25mm connection) to $1 706 (for a 100mm connection) per annum.

Water usage is charged at $0.69 per KL.

Australian Capital Territory

In the Australian Capital Territory, a flat-rate access charge is applied to un-metered customers. There is no difference between the tariffs for residential and non-residential customers.

Table 5 outlines the water tariff in the Australian Capital Territory.

Table 5: Non-residential water tariffs in the Australian Capital Territory for 2006/07

Water Authority	Access/Service Charge ($/Annum).	Volumetric/Usage Charge ($/KL/annum)
ACTEW	$75	0 – 100KL - $0.66/KL 101 – 300KL - $1.29 >300KL - $1.74

Water usage between 0 and 100 KL is charged at $0.66/KL. Water usage between 101 KL and 300 KL is charged at $1.29/KL. Water usage in excess of 300 KL is charged at $1.74/KL.