Government of Western Australia

DEPARTMENT OF TREASURY AND FINANCE

Inquiry on Urban Water and Wastewater Pricing

SUBMISSION TO THE ECONOMIC REGULATION AUTHORITY

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ABBREVIATIONS

ACCC	Australian Competition and Consumer Commission
ASX	Australian stock exchange
bps	basis points
Aqwest	Bunbury Water Board (Aqwest)
Busselton Water	Busselton Water Board
CAPM	capital asset pricing model
CSO	community service obligation
COAG	Council of Australian Governments
DoE	Department of the Environment
DTF	Department of Treasury and Finance
DORC	depreciated optimised replacement cost
ERA	Economic Regulation Authority
FAAA	*Financial Administration and Audit Act 1985*
GL	gigalitre (one million kilolitres – 1×10^9)
GBE	government business enterprise
IWSS	integrated water supply scheme
IFRS	International Financial Reporting Standards
kL	kilolitre (one thousand litres – 1×10^3)
MRP	market risk premium
NCC	National Competition Council
NCP	National Competition Policy
IPART	Independent Pricing and Regulatory Tribunal
OAG	Office of the Auditor General
OWP	Office of Water Policy
SCI	Statement of Corporate Intent
SDP	Strategic Development Plan
WRC	Water and Rivers Commission
WB Act	*Water Boards Act 1904*
WC Act	*Water Corporation Act 1995*
WACC	weighted average cost of capital

EXECUTIVE SUMMARY

The Department of Treasury and Finance's (DTF) plays a central role in managing Western Australia's public sector finances and providing analysis and advice on the strategies and frameworks necessary for maintaining the State's economic and financial position.

One key aspect of this role is the oversight of Western Australia's government business enterprises (GBEs). These are government-owned agencies that are mainly engaged in the production of goods and services with the requirement to substantially or fully recover their costs. DTF is interested in the productivity and efficiency of these GBEs to help their costs and prices are as low as possible to foster economic growth, meet community needs and achieve a reasonable return for the Government as the shareholder.

The Water Corporation is by far the largest GBE in terms of dividends and tax equivalent payments made to the Government. It receives approximately 40% of the total community service obligation (CSO) payments from the Government. The Water Corporation has a total asset base of almost $10 billion and a five year capital investment program of over $2 billion.

Aqwest and Busselton Water are much smaller GBEs and do not currently pay dividends or receive CSO funding. However, the Government, in consultation with Aqwest and Busselton Water, is in the process of amending the current corporate governance arrangements applying to these Boards. The aim is provide greater flexibility and autonomy, while maintaining accountability, in line with corporatisation principles.

Water and wastewater services are fundamental to the living standards enjoyed by each Western Australian household and to the competitiveness of Western Australian businesses. The Economic Regulation Authority's (ERA) transparent analysis and reporting on prices for urban water and wastewater services provided by the Water Corporation and the Water Boards will be a valuable input to the Government decision-making processes.

Price regulation

In a competitive market firms must be responsive in setting prices and the quality and reliability of their goods and services. Monopoly firms are not subject to competition and could either set prices to maximise revenue, over invest in some assets ("gold plating"), or provide poor levels of quality and reliability.

As public monopolies, the Water Corporation and the Water Boards are therefore subject to regulations set by the Government to ensure the prices charged are not monopoly prices and the quality of their services meet community expectations. The Government also sets environmental and health standards that impact on water and wastewater services.

An important issue for the ERA examining water and wastewater prices in Western Australia is the efficiency of the investments made by the service providers and the timing of those investments. As outlined in the submission, investing in source development or over-engineering a treatment plant can have significant costs, not only in dollar terms but also opportunity costs for funding other Government priorities.

The ERA Inquiry is expected to also introduce greater transparency to the price setting process and allow consumers more input into the way prices are charged and the service standards that are delivered by the providers.

The method employed by other regulators across Australia and one that will be adopted by the ERA is to measure the service providers' recovery of a range of costs that a private provider would be expected to recover.

Accepting the competitive market standard in this form of cost recovery and price regulation means that the monopoly provider acts as if it were a firm in a competitive market which must compete for its customers and avoid excessive charging and poor service levels which could otherwise result from an unregulated monopoly provider.

Supply, demand and water prices

There is a perception among stakeholders in the water industry that prices do not affect the demand for water or the supply. However, there is strong evidence in Western Australia and other comparable locations throughout the world that prices do impact on the amount of water demanded by consumers, but to varying degrees for different uses.

For example, indoor use is generally unresponsive to price movements because of the essential nature of many of the uses, that is, for uses such as drinking, cleaning and personal hygiene and these uses, about which there have been social and equity concerns, have been referred to as 'water for life'. However, many outdoor uses are clearly discretionary and, therefore, far more responsive to movements in prices.

Evidence suggests that while outdoor water uses are not very highly price responsive, a 5% increase in price can result in about a 1.5% reduction in consumption. The reductions in consumption can result from greater care in water use and prevention of wastage, making appropriate price signals a valuable component to other means of demand management. Clearly pricing signals can be a useful complement to other demand management initiatives.

The challenge for the ERA is to determine the best way to structure prices and tariffs so they:

- send appropriate signals to consumers about the efficient level of demand (an important aspect in a drying climate like Western Australia);

- promote efficient investment decisions (incorrect levels and timing of investments can lead to significant costs borne by the community);

- recover sufficient revenue for the service provider, to ensure financial viability; and

- recover costs of managing the water resource.

The most appropriate application of these principles is through a two-part tariff structure where the consumer pays a fixed charge (for the service to be available) and a volumetric charge, often applied through increasing blocks of consumption (to recover the long run marginal cost of providing the service).

It is fairly common practice in Australia for water service providers to set a number of block tariffs, with the associated charges increasing as the volume of water supplied increases. This structure is designed to signal to customers the increasing cost of demanding more water by having to meet that demand through the development of increasingly expensive water sources. It is argued in this submission that a fewer, rather than larger, number of block tariffs and perhaps more frequent billing cycles would provide a clearer signal to consumers about how much their consumption is costing and therefore allowing them to respond to increases in prices more effectively. Having at least two blocks would allow low levels of consumption corresponding to 'water for life' to be priced differently from the price of a high consumption block which correspond to the full long run marginal cost of the water. Pricing at the long run marginal cost can help ensure new sources are only developed in time for when the value consumers put on the additional water source exceed the cost of the water.

Developing an expensive source too early can lead to significantly higher costs to the consumer by having to pay for more expensive water before the demand justifies the supply. For example, not progressing the 45GL desalination plant in Kwinana two years earlier has saved $50 million in operating costs and the opportunity to utilise $350 million of capital for other government services.

Resource management costs (the cost to the Government of sustainably managing the water resource) have not been recovered through the cost of water to the consumer in the past. However, this is obviously a cost which results from water use and increases with increased water use. An appropriate charge may also promote a greater awareness of environmental issues in the community and an awareness of how water supply services can impact on the environment. Many States and Territories (excluding Western Australia) have started charging consumers to recover costs for the management of the water resource to ensure its sustainability.

Subsidies in the water industry

The Water Corporation receives almost 40% of the total CSO funding in Western Australia, which accounts for about 55% of total CSO funding in the Australian water industry. In 2003/04, CSO funding to the Water Corporation was over $260 million.

The subsidies paid to the Water Corporation are for: the application of the uniform tariff (ensuring consumers in country areas are not charged significantly more than in the metropolitan area); for senior and pensioner concessions; and for when the Government requires the Water Corporation to do something that is not commercial (often involving the provision of a service in regional/isolated areas).

The subsidisation of water services is warranted in many circumstances. However, it should be noted that consumers are likely to demand more of a good or service if they do not pay the full cost for it (i.e. if the Government is subsiding its supply). The implications of this for a scarce resource like water are that it distorts price and investment signals and can work against the effectiveness of any demand management initiatives. Subsidies must therefore be well targeted with transparent objectives and, where possible, operational subsidies should be minimised, or phased out, over time.

Standards of service

As indicated above, without appropriate regulation a monopoly provider has no incentive to maintain satisfactory levels of service standards.

Even under the existing arrangement where the standards of the Water Corporation, Aqwest and Busselton Water are strongly regulated by the Government, the consumer is often not aware of the standards and more importantly, the cost of adhering to those standards.

An important outcome of this inquiry process will be greater transparency in setting service standards and the associated costs. Through the consultation process of this Inquiry it is hoped the ERA will be able to gauge the community's acceptance of higher service standards and how they value them. In some instances consumers may not be well informed about the level of service standards and they need to be determined on the consumer's behalf. The benefits of these higher standards need to be weighed against the costs to decide whether they are in the public interest.

INTRODUCTION

Objective of the Inquiry

Regulation has been applied to the water industry, through regulators such as the ERA, because of the industry's monopoly service providers, its importance for economic development, and its importance from a health and social equity perspective.

Further key reasons for price regulation in an industry exhibiting natural monopoly characteristics are:

- in the absence of regulation, a monopolist would have an incentive to set prices to maximise revenue, which is above the socially desirable price level;
- economic efficiency would be negatively impacted due to monopoly prices being set; and
- fair and reasonable third party access to the networks is required for competition to develop in upstream and downstream markets.

The oversight of prices by an independent regulator can avoid these problems by imposing benchmarks and appropriate service standards that ensures the providers do not charge monopoly prices or allow standards to fall.

It was for largely these reasons that in 1995, all States and Territories signed the Competition Principles Agreement, Clause 2 of which provides specific direction and support for independent prices oversight of GBEs, such as the Western Australian Water Corporation, by an independent regulator.

An independent regulator can also help to ensure prices are set according to efficient resource allocation for provision of the service rather than to meet a government's higher level economic or fiscal objectives. Tight controls of government may be of benefit in restricting service providers from charging monopoly prices.

However, the high level fiscal approach to pricing can result in inefficient cross-subsidisation between customer groups and distort investment decisions in utility infrastructure. Inappropriate investment decisions can in turn lead to further distortions of prices.

Independent regulation can also take into account the budgetary implications of prices and ensure the payment of CSOs is in accordance with government policy. The use of CSOs does not distort the COAG pricing principles.

The State Government currently sets water prices in an environment where it is dependent on the relevant information being provided by the water service providers. Independent regulation of prices will remove the dependence on the information provided by the service provider and introduce more transparency to the pricing process.

This inquiry by the ERA will provide an avenue for consumers to input to the pricing process and the report should be a valuable source of information to the Government in setting water prices in the future.

The Terms of Reference to the Inquiry require consideration by the ERA of a number of important areas of interest to consumers. This will provide a more open and transparent examination of the variety of factors that impact on water prices than currently exists.

At present, there is little information to assist government or consumers in understanding the implications for the cost of water service provision of rising health, environmental and service standards. The Inquiry will assist government in determining the appropriate price setting required for the efficient and effective delivery of those standards and meet its social objectives.

The Inquiry will provide government with better information to support its determinations on the prices for the three service providers and report on their compliance with the COAG pricing principles as listed in the Terms of Reference to the Inquiry.

The Department's involvement in the Inquiry

This submission which represents only the views of the Department of Treasury and Finance (DTF) focuses on the features of the water industry and the overall benefits of appropriate price setting for producers and consumers from the perspective of DTF's role in advising the Government on water matters.

Primarily, the Department provides economic and financial advice to the State Treasurer with a key focus on the budgetary position of the State. This includes the maintenance of the State's AAA credit rating and associated financial target of maintaining the net debt to revenue ratio for the total non-financial public sector at or below 47%.

The following is a list of water industry specific issues that relate to these primary objectives of the Department:

- the dividend and tax equivalent payments to the Government from its GBEs, (although the Bunbury Water Board (Aqwest) and Busselton Water do not pay dividends);

- the capital expenditure of the service providers (and the impact on net debt), including the cost of the development of new water sources;

- the provision of CSO payments to the Water Corporation, for the delivery on non-commercial activities such as concessions on water bills and to fund losses in regional areas due to the application of the uniform tariff;

- the subsidies paid to the irrigation industry; and

- the implications of the development of the water industry on the State economy.

DTF is also responsible for the provision of advice to the Treasurer as the Minister responsible for the ERA.

Furthermore, DTF is responsible for the provision of advice to the Minister for Government Enterprises on shareholder issues for the State's GBEs (including the Water Corporation). This role includes monitoring the financial performance of the Water Corporation and the impact that has on the State's budget.

The key instrument through which the Government can influence the performance of the Water Corporation is through the Statement of Corporate Intent (SCI)/Strategic Development Plan (SDP) process. The legislative requirements of the *Water Corporation Act 1995* (the WC Act), which requires the Shareholder Minister to seek the concurrence of the Treasurer in the finalisation of the SCI and SDP, means appropriate governance arrangements on the Water Corporation must be in place to provide a balance of shareholder responsibilities and the optimisation of the State's budgetary position.

In regard to Aqwest and Busselton Water, DTF is involved in the financial monitoring of their performance in relation to their impacts on the State budget, however, the shareholder role rests with the Minister for the Environment.

BACKGROUND

Reform of the Water Industry

In 1992 the Industry Commission released a report titled "Water Resources and Wastewater Disposal" which laid out many of the principles for the reform of the water industry that were later picked up in the Hilmer report. These were further translated into the COAG endorsed Competition Principles Agreement (the NCP Agreement), and since their implementation in 1994, have led to widespread reforms across the Australian water industry.

Those principles included two-part water tariff pricing, institutional separation of the service provider and the regulator, independent prices oversight, full recovery of costs, and for GBEs, the application of competitive neutrality through the payment of dividends and tax equivalent payments to shareholder governments.

Many of these principles are contained in the COAG water pricing principles, as listed in the Terms of Reference to this Inquiry. As a signatory to the NCP Agreement, Western Australia is required to implement pricing structures pursuant to these principles.

With the lack of competition in the Western Australian water industry, the application of the COAG pricing principles and the regulation of prices charged by GBEs is aimed at ensuring that the Water Corporation, Aqwest and Busselton Water operate efficiently and do not charge monopoly prices or provide inadequate services.

Consistent with the institutional separation recommendations of the NCP Agreement, on 1 January 1996 the then Water Authority of Western Australia, the Waterways Commission, and the Western Australian Water Resources Council were replaced by three single purpose entities:

- the Water Corporation, (established under the WC Act);
- the Water and Rivers Commission, established under the *Water and Rivers Commission Act 1995*, whose functions are to assess, allocate, and conserve the State's water resources; and
- the Office of Water Regulation, established under the *Water Services Coordination Act 1995*, whose role was to provide independent advice to the Government on water issues and regulates water services providers through a utility licensing regime to ensure the delivery of water services to the community at a high standard.

The operations of the Water Boards however have remained relatively unaltered since their establishment. Nevertheless, there are intentions to reform the Water Boards so that they operate on a more commercial basis,

much like the Water Corporation. Further information on the pending reform of Aqwest and Busselton Water is provided later in this submission.

The reforms which led to the establishment of the Water Corporation have brought about a clear separation of water resource management from water resource utilisation, and in the process removed a potential conflict of interest experienced by the then Water Authority. The substantial changes were driven by the need for GBEs to develop a stronger commercial base, to be increasingly customer and service focussed, and to provide for better resource management and environmental outcomes.

Subsequent reforms to the water industry have included the separation of the regulatory and policy roles of the Office of Water Regulation into the ERA, as the industry regulator, and the Office of Water Policy (OWP), to provide policy advice to the Industry Minister. Further reforms have also included the merge of the Water and Rivers Commission and the Department of Environmental Protection into the Department of the Environment (DoE).

This has left the Western Australian water industry with a clear separation of service provider, economic regulator, environmental regulator and industry policy adviser.

Water Corporation

The Water Corporation is established with a commercial focus and a strong emphasis on customer service, providing water, sewerage and drainage services to the public. The Water Corporation is a corporatised entity, and is fully Government owned and controlled (using the model developed in conjunction, and applied also to, Western Power). The key features of the Water Corporation include:

- a requirement to "act in accordance with prudent commercial principles and to endeavour to make a profit consistent with maximising long term value";

- regulated prices to ensure it recovers no more than the efficient cost of providing the service;

- a requirement to operate on a competitively neutral basis relative to the private sector;

- more stringent duties and liabilities of members of its board of directors;

- the preparation of a public SCI and a confidential SDP each year (both of which contain performance targets) to facilitate accountability to the Government; and

- financial reporting in line with Corporations Law rather than the *Financial Administration and Audit Act 1985* (the FAAA).

Bunbury and Busselton Water Boards

Aqwest and Busselton Water were established to provide a potable water supply to, respectively, the Bunbury and Busselton townsites and surrounding areas.

Although Aqwest and Busselton Water are classified as GBEs, unlike the Water Corporation, they are not corporatised entities operating with commercial objectives. As a result, they are not required to pay dividends and do not receive CSOs from the Government to fund any non-commercial activities.

However, the Government does provide rebates to Aqwest and Busselton Water for the annual service charge rebate it provides to Seniors Card holders. Both Boards still provide pensioner rebates on their annual service charge but fund that concession internally.

Significant changes to the *Water Boards Act 1904* (the WB Act) were highlighted in a legislative review of the WB Act (completed in 1998) and competitive neutrality reviews of both Boards (completed in 1999).

The principal recommendation of both reviews was to remove restrictions on the Water Boards' ability to provide services other than water supply (for example sewerage and drainage) within their current licence area, and the restriction preventing them from operating outside of their existing licence area. Introducing this form of 'serial' competition for new (and existing schemes requiring augmentation) is seen as the key to introducing competition in the water industry.

The OWP is currently preparing drafting instructions for new legislation to replace the existing WB Act, which is to be modelled on the WC Act as a 'best practice' example of enabling legislation for a commercialised water services provider.

Significant additional requirements on the Water Boards under legislation modelled on the WC Act will include the payment to government of an annual dividend and an amount in lieu of local government rates and taxes.

The WC Act also requires the appointment of a shareholder (representing the interests of government), which would impact on the way in which Board members are appointed.

Furthermore, the Water Boards would be required to submit a SCI and SDP to the shareholder Minister for approval.

The reform of the WB Act to commercialise the Water Boards will result in the following benefits:

- increased competition for the provision of services (water, wastewater, drainage and irrigation) in regional areas through the removal of the restrictions on the Water Boards to enter other markets;

- reduction in the administration expenses of the Water Boards through the removal of complex approval processes; and

- increased flexibility of the Water Boards' management processes.

An overview of the governance arrangements of the Water Corporation, Aqwest and Busselton Water are at Attachment 1 to this submission.

SUPPLY AND DEMAND

Before any consideration of water pricing can take place, it is important to understand the basic supply and demand principles of water. Most importantly, it should be understood how water pricing affects the quantity demanded and how costs increase with the amount of water supplied.

Water supply

Most of the current supply of water in Western Australia is from surface and groundwater sources close to the end user. There are many other sources including wastewater recycling, distant groundwater and potential dam sites, irrigation supplies which can be diverted to Perth and desalination (both small scale and soon to include the large scale plant to be constructed at Kwinana). Each of these sources has a different per unit cost of supply. Sources also vary in the amount of water they can provide, the water quality and the year to year variation in supply (mostly dependent on climate).

Surface water is a relatively low cost option for sources close to Perth, that involves piping the water directly from the dam to the consumer. Groundwater close to Perth is often slightly more expensive, but still a relatively inexpensive option (where close to the end user) involving pumping water from the ground, and usually treating it, before being piped to the consumer.

In some regional centres (for example, Kalgoorlie-Boulder), the recycling of wastewater is common practice. As a source option, recycling can be slightly more expensive than the traditional surface water and groundwater options because of the higher treatment costs involved, but is generally less expensive than desalination. However, where it does not require expensive treatment because its quality fits that required for the end use, it can be a low cost source (for example, for irrigation of ovals).

Next to desalination, the most expensive source option under consideration for Western Australia is deep bore drilling into the Yaragadee aquifer south of Busselton. Investigations into the development of the South West Yaragadee aquifer are being undertaken by the DoE and are expected to be finalised within 6 to 12 months. High capital and operating costs result from the expense of piping the water to Perth.

Currently, the most expensive water supply option being adopted in Western Australia is desalination, due to high capital and very high operating costs. Because there is no limit to the supply of seawater and other desalination plants can be built (subject to the necessary approvals), there may be no need for future water sources that are more expensive than desalination.

That is, while currently the long run marginal cost for water has jumped significantly from traditional sources to desalination, there may not be further increases of this nature in the future. The long run marginal cost of water, is discussed in more detail in later chapters of this submission.

Sequencing of future water sources

The development of future water supply options must take into consideration the cost (capital and operating), the impact it would have on the environment, its social impacts and its dependence on climate.

Using a current example in Western Australia, piping of irrigation channels would likely be one of the next sources to be developed. This is because of its relatively low capital and operating costs and its environmental benefits of reducing water leakage. There is also the question of 'payment' to irrigation farmers for the water. Payment through funding to pipe channels will enable farmers to benefit through improving on-farm water management. Water saved by the piping of channels is the source of water for Perth.

Choice of the sequence of source development should account for the need to minimise inefficient investment decisions and ensure that the most efficient and cheapest water source is generally developed first. The opportunity cost of not developing sources in this way is funding for health, education, justice and other competing government spending priorities.

Inefficient investment decisions may also lead to the risk of stranded assets, which have significant opportunity costs. For example, the recently approved desalination plant can deliver water at $1.11/kL, the most expensive water source for the Integrated Water Supply System (IWSS). In the absence of alternative sources able to meet expected demand, especially sources that are independent of climate, this source will be utilised.

However, if over the next two years the irrigation channels of the South West Irrigation District are piped, other cheaper sources are developed, water use efficiencies are improved and the dam levels continue to improve, then there may not be a demand for its expensive water. At that time it would not be sensible to operate the plant and incur the $24 million per year operating cost. However, the decommissioning of the plant would leave $350 million in capital stranded, representing an enormous opportunity cost to the State's budget.

Any pricing recommendations made by the ERA should be cognisant of the fact that despite desalination being the next major source for Perth, some future source options should not be as expensive.

Water demand

As with the supply of water, the demand for water has many different components. There are also considerable differences in the demand for water for urban versus rural usage, and residential versus commercial, or agricultural/irrigation usage (irrigation uses tend to be significantly lower value uses than household or commercial).

The focus of this submission will be urban residential and commercial customers as dictated by the Terms of Reference.

Household demand for water reflects the different uses to which it is put and the different value to consumers the uses have. Uses for water include indoor use for health and sanitation purposes (drinking, personal cleaning, toilets) which are essential for life, then outdoor use on lawns, gardens, and pools and a further component is water that people waste through inattention and not fixing leakages. Obviously the price consumers are willing to pay for indoor use (largely water for life) would be higher than for outdoor use and water wasted.

From an economic perspective, the next, more expensive source should be introduced when the marginal value of water to consumers exceeds the cost of water from that source. Clearly the marginal value which should drive new source development is not water for life, but marginal outdoor uses. Appropriate cost reflective pricing helps signal whether the marginal value of consumption of water from a water source is higher than its costs. This principle is relevant not only to signalling the choice of a new source but also any other major investment to expand capacity.

Elasticity of demand

Elasticity of demand is a measure of the effectiveness, for example, that an increase in the price of water would have on reducing the demand for water.

A number of arguments have been made against using price to signal to consumers the full cost of the water. One is that water is different from other commodities because it is essential to life. As indicated above, that some water consumption is essential to life is undeniable, but the large proportion of water use is not and it is these other uses which contribute most substantially to the increasing quantity of water demanded.

The other major criticism is that price does not affect the quantity of water demanded, that is, outdoor consumption and water wastage is unaffected by price. Elasticity of demand is the subject of significant research literature and while there is no perfect methodology, a range of studies of demand in Perth, and cities which are comparable to Perth, in standard of living and climate consistently make the following points:

- In house consumption is not price responsive. This is not surprising given the essential nature of this use of water.

- Outdoor use has a significant price responsiveness (but not large by comparison with some other commodities, and there is evidence that this is higher for high volume water consumers).

Determining the price elasticity of water assists in determining the effectiveness of a price rise in restricting demand. This is particularly important in times of a dryer climate to measure the effectiveness and efficiency of any proposed price rises.

Elasticity of demand for water is considered extremely difficult to measure and as a result there are a large number of estimates available. One of the more acknowledged measures of price elasticity for Perth was undertaken by J.F. Thomas and G.J. Syme in 1981. The research was undertaken via a survey based upon household responses to hypothetical questions regarding price changes.

The results of the study are as follows:

In-house price elasticity:	-0.04
Ex-house price elasticity:	-0.31
Overall elasticity:	-0.18

The study provides a good indication of what has always been expected, that consumers are less willing to increase or maintain excessive water use (generally thought to be outdoor use which is discretionary) if prices are increased. At the same time, it also shows that indoor use is fairly constant and demand is largely independent of price. Nevertheless, interview type approaches to determining price elasticity do have their drawbacks, with the possibility that when people are surveyed regarding their behavioural patterns, their responses may not necessarily represent the reality of their behaviour

A similar method adopted by the Water Corporation for measuring the price elasticity of water, is to differentiate between consumption levels rather than indoor and outdoor use. The Water Corporation consider that for consumption levels between 0 and 150kL per household (considered to be the amount essential for public health and safety), the elasticity of demand is insignificant, but increases as consumption increases. This theory reflects the assumption that higher consumption levels involve far greater discretionary demand.

As indicated in the table below, there are a large number of estimates for the price elasticity of water. While a number of different methods have been employed, there is a clear message supporting both the Thomas and Syme study and the Water Corporation's adopted method, that in-house use is less

affected by price than outdoor use (and water wastage) and low consumptive levels are affected to a lesser degree by price than higher consumption levels.

Whichever method is used to estimate price elasticity, it is important to recognise the nature of prices as signals for appropriate investment in water source developments and demand.

Location	Sample	Type of study	Estimated price elasticity	
Perth	971 households in 20 groups, 1976 - 1981	Pooled cross section and time series	Domestic	-0.11
Perth	Unknown	Contingent valuation	Domestic: • Overall • In-house • Ex-house	 -0.18 0 to –0.05 -0.04 to –0.31
Perth	315 households	Cross section	Domestic: • Overall • In-house • Ex-house	 -0.18 -0.04 -0.31
Perth	unknown	Contingent valuation	Domestic	-0.1 to –0.43
Melbourne, Aust.	3 samples of 50 households in 1991/92	Contingent valuation	Domestic: • In-house • Ex-house • Low consumption • High consumption	 -0.025 -0.22 -0.05 -0.16
California	7.1 million people	Econometric modelling	Domestic	-0.16

source: Department of Natural Resources and Environment, Victoria

The study of demand elasticity in California provides an international perspective to these examples above and illustrates the similarity between movements in price and the reaction of consumers demand choice for water. The benefit of the Californian study, prepared for the California Department of Water Resources in 1998, is that it has used data collected for 7.1 million customers, which is a much larger sample size than would be possible in Australia. A much larger sample size like this provides greater certainty to the demand elasticities calculated for domestic water use. Also, using a city like California it is a useful comparator for demand elasticities, given the similarities between California and Perth in terms of climate and living conditions. The study also investigated other estimates of demand elasticity in California and found estimates similar to those in the above table, ranging from -0.15 to –0.52.

The conclusion of the report confirms the position of DTF in this submission, that:

> "Aggregate single family household demand was responsive to price changes. In addition, demand management policy instruments were found to reduce demand. These results suggest that both price and non-price demand management policies are

> relatively effective residential water resource management tools. The results also highlight the importance of accounting for the influence of both price and non-price demand management policies."

Water restrictions

In Western Australia, water restrictions for discretionary outdoor use, rather than price, have been used as a direct means to manage demand. While restrictions have been effective in reducing demand by between 40 and 45GL per year over the past few years, recently their effectiveness is thought to have been reduced, with consumers saving only between 35 and 40GL over 2003/04.

With continuing sprinkler restrictions and low rainfall, the almost voluntary response from people to conserve water by using their sprinklers only twice a week is becoming less effective (with the decrease in water saved) as some consumers grow 'tired' of not being able to water their gardens whenever they wish.

A more appropriate demand management strategy that will allow consumers more control over their water use is through price signals. Higher prices can be used to restrict excessive demand but at the same time, allow consumers to find their own balance of demand and price.

It may be more palatable to the community in the long term for the introduction of three day per week sprinkler restrictions. This could be seen as a compromise by the general public and may promote continued acceptance of the need to restrict water consumption whilst not imposing too severely on those who still derive a benefit from 'leafier' gardens.

REGULATION AND COSTS OF SERVICE

As outlined further in Attachment 2 to this submission, the principle objectives of economic regulation in the water industry should be to improve economic efficiency, which is generally defined using three distinct categories:

- Allocative Efficiency (pricing), requiring prices to accurately reflect costs;
- Productive Efficiency (technical), when the least cost combination of inputs is being used to produce a given level of output; and
- Dynamic Efficiency (investment): when the least cost options for water supply are encouraged to enter the industry over time.

While promoting economically efficient outcomes should be the primary objective of price regulation, this does not mean that other community goals cannot be achieved through the regulatory regime. Objectives such as environmental considerations and distributional outcomes are consistent with the objective of economic efficiency. For example, providing appropriate price signals that reflect the scarcity value of water should promote water conservation.

The application of price regulation

The regulation of prices in the water industry relies heavily on the building block approach, whereby the components of total costs of providing the service are assessed to determine the revenue requirement of the service provider. So for example, the service provider would propose and the regulator would assess such matters as:

- the asset value of the infrastructure;
- a rate of return (weighted average cost of capital) to apply to the asset value;
- capital expenditure;
- depreciation; and
- operating expenditure.

The approach to price regulation that has been applied in industries such as electricity and gas provides a suitable framework at this time to assess the prices of the Water Corporation, Aqwest and Busselton Water. Despite the fact that the focus for water is not on network access prices (as it is in the electricity and gas industries), it is the case that the costs associated with the service provider's networks will constitute a significant component of total costs.

This general approach to price regulation is consistent with the pricing principles set out in the COAG water reform agreement. For example, the COAG pricing principles set out the range of costs that should be recovered to ensure the entity is viable. They also state that the level of costs should be that which would be incurred by an efficient firm open to competition and unable to charge monopoly prices or provide lower service standards.

The building blocks approach can naturally result in revenue (or price) adjustments over the regulatory period being expressed in a CPI-X format. In such a case, the X in the expression is an outworking of the approach rather than an input.[1] It effectively represents the expected productivity gain as built up from the individual cost components of the building block approach.

The ERA Issues Paper raised the question about incentives for the service provider to achieve efficiency gains. The building blocks/CPI-X approach to price regulation in itself should provide some incentive for efficiency gains. In the first instance, prices are to be set based on the assessment of the efficient cost level. Hence, if the service provider is not currently at these levels, there is an immediate incentive to meet the efficient cost level in order to achieve the underlying rate of return that is associated with those cost levels.

In addition to the incentive to meet efficient costs as set by the regulator, the building blocks/CPI-X approach should provide some incentive for further efficiency gains. This is because the service provider is able to retain all additional efficiency gains, adding to its return. The extent to which the service provider is able to keep these efficiency gains beyond the regulatory period in which they are made may be dependent on any 'incentive mechanism' applied by the regulator.

The inclusion of these types of incentive mechanisms, beyond the natural mechanism that exists in the building blocks/CPI-X approach, is not currently a common feature among Australian regulators, although they are increasingly being applied. Given that this is the first independent assessment of water pricing in Western Australia, it is considered that the focus of the review should be on fully assessing the efficient cost levels for the service providers (incorporating asset valuations and efficient capital and operating expenditure levels), determining appropriate price structures and identifying key issues for further review.

More recently, regulators have questioned the nature of the efficiency gains that result from the building blocks approach. By the very nature of the approach, it is clear that it does result in efficiency gains in the sense that prices are set at efficient levels. It is also the case that incentives exist to 'beat' the targets set by the regulator in order to keep those additional returns.

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[1] Under a pure price cap form of regulation, X would be a predetermined figure representing expected productivity improvements. The CPI-X figure would be applied to existing prices to establish prices for future periods.

However there may be a question as to whether these additional efficiency gains represent a genuine, pure efficiency gain, or whether they have come about due to the service provider simply varying and amending the timing and nature of the expenditures, e.g. their capital programs.

This is probably an important issue to consider in the future, particularly after Western Australia has a history in regard to independent regulation of water prices, however analysis and resolution of it is not a matter for the current review.

The above has discussed the reasons for price regulation, and a common approach that has been applied by regulators in a number of utility industries in Australia. The following sections discuss in more detail some issues associated with the key individual cost building blocks.

Asset valuation

A common feature of utility industries is the high level of fixed costs associated with service provision. Due to this cost structure, the assessment of asset values to be applied in the regulatory process is a very important issue. The COAG pricing principles state that the deprival value should be applied, and the Terms of Reference for this Inquiry require it to have regard to these pricing principles.

The ERA should also consider the approaches that other water regulators have applied to value assets. For example, IPART has generally applied an optimised deprival value approach to its regulation of water utilities. One of the valuations that is considered in this approach is the depreciated optimised replacement cost (DORC). As the name suggests, this approach allows for the optimisation of the assets, which can take into account technological change and past poor investment decisions. From an economic perspective, such a valuation is reasonable as it implies that users are only being asked to pay for the efficient costs of service provision. It is also noted that the Queensland Competition Authority has recommended the use of the DORC methodology

In the electricity and gas industries, it has been common to apply the DORC methodology to asset valuations. In the case of the national gas access code, asset valuations would normally set a value between the depreciated actual cost and DORC. That is, DORC would usually set the upper limit for the asset value. It is noted that in the gas industry, regulators have tended to set asset values closer to DORC values.

It is considered that the ERA should have regard to the COAG pricing principles as required, however it should also closely consider regulatory developments since the principles were set in 1994, current regulatory best practice and the asset valuation approaches applied by other regulators in

Australia. This would suggest a consideration of the DORC valuation methodology.

During this process, it should be recognised by the ERA that there is a degree of subjectivity in most valuation methodologies, and for example DORC valuations of the same assets can vary significantly depending on whether they are put forward by the service provider or a significant user of the infrastructure.

This subjectivity cannot be avoided, however what it does imply is the importance for the regulator to have independent advice on such matters.

Capital and operating expenditure efficiency targets

As part of the building blocks approach, the regulator is expected to make an assessment of the service provider's capital and operating expenditure forecasts, with a view to setting efficient cost levels. It is understood that the ERA is to engage consultants to assist in this task.

In relation to existing operating efficient targets applied to the Water Corporation, its prices and financial forecasts are underpinned by operating efficiency target assumptions. For a monopoly utility it is expected that an operating efficiency factor be incorporated into expenditure forecasts and price paths, to simulate competitive pressures and economies of scale achieved through growth that otherwise would be sought by competitive businesses to ensure their continued operations.

Government ownership, and being faced with conflicting objectives of maximising its own profit whilst having to meet some of the social objectives of government, can make it difficult for GBEs, such as the Water Corporation and the Water Boards, to achieve efficiency targets over a prolonged period of time. The ERA is requested to identify an appropriate efficiency target for the Water Corporation, and for Aqwest and Busselton Water, which is cognisant of the organisations' regional operations and the service providers' net revenue to the Government.

Rate of return

Gearing ratio

Modern finance theory states that the capital structure of a firm does not affect the calculation of the weighted average cost of capital (WACC). This is primarily because of the expectation of equity holders in the event of increasing debt. In this section "gearing" refers to the following calculation:

$$\text{Gearing} = \text{Debt} \div (\text{Debt} + \text{Equity})$$

$$= \text{Debt} \div \text{Value}$$

When a firm increases its gearing, equity becomes more risky since more of the firms cash flow is being directed towards debt providers in the form of interest payments. With an increased proportion of debt being employed by the firm, there is a decrease in the proportion of equity held by the firm but these equity holders require a higher rate of return than they did at the lower debt level due to the extra perceived (and sometimes real) financial risk. However, these two events effectively cancel each other out resulting in a zero net effect on the WACC calculation.

Therefore, while it is acknowledged that the gearing level is unlikely to have a substantial affect on the estimated WACC, there is a requirement to identify some level of gearing. The options for identifying an appropriate gearing level include use of:

- the actual gearing level of the firm; or
- a gearing level which reflects industry norms or regulatory practice.

In consideration of the first option above, the Bunbury and Busselton Water Boards do not have any debt and the Water Corporation's gearing ratio in 2002/03 was 10.7%.

The second alternative is to use industry norms for the selection of the gearing ratio. This alternative can take the simple average of the debt levels of comparable water companies from across Australia or adopt a benchmark gearing ratio which reflects that of a private sector provider of the same or similar service.

The following table outlines the gearing ratio of comparable Australian water providers and the resultant simple average gearing ratio of 27%.

Metropolitan Water Suppliers	**Debt to Value 2002/03**
Sydney Catchment Authority	25.87%
Sydney Water Corporation	17.90%
Hunter Water Corporation	6.37%
Melbourne Water Corporation	45.41%
City West Water	32.39%
South East Water	36.18%
Yarra Valley Water	44.54%
Sun Water	5.57%
SA Water	19.29%
Water Corporation	10.71%
Simple Average	27.19%

source: various reports from IPART, NSW and the Essential Services Commission, Victoria

A benchmark gearing level reflecting that of private sector utilities indicates a simple average gearing level of 57.6% as outlined in the table below. A

review of the gearing ratio of private water providers in the UK has shown a gearing ratio of between 55% - 65%.

	Debt to Value 2002/03
Envestra	82.5%
AGL	39.4%
United Energy	46.8%
Australian Pipeline Trust	63.2%
Alinta Gas	56.2%
Simple Average	57.6%

source: various reports from IPART, NSW and the Essential Services Commission, Victoria

Recent regulatory decisions, across the energy and water industries have applied a gearing ratio in the range of 30% - 40% as shown in the following table.

Regulatory Decision	Debt to Value
Essential Services Commission, Review of Gas Access Arrangements Final Decision (October 2002)	38%
IPART, Price determination, Sydney Water Corporation (May 2003)	38%
IPART, Price determination, Wyong Shire Council (May 2003)	38%
Queensland Competition Authority, Budekin Haughton Water Supply Scheme: Assessment of Certain Pricing Matters (April 2003)	33%
Queensland Competition Authority, Gladstone Area Water Board: Investigation of Pricing Practices (September 2002)	33%
Office of Water Services UK, Final Determination, Future Water and Sewage Charges: 2000-2005 (November 1999)	38%
Victorian DTF, Partnerships Victoria, Discount Rates (July 2003)	38%

It should be noted that the regulatory decisions outlined above are not consistent with the actual gearing ratios of the companies in question. For example, Sydney Water had a gearing ratio of 17.9% (as indicated in the earlier table).

Given the legislation of the Water Corporation, and the proposed legislation of Aqwest and Busselton Water, requiring that they behave in a commercial manner, it is reasonable to expect that the gearing ratio used in calculation of the WACC for these organisations will reflect that of publicly listed firms.

While regulated GBE monopolies have the capacity to operate with a higher gearing ratio than a private, commercial and competitive business, it is prudent to consider the objectives of the government in relation to containing the net debt position through limiting new borrowings by its agencies. It should be noted however that an actual increase in the gearing ratio of a government entity does not necessarily result in an increase in the State's net debt position since the entity could undertake an equity-debt swap with the State.

The DTF acknowledges that the gearing ratio has greater impact on the return on equity calculation than it has directly on the calculation of the WACC.

Cost of debt margin

The cost of debt is the amount a company pays for all its debt. The debt margin is the cost of additional or new sources of debt.

In Western Australia, government agencies and GBEs obtain debt funding through the Western Australian Treasury Corporation (WATC) at rates lower than those obtained by public companies. Because of the commercial advantage this lower cost of debt provides, a loan guarantee fee of 20 basis points was introduced on 1 July 1992 to maintain competitive neutrality between GBEs and public sector counterparts. The loan guarantee fee is levied on all debt funding, both short and long-term, obtained by State government agencies and GBEs through the WATC and is designed to impose on agencies the 'equivalent' cost of funding debt through the private market.

An alternative and more common way to determine the debt margin, is in consideration of the credit rating of the company. In this regard, most other jurisdictions in Australia assign a credit rating to their agencies, which translates into an appropriate debt margin.

The imposition of a government guarantee fee based on a credit rating assessment provides a rational and effective system to satisfy competitive neutrality obligations and also provide an incentive for agencies to improve their financial performance and decrease debt.

However, the benefits of applying guarantee fees based on credit ratings for Western Australian GBEs would be unlikely to offset the costs of implementing and administering such a system, especially on some of the smaller GBEs. Western Australia has therefore maintained a flat loan guarantee fee approach for consistency between GBEs (although there is a different fee for Western Power's short term borrowings).

It could be argued that the estimated interest rate savings to agencies borrowing through the WATC rather than through the corporate bond market is greater than the current government guarantee fee. The DTF acknowledges

that a case could be made for the guarantee fee to be increased to better reflect the value of the guarantee.

Overall, the DTF supports the application of a debt margin that is comparable to commercial borrowing practices and wider finance industry benchmarks for an industry of similar risk or structure to calculate the WACC for the Water Corporation (and later the Water Boards as well).

The debt margins used by other regulators in recent water pricing decisions have ranged from 70 to 100 bps.

Risk free rate

The risk free rate is the return an investor can achieve by investing in an asset that has no risk. While the riskless asset is a theoretical concept, the Commonwealth government bond is considered an appropriate proxy and the return on the 10 year Commonwealth Bond is widely used to represent the risk free rate.

Generally, there is consensus that the risk free rate for the water industry should be set on a Commonwealth Bond, however there is debate about the length of the term.

The alternate schools of thought is that the duration:

- should match that of the review period which generally refers to the five year Commonwealth Bond; or

- should match as closely as possible the term of the life of the asset. Given that water assets usually have very long lives, it would seem appropriate to refer to the 30 year Commonwealth Bond, however this bond is very thinly traded so reference is made to the 10 year Commonwealth Bond.

Most regulators have elected to apply the ten year Commonwealth Bond based on some form of averaging to minimise the effect of daily distortions.

The DTF support the determination of the risk free rate by reference to the 20 day moving average of the 10 year Commonwealth Bond.

Market risk premium (MRP)

The MRP represents the difference between the expected return on equity investments (e.g. All Ordinaries as a proxy) and the risk free rate.

While it is acknowledged that the MRP changes over time, recent analysis suggests that the MRP, as calculated on data from 1882-2001, is 7.19%.

The DTF has reviewed the MRP used in a variety of determinations across different utility sectors and believes that the utilisation of a MRP of 6% is appropriate.

Equity beta

According to the CAPM theory, the marketplace compensates investors for taking systematic risk, but not for taking specific risk. When an investor holds the market portfolio, each individual asset in that portfolio entails specific risk, but through diversification, the investor's net exposure is just the systematic risk of the market portfolio.

The equity beta represents the relationship between the return on shareholder equity and the return on a market portfolio and is used to determine the expected return from systematic risk. Generally, beta is expressed in terms of being more or less risky than the market. For example, if the equity beta were 0.5, the return to the shareholder would be considered to be half as risky as the return one could expect from holding the market portfolio (since the market portfolio is expected to have a beta of 1).

It is difficult to identify an appropriate equity beta that represents a regulated water utility due to the absence of such companies being listed on the stock exchange and therefore, the inability to make useful comparisons. Additionally, the use of international companies as a benchmark is also problematic due to the significant differences in composition of the various country stock market indices.

Without further detailed analysis the DTF would support the use of an equity beta that is comparable to that used in recent water industry price determinations for entities with similar risk profiles, providing it reflects the chosen gearing ratio in order to maintain the key relationship which ensure an accurate determination of the WACC.

Service standards

When applying price regulation, a key focus is on ensuring that costs/prices are reasonable and efficient. However, it needs to be remembered that the regulated costs and prices are set to achieve a particular standard of service. Hence as part of this review, it is imperative that the service providers submit a pricing proposal consistent with existing minimum service standard requirements and that the ERA consider service standard requirements when assessing efficient cost levels.

Through this review process, the ERA may become more aware of community expectations regarding service standards. Where these differ significantly from existing standards, there may be an issue moving forward as to the community's willingness to pay for higher service standards. Given that in some instances the community may not be well informed on the benefits and costs of service standards (eg water quality standards), a transparent cost/benefit analysis may be appropriate in deciding on the standards.

Improved transparency in the costs of service standards and the impact on water prices should be a positive outcome from this Inquiry.

Improvements in service standards

Many of the operational service standard requirements of the Water Corporation, Aqwest and Busselton Water are contained in their operating licences. Where changes or improvements to these requirements come about, they would effectively be implemented through amendments to the operating licence.

However, standards relating to public drinking water and other health standards, dam safety, environment and occupational health and safety standards are not included in the service provider's operating licence.

A recommendation from the Review of the Water Services Coordination Act that the ERA should be aware of is for memorandums of understanding to be established between economic, health, water resources and environmental regulators to coordinate regulatory requirements.

The ERA Issues Paper notes that OfWat in the UK makes an explicit allowance for improvements in standards as part of the price cap. At this stage, it is not considered a priority to develop a similar approach in this water pricing review. Similar to the issue of incentive mechanisms to achieving efficiency gains, the direct linking of service standard variation to the form of regulation has not been applied by Australian regulators.

The priority for this first independent review of water pricing in Western Australia should be on the actual price regulation approach, with a focus on the components of the cost building blocks, rather than on the direct linking of service standard changes to the form of regulation. DTF therefore supports:

- the maintenance of the existing approach whereby service standards are set and amended through the service provider's licence or by the appropriate regulator; and

- improved transparency between service standards and their cost/price.

As noted above, it will be important that costs and prices reflect the service standards required to be met.

Furthermore, it will be important that the implementation of changes to service standards, particularly those that have a material impact on the service providers' costs, recognises that the service provider is likely to be subject to a price path. This may suggest that changes to service standards need to be phased in consistent with the timing of the price path.

EFFICIENT PRICING AND PRICING STRUCTURES

For a water service provider, the marginal cost of supply represents the additional cost of supplying an additional volume of water to a customer. Setting water prices based on this marginal cost should send the appropriate signal to both consumers and the service provider about the cost of both consuming an additional volume of water and also offering an additional volume of water for sale.

Because of the 'lumpy' nature of source development in the water industry, the short run marginal cost of supply can change quite dramatically across time periods. For example, just prior to the development of a new major water source, the marginal cost of water may be quite high, because it is very expensive to harvest any additional water from available sources and/or the relative scarcity of water means there is a high opportunity cost.

However, immediately after that source is developed, the marginal cost is lower because the recently constructed source can satisfy future demand with little or no additional capital costs than that which has already been incurred, leaving only the operating costs to be recovered.

Because of this, the cost of additional water to a service provider is generally based on the long run marginal cost and economic efficiency theory suggests that the volumetric component of a water tariff should be set equal to the long run marginal cost of providing the water.

Where there are multiple tariffs in the case of the Water Corporation, Aqwest and Busselton Water, the challenge for the regulator is to determine the most appropriate level of cost recovery for the individual blocks of consumption. The objectives of efficient long run marginal cost pricing are to:

- send appropriate signals about the efficient level of demand and restrict the over-use of scarce water;
- provide appropriate signals for efficient investment decisions;
- recover sufficient revenue for the service provider; and
- recover the cost of environmental externalities (although this would appear to be somewhat difficult to achieve given the intangible nature of those impacts).

The recently announced desalination plant will provide water at a cost of approximately $1.11/kL while the South West Yaragadee project would supply water at approximately $0.85/kL. One could estimate that the long run marginal cost of water for Perth lies somewhere between these two points.

Pricing based on the long run marginal cost method incorporated into a two-part tariff should lead to a balancing of supply and demand pressures on the water resources provided the long run marginal cost is estimated correctly. However, one of the major threats to appropriate long run marginal cost pricing is accurately estimating what that cost is. Without a more certain strategic plan for the development of water resources in the State, the ERA can only rely on the Water Corporation's capital planning estimates to determine the long run marginal cost of providing water.

While the ability of the Water Corporation to plan for the development of water sources in the State is not in question, potential conflicts of interest makes it inappropriate for such a task to be left to the service provider. This is because in some cases, the most appropriate source development for the State may not be the optimal commercial strategy for the Water Corporation which has an incentive to maximise its shareholder wealth. Nevertheless, in practice there are mechanisms in place, including rigorous government approval processes, which ensure that in most cases the Water Corporation is restricted from developing sources that are not in the State's best interest.

Two-part pricing

Economic reforms have moved the basis of charging for water towards user pays to encourage efficient resource allocation and eliminate cross-subsidies between customers.

A two part tariff, with one charge to cover the costs of making the service available (the access or fixed fee) and another to cover the cost of consumption (the volumetric charge) is the most common form of user-pays tariff structure. As mentioned above, it is common for service provider to set multiple volumetric block tariffs to strengthen the pricing signal and ensure only the most efficient level of the scarce resource is demanded.

The access (or fixed fee) for water use is designed to recover the fixed costs incurred by a service provider to provide the customer, access to the service. Because of the nature of the water industry where much of the infrastructure could be considered 'fixed', it is necessary for the regulator to determine what costs are fixed overhead costs and what costs are variable. In the water industry much of the reticulation assets could be considered variable because they would not be necessary if it were not for the growth in demand. The remaining 'central' costs are considered fixed and should be recovered through the access charge.

The volumetric charges are designed to recover the long run marginal cost of developing and operating new water sources in order to meet growing demands at a time when the sustainable yield of surface and groundwater sources appear to be reliant on climate change. The cost of finding and accessing this resource is then considered to be the economic cost of water usage or its long run marginal cost.

The suggestion in the Issues Paper of increasing the volumetric charge relative to the access fee is difficult to justify on efficiency grounds, if those charges are already set at an appropriate rate (using the objectives of efficient pricing mentioned above) and recovering the appropriate costs. If the volumetric charge is set too low and is not restricting demand to the most efficient use then it should be amended, but not at the expense of the access fee, if that fee is set appropriately.

It is expected that the ERA's financial analysis of the service provider's costs will be able to determine whether the current fixed and volumetric charges are set appropriately. In doing so the ERA should be aware that Western Australia does have the highest fixed charges of all Australian water service providers and as a result, may wish to investigate why that is the case, when considering their correct levels.

Volumetric charges and block tariffs

It is suggested that the relatively large number of tariff blocks in the Water Corporation's, Aqwest and Busselton Water's fee structures create confusion and could be restricting the efficient operation of pricing signals.

With an excessive number of block tariffs, consumers are unlikely to be aware of which tariff their consumption corresponds to and as a result, are less likely to change their behaviour in response to pricing signals.

A more appropriate structure and approach may be fewer block tariffs, coupled with an education campaign to keep consumers better informed, and allow a more efficient operation of the pricing structure.

Too few blocks would not enable consumers to respond appropriately. That is, if the first block were up to the total average household demand, then most households would be relatively limited in their ability to influence the amount they are charged by adjusting their demand behaviour.

To allow prices to work, consumers need to be able to respond by adjusting their behaviour accordingly. The challenge for the regulator will be to develop a set of block tariffs that achieves the objectives of efficient long run marginal cost pricing and is easy enough for consumers to understand and adjust their demand patterns in response to movements in price.

Implementation options

Another option that the ERA may wish to investigate, to improve the operation of price signals is more frequent billing cycles. The current six monthly cycles would not appear to provide customers with enough information on their ongoing consumption and little opportunity to amend the behaviour in response to price signals.

The NSW IPART has also considered two alternatives to the implementation of a block tariff. While the discussion here uses the Water Corporation as the service provider, the principles could also be adopted for Aqwest and Busselton Water. The options are:

- treating each level of consumption as an annual allowance of water, as is currently the case, so that the subsequent charging rates only apply when water usage has exceeded the previous allocation block; or

- dividing the annual block allocation into two, to suit Water Corporation's six monthly billing cycle.

With the second approach, each customer would effectively have a step quantity for each six monthly period equal to half of the annual allocation. However, this could easily be amended to accommodate a more frequent billing cycle, perhaps quarterly.

The benefits of this approach are that it would further allow customers to adjust their behaviour in response to price signals. The major disadvantage of this new approach is that some customers may pay for a portion of their water usage at a higher rate even though their annual consumption is less than the equivalent annual step quantity. When considering this proposal, the ERA should consider whether this aspect is an acceptable 'downside'.

Recovering environmental costs

The DoE is tasked with the management of the State's water resources and the environment more generally. Water resource management is generally defined as "essentially any activity that ensures the State's water resources are managed to support sustainable economic development and conservation of the environment, for the long term benefit of the community".

Because the provision of potable water, by water service providers imposes costs on the environment and specifically the water resource, it is considered appropriate that that cost is recovered from end consumers in some form so consumers are aware of the total cost of their water consumption. The most appropriate way to do that may be through the service providers charging regime so consumers can identify the direct link between their water consumption and the cost that has on the environment.

This sentiment is also reflected in the COAG pricing principles which requires the recovery of externalities, defined as the natural resource management costs attributable and incurred by the water business. The DoE has estimated that the costs attributable to the service providers in Western Australia are about one-third of its total water resource management costs. That equates to a $15 million externality cost incurred by the service providers that is not currently recovered directly through prices/charges.

Aside from the Northern Territory, Western Australia is the only State in Australia that does not recover environmental costs from the service provider, in some form. The extraction of water imposes environmental costs, borne by the general public. Under the impactor pays approach the consumers would pay for these costs. Under the beneficiary approach the general public would pay through general taxes. Charging using the impactor pays approach is preferred as it provides an incentive to the impactor to reduce their impact on the environment in return for a reduced charge.

The ERA is requested to consider the inclusion of a resource management component in the Water Corporation, Aqwest and Busselton Water's charging structures.

One issue with the passing on of resource management costs in Western Australia is the potential conflict of interest in the provision of water resource management services. The concern lies with the environmental regulator, the DoE, setting the service standards, providing the service and potentially setting the levels of cost recovery.

While the DoE is a general government agency and cannot essentially 'profit' from the provision of a service like a standard monopoly provider, that potential conflict of interest still remains.

It is important to distinguish between resource management costs and recovering the costs of environmental externalities. Resource management costs are those generally incurred by the Government in managing the water bodies and surrounding catchments. Charging for environmental externalities however is using price as a dis-incentive for a service provider to inappropriately use and interact with water bodies, surrounding catchments, and the environment more generally.

The management of environmental externalities has in the past been carried out through regulation (for example banning activities that are detrimental to the environment, i.e. treating wastewater near a river sanctuary). However pricing can also be used to provide a dis-incentive to incur negative environmental externalities. The problem with this approach is that is generally more difficult to put on price on the environment and to identify those responsible for some activities.

Welfare objectives

As the Issues Paper indicates, the first 150kL of consumption for all service providers is priced below the efficient cost of supply. This reduces the efficiency of prices and makes it difficult for prices to be used as a signal to consumers.

If the objective of the low cost of the first 150kL block is so households on lower incomes can afford what is considered to be the minimum amount of water required under basic living standards (i.e. 'water for life'), the question then is it appropriate for a service provider to be delivering on welfare objectives at the expense of efficient pricing.

However, if the objective is for every customer to have access to cheap 'water for life', then the lower cost of that block may be appropriate.

If the first explanation is correct, then under this current policy, even high level consumers of water benefit from the discount on their first 150kL regardless of whether those consumers require the indirect welfare assistance or not.

The ERA should consider the ongoing appropriateness of the delivery by service providers of government's social objectives given the ineffectiveness of such a broad measure being used to target a relatively small group of consumers.

If this is the case, one option that the ERA may wish to consider to address this situation could be to replace the discounted charge for consumption up to 150kL with a discount to low use customers on their bill (provided their consumption remained below a certain point) at the end of the year as a reward for their restricted consumption. This form of pricing would send a much clearer signal to consumers about the benefits of low consumption versus high consumption, especially if the medium to high consumers were charged the long run marginal cost of providing the water.

Residential wastewater charges

Wastewater services are not normal economic goods and price signals are generally ineffective. This is because a decision to use the 'service' is based on health and social concerns rather than price.

The Water Corporation's Domestic Water Use Study found that the volume of in-house wastewater discharged is constant throughout the year and is only marginally different between households, where household size accounts for differences.

The current valuation based charges for wastewater lead to considerable distortions in charging whereby some customers are paying up to $2,500 for a

service, where the average cost per customer is approximately $450. Using this example it is clear that the current charging system is inequitable.

An alternative for residential wastewater charges is a flat rate to recover the long run marginal costs of delivering the service. Since the service provider knows the timing of the development of wastewater treatment plants, the long run marginal cost of the service should be able to be estimated with relative ease.

As the Issues Paper points out, every State in Australia except for Western Australia and South Australia has converted from property based charges to an alternative. Sydney Water, ACTEW Corporation, NT Power and Water Authority and Brisbane Water have adopted a standard flat charge.

The three Melbourne retail water companies and Hunter Water have adopted a two-part tariff comprising a service charge and a usage charge. However that usage charge is based on estimated discharge, therefore making it essentially a flat rate for wastewater.

In 2002, the Minister for Government Enterprises established an inter-agency working group to investigate the removal of valuation-based charges, which involved the investigation of the Water Corporation's residential wastewater charge. Because of the embedded distortionary effects of the current valuation based charging system, the shift to a flat charge would have meant some customers would pay slightly more for the same service.

The ERA should consider this matter further and recommend on the most appropriate form of implementation of a State-wide flat charge for residential wastewater.

Price paths

Under the building block/CPI approach, a price path is set for the service provider. This approach provides incentives for the service provider to 'beat' the efficiency targets set by the regulator during the period of the price path. It also provides it with a degree of certainty as to the regulatory environment it will operate under for that period.

However, the selected length of the price path needs to recognise the uncertainty associated with the approach. For example, the price path is set based on forecasts of operating and capital expenditure, which in turn are based on expected demand and climatic conditions.

Regulators in Australia across the electricity gas and water industries have tended to set price paths of four to five years. However, most recently IPART has reduced its regulatory period for water to two years, given uncertainties associated with rainfall and the Victorian regulator has set an initial period of 3 years.

Clearly there needs to be a balance between setting a long enough period that provides sufficient incentives for the service provider to pursue additional efficiency gains beyond those set by the regulator, and a short enough period that recognises uncertainties associated with how the market will develop.

Given the above, it is considered that for this first review, a price path of three years may be appropriate. However, unlike New South Wales and Victoria where the next major water source is unknown, Western Australia has already decided to proceed with a desalination. This provides the ERA with greater certainty in regards to the Water Corporation's capital expenditure and may allow the setting of a longer price path, perhaps five years.

REVENUE

Return on fixed assets

Water Corporation

The projected return on the Water Corporation's fixed assets is forecast to be 3.9% in 2004/05, and is expected to increase to 4.1% in 2007/08 and 2008/09.

The Water Corporation has not achieved its long-term target return on assets since corporatisation (the target rate is 6% for assets employed after corporatisation and 4% for assets employed prior to corporatisation), as approved price increases appear to have been insufficient to match inflation and the level of investment undertaken.

This will continue in 2004/05 with a general freeze in residential water, sewerage and drainage prices being approved by the Government. However, price increases rise to 2.5% in the forward years in line with inflation.

The Water Corporation's ability to achieve its target rate of return will be restricted over the next four years as it strives to achieve its operating efficiency target.

The ERA should consider the implementation of an appropriate strategy, through the Water Corporation's pricing structure, to achieve its target rate of return on assets in the short to medium term.

Aqwest and Busselton Water

The rate of return on total assets has been particularly low for Aqwest and Busselton Water in recent years, but there is currently no requirement for the Water Boards to earn a particular rate of return.

Community service obligation payments

CSOs form a significant component of the social policies of all Australian governments. A CSO arises as a result of a directive or request by government. This means that in the absence of a government directive or request, the CSO good or service would not have been provided had the GBE assessed the proposal solely on commercial grounds.

Historically, governments have recognised community service benefits through the funding of operating deficits of the relevant GBEs. However, the preferred current government policy is to fund social objectives through direct payments to GBEs. The NCC provides appropriate guidance of the use of CSOs which is summarised at Attachment 3 to this submission. Essentially, it requires CSOs to be well specified in terms of targeting a particular special needs group or community outcomes rather than being operating subsidies, and for any operating subsidies to be minimised and reduced over time.

Typical examples of CSOs include:

- welfare objectives imposed by government on GBEs through price concessions on services provided to a particular group of users, e.g. various concessions provided to disadvantaged groups that are not driven by commercial objectives;

- a government requirement that the GBE provide some form of industry assistance, e.g. the provision of subsidised services to private companies which is not commercially justifiable; and

- the losses incurred by an agency as a result of a government directive that a service be provided to all users at a uniform price, regardless of geographical location, where the price is less than the cost of supply to some customers.

Water Corporation

The Water Corporation receives CSO payments for the following:

- non-commercial country services: the Water Corporation is subsidised for implementing the Government's Uniform Pricing Policy. That is, it charges prices in country areas similar to Perth metropolitan prices, despite the higher costs of supply in those country areas;
- revenue concessions: the Water Corporation is subsidised to administer the pensioner and senior concessions for its services on behalf of the Government; and
- infill sewerage program: this CSO represents the loss incurred by the Water Corporation for the development of infill assets in non-commercial country areas.

The following table illustrates the estimated level of those CSO payments from 2004/05 to 2008/09:

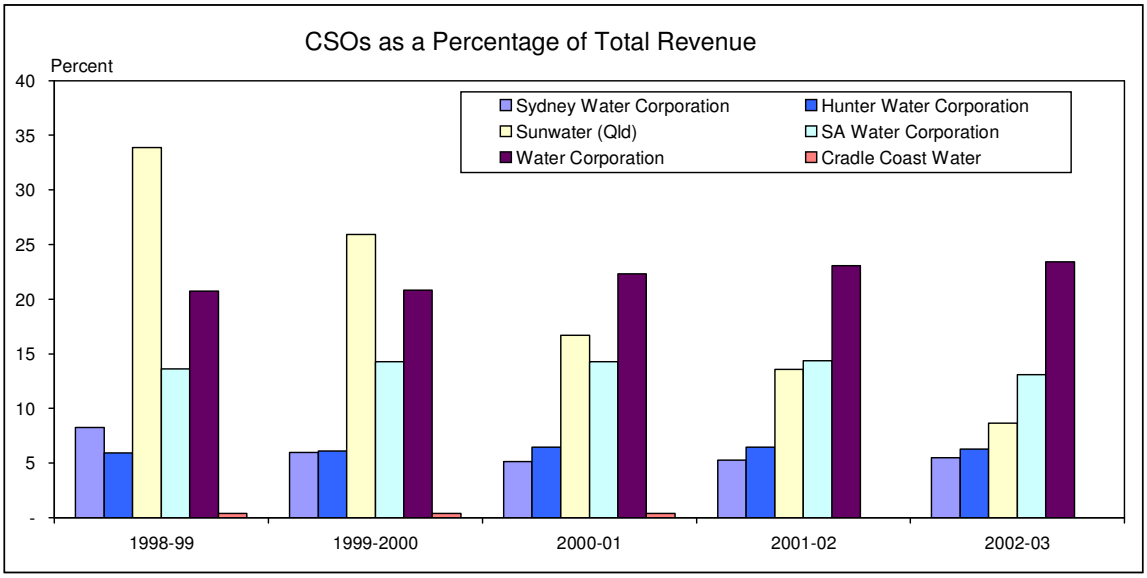
CSO category	**2004/05**	**2005/06**	**2006/07**	**2007/08**	**2008/09**
			($million)		
Non-commercial country services	180	185	193	198	204
Revenue concessions	68	72	75	79	83
Infill sewerage program	225	26	28	29	30
Total	**274**	**283**	**295**	**306**	**317**

source: Water Corporation's 2004/05 Statement of Corporate Intent

In addition, the Water Corporation's CSO budget includes a $1 million discretionary fund, which the Minister for Government Enterprises can approve for the use of funding the Water Corporation's investigation of non-commercial schemes that it is requested to take over or augment, by local councils.

CSO payments to the Water Corporation are the highest of all States (on a per capita and nominal basis) due largely to the necessity to provide water services to remote areas of the State. In 2002/03, ten water GBEs received funding for CSOs totalling around $470 million – the Water Corporation received approximately 55% ($258.4 million) of these payments. Several other water GBEs were reimbursed funds by Governments for pensioner and other concessions but these amounts have not been fully disclosed in financial statements.

The chart below shows that CSOs paid to the Water Corporation have consistently accounted for over 20% of its revenues since 1998/99, which is significantly greater than compared to the other water GBEs monitored by the Productivity Commission. This however is likely due to the structure of the water industry in other States where there is greater participation by local councils and less regulation of prices charged by those local councils. Unlike these other State and Territories, Western Australia's uniform tariff policy is most likely a large contributor to the high CSOs paid.



source: Productivity Commission's report on the "Financial Performance of Government Trading Enterprises 1998/99 to 2002/03".

There is an annual CSO submission which the Water Corporation prepares for the approval of the Minister for Government Enterprises, and concurrence of the Treasurer in line with the DTF's CSO Policy. This policy provides an agreed methodology for their calculation and the CSOs are reported in the Budget and the SCI and SDP processes.

Given the significant amount of money provided in CSO funding, there may be merit in a greater level of scrutiny to ensure that CSOs are costed properly and there are appropriate incentives to achieve further efficiencies in CSO service provision.

In line with DTF's CSO Policy, all CSOs should be reviewed every five years to ensure that current CSO policy remains the most effective avenue for government to achieve its social goals. This reviewing process also provides the Government with an opportunity to consider CSOs from a long-term perspective.

The CSOs provided by the Water Corporation will be reviewed in 2005. During this review, the amount of CSOs paid to the Water Corporation will be examined. A review of CSOs will need to take account of the guidelines for CSOs at Attachment 3 provided by the NCC.

With CSOs, the service provider is subsidised for the cost of a certain level of service that the Government wishes to be delivered. The problem with this arrangement is the inefficiencies it produces whereby a consumer's demand is greater than it would have otherwise been if the cost of the service were not subsidised and instead the consumer had to pay for it directly. The ERA should comment on the CSOs paid to the Water Corporation and whether it would appear to comply with the NCC guidelines at Attachment 3 and the DTF's CSO Policy.

Aqwest and Busselton Water

The Bunbury and Busselton Water Boards do not currently receive CSO payments, nor do they pay dividends. However, the OWP is currently drafting new enabling legislation for Aqwest and Busselton Water that will potentially move them to full corporatisation. This would involve an objective in the new legislation requiring the water boards to act on commercial principles. If the water boards are corporatised, they will be expected to pay dividends to the Government and could also qualify for CSO payments if the Government directs them to do something that is not commercial.

Currently, Aqwest and Busselton Water have a policy of providing concessions to pension card holders and Commonwealth and State seniors card holders. The revenue forgone is estimated to be around $250 000 for Aqwest and $150 000 for Busselton Water. The DTF provides a rebate to the water boards of around $30 000 for the revenue foregone in relation to seniors card holders.

The ERA should be aware that the Office of State Revenue is chairing an inter-departmental working group to examine the coverage of the concessions provided to water and wastewater customers under the *Rates and Charges (Rebates and Deferment) Act 1992*. It is expected that the working group will consider the issue of concessions on water and wastewater charges provided by Aqwest and Busselton Water, and the corresponding implications for CSO payments.

EXPENDITURE

Accurate recognition of costs and cost-recovery mechanisms play important roles in the efficient provision of water and wastewater services. Like any good or service, consumer demand for water services will depend on the prices charged as discussed in previous chapter on supply and demand. Appropriate pricing that recognises costs is necessary to ensure that existing systems are used efficiently and to guide the timing and nature of investments to augment system capacity. Given the very high cost of system augmentation, this latter function of cost recognition and pricing is crucial.

Such pricing should convey information to consumers on the cost of various supply options and transmit information back to service providers on the value that consumers place on services. Under-recovery of costs makes it difficult for service providers to make appropriate decisions on when to invest in infrastructure and what level of services to provide, especially given the long lives of many water assets. Additionally, over-use of water can bring forward the need for expensive augmentations to systems.

The Western Australian water and wastewater systems (including drainage), with an asset base of over $10 billion, are the most geographically dispersed water systems in the world. This unique situation creates a number of challenges for both the capital and operating expenditure of water service providers in maintaining a strong commercial base to ensure continued operations.

As a result of these differing circumstances, care must be taken in making comparisons to industry best practice benchmarks and expenditure levels of other water providers. Factors that differ between service providers include service obligations and standards, water source expenses, geographic or topographic characteristics and density of customers.

The Water Corporation, Aqwest and Busselton Water have previously achieved a number of successful reforms to ensure that water services are provided in the least cost fashion. Reforms introduced include improved labour and management practices, better asset management practices, and contracting out of various functions and services. These businesses should continue with existing and new reforms to ensure least cost service delivery.

Capital costs

Given that capital requirements represent about two-thirds of the costs of providing water and wastewater services, asset replacement costs have an important bearing on the costs of service provision.

As the bulk of assets used to provide water, sewerage or drainage services in most urban centres are commercially viable, to achieve appropriate cost recovery, it is necessary to look at new investment decisions from a

commercial perspective. That is, new investment in infrastructure should be undertaken only if the authority concerned can publicly demonstrate that there is a reasonable expectation that customer charges will be sufficient to cover costs, including a designated rate of return on capital.

Drivers of capital expenditure in the water industry include:

- base capital maintenance;
- supply/demand;
- quality and standards;
- enhanced service; and
- commercial.

Capital Works Programs are proposed by agencies for Ministerial endorsement and are then considered for approval as part of the Budget process. In the case of the Water Corporation, capital expenditures are initially considered in the SDP process. Agencies are requested to prepare their capital investment plans and any capital investment proposals on the basis of a rigorous internal assessment of the agency's capital investment needs, consistent with the agency's business and the Government's stated priorities.

It should be noted that arising from the recommendations of the Functional Review, submissions for capital funding will be assessed from a whole-of-Government portfolio view, and reviewed against criteria consistent with the Government's predetermined priorities; agencies are required to submit capital investment plans for a 10 year period; and each submission for any funding over the Budget and forward estimates period that has a total cost of more than $1 million must be supported by a business case.

However, the Water Corporation, as a major agency, has to a certain extent a devolved capital works approval process. In its case, the total level of capital works approved in its SDP flows into the Capital Works Program approval process at an aggregated (program) level rather than at a specific project level. Specific approval at the project level is only required for new projects additional to the approved plan.

Governments have considerable discretion to impose non-commercial requirements on water, sewerage and drainage service providers, however in the case of Water Corporation such 'Community Service Obligations' are required to be compensated by explicit payment from government.

Additionally, Governments may attempt to influence projects that are not the best alternative as far as the service provider is concerned. In such cases, service providers can be negatively affected through pressure to pursue

second best projects and the resulting operational economic and financial costs.

Asset Condition

Efficient service provision requires that assets are neither replaced prematurely nor belatedly. Emphasis should be placed on the careful economic evaluation of new capital works and the need to pay greater attention to monitoring the age conditions of assets and their likely replacement schedules, clearly a major issue for the water industry. There may be potential to prolong asset lives through better asset monitoring and improved maintenance procedures.

In the long run what really matters is the assets' age, condition, capacity, and remaining economic lives. Asset lives should be based on a consideration of the service providers' experience, similar circumstances in other jurisdictions and industry knowledge. There is also a need to assess whether estimates of asset lives have been overly conservative.

It is important to recognise that asset conditions in the water industry are particularly affected by maintenance and repair expenditure, particularly given the fact that this can involve the replacement of the asset, or part thereof. Technological factors may also have an effect of extending asset lives. In some circumstances this may result in financial costs not being indicative of asset conditions.

'Gold Plating'

'Gold plating' can be explained as the excessive over-engineering of infrastructure, relative to risk and economies, to avoid the perils of infrastructure failures or outages that are very low probability events. It is more likely to occur in water suppliers with little or no competition or threat of competition such as the Water Corporation.

In such circumstances it would be possible to substantially reduce costs with little loss of functionality by installing less costly plants. Conversely, the 'gold plating' of infrastructure allows increased assurance of reliability in underlying service provision, which may be desired by some parties.

Operating costs

The components of the total cost of service provision are operating costs, a return *of* capital and an appropriate return *on* capital. These components can be defined as:

- operating costs refer to the operations and services, maintenance and administrative costs incurred at the core business level of the water businesses;

- return of capital is measure by depreciation; and

- return on capital represents a return on to the equity holder, that is, in the case of Water Corporation and the Water Boards, the Government or the community.

It should be noted that if water and wastewater services were to be provided on a continuing basis by a private operator, that operator would need to generate sufficient revenue to cover the above costs.

The recovery of operating costs by the service providers should be undertaken according to the COAG pricing principles listed in the Terms of Reference to the Inquiry.

Cost of asset consumption

Depreciation is a way of amortising the costs of investments over time as a charge for capital 'consumed' in the production process. Given the objective of covering costs, proper asset valuation and provision for depreciation is crucial. As a result of the long-lived nature of water assets, asset valuation and the calculation of depreciation are both contentious issues.

Given the uncertainty about the effective lives of many long-lived water assets, and the impact of local conditions on those lives, prescribing a single schedule for each asset group is fraught with difficulty. Additionally, the rate at which assets depreciate is in part a reflection of the level of maintenance performed. Thus, maintenance and investment in new capital are to some extent substitutable.

Asset valuation should allow for general inflation, fluctuations in specific prices and costs, and for technological progress resulting in change to the value of capital equipment. As a result of these issues, the deprival approach to asset valuation was developed.

Deprival value is calculated as the lesser of depreciated replacement cost of an asset and the economic value of the asset. The economic value is the maximum of the net present value and the net realisable value of the assets. The methodology is set out in the "Guidelines in Accounting Policy for Valuation of Government Trading Enterprises – using current valuation methods" issued in October 1994 by the Steering Committee on National Performance Monitoring of Government Trading Enterprises.

Up until 30 June 2000 the Water Corporation used deprival value to measure its asset base in its annual reports. It then used this deprival value as 'deemed cost' for financial reporting from 1 July 2000 and subsequent asset additions are accounted for at cost. However, it still calculates the deprival value of its assets and deprival based cost of consumption (depreciation) for use in calculating rate of return on assets for pricing purposes.

The use of asset valuation and consumption methods other than deprival value is likely to understate the cost of capital employed and also asset consumption and thereby lead to overstatement of rates of return achieved on assets.

Aqwest and Busselton Water value assets on a cost basis and therefore asset consumption is based on cost.

Cost of capital recovery

The inclusion in prices for water and wastewater services of a component for the cost of capital is important in signalling the true costs of providing services.

In calculating the cost of capital recovery it is first necessary to assess the service provider's asset base. The asset base should be adjusted to exclude:

- assets provided by developers or funded through developer charges. Consumers pay for these assets when they buy land, and thus their inclusion in the asset base used to determine capital charges would represent double charging. However, it is still necessary to include any applicable new headworks expenditure, as in most cases charges levied on developers recoup less than the full cost of system augmentations[2]; and

- those assets with no commercial value (non-commercial assets). In most urban systems the need for such an adjustment will be rare.

It should be noted that such adjustments give service providers considerable flexibility in achieving their required rate of return and are open to manipulate. Thus, adjustments to asset bases should be documented.

The Water Corporation's historical pricing targets have been based on its return on assets (ROA). A target rate of return (ROR) of 6% was established when it was corporatised on 1 January 1996 (after debate as to whether it should have been as high as 8%). However, it was clear that this rate of return could not be achieved on all assets, so a 'line in the sand' of 4% was applied to 'old' assets (i.e. those held at 31 December 1993) with the 6% to apply to all assets acquired after that date. The above approach would in the long term raise the ROR to 6% as new assets replaced old assets.

It should be noted that, in view of the circularity of asset value determining prices and prices determining asset values, the decision was taken to rely on asset values and reduce the required ROR rather than hold the ROR and reduce the value of the assets for subsequent price determinations.

[2] Existing customers meet the resulting shortfalls in revenue. Against this, the bills of residents in new developments will typically include a capital component for infrastructure used to provide services in other areas. Therefore it is not clear whether the total capital costs paid by residents in new sub-divisions under or over-state the actual costs of connection to the network.

The Water Corporation in its SDP, historically tended to propose a pricing path over the period of the plan to achieve a 6% return on all its assets. The Government's approach has generally been based on CPI increases being approved.

The pricing of Aqwest and Busselton Water appear to have been based on historical price levels plus CPI increases as approved by government. Accordingly neither approach appears to have been used for cost of capital recovery.

PAYMENTS TO THE GOVERNMENT

Dividend policy

Corporations Law requires that dividends be paid out of profits in order to preserve capital and protect shareholders.

A private sector firm making a profit can choose to reinvest these funds to expand the business or alternatively, distribute this profit to shareholders in the form of a dividend.

There are various forms of dividend policy including residual dividend policy, which primarily focussed on the needs of the business, and the target dividend payout ratio where the dividend paid is a defined ratio of annual profits and is determined by the long run difference between expected profits and expected investment needs and provides for a smooth dividend payout.

The benefits of a formal dividend policy is that it provides greater certainty to the GBEs regarding expectations of their financial performance as well as enhancing the transparency of, and accountability for, such performance. While a formal dividend policy may reduce the Government's flexibility to raise revenue, an appropriate dividend policy would ensure there is a balance between the long term funding needs of the GBE and the revenue requirements of Government.

New South Wales applies a "Financial Distribution Policy for Government Businesses" in determining its dividend payments. This policy states that dividend targets over four years are negotiated and agreed in writing between the shareholders and boards, with ultimate determination reserved for the shareholders.

A formal target dividend payout ratio is not applied but the use of a 'modified' residual approach to dividend determination, which considers the amount of excess cash available in a business after allowing for:

- working capital;
- the funding of acceptable investments (those which project yields greater than the businesses WACC, except for capital expenditure which is required to fulfil regulatory requirements); and
- an appropriate contingency for financial flexibility.

A modification is made to take account of Government's strong preference for dividends over capital gains and for a reasonably stable stream of total dividends from its portfolio of businesses.

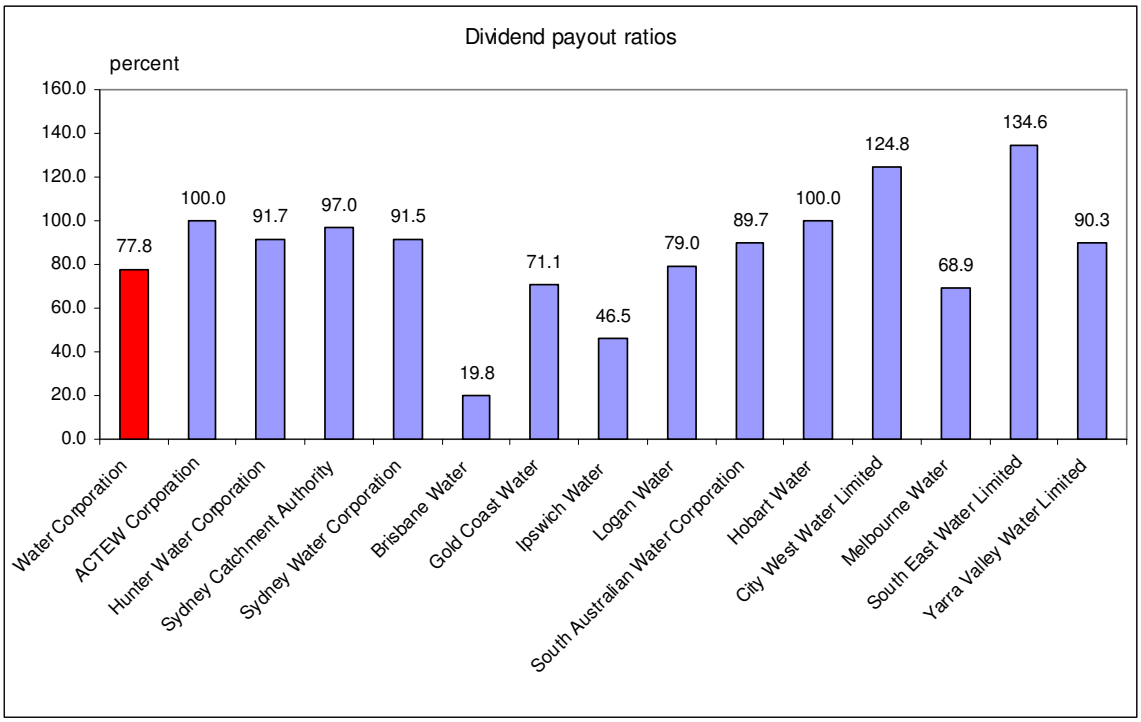
Queensland also applies a formal dividend policy via section 159 of the *Government Owned Corporations Act 1993,* which governs the operations of the

Government Owned Corporations in Queensland. Section 159 specifies that dividends be recommended by the Board to the Shareholding Minister who must accept the recommendation or direct the Corporation to make an alternative dividend payment.

However, the *Government Owned Corporations Act 1993* does not specify the way in which the Board reaches its recommendation. The Office of Government Owned Corporations advises that there is no dividend policy implemented by Government Owned Enterprises.

In Western Australia, the legislation requires a number of GBEs to make dividend payments. However, Western Australia has no formal dividend policy. The dividend paid is agreed between the shareholder and the board and is not formally linked to a specific aspect of the financial performance of the GBE.

The graph below provides a comparison between the dividend payout ratios in 2002/03 of the Water Corporation and other major service providers around the country.



source: Water Services Association of Australia Facts Book, 2003

It is important to note that the dividend payout ratios (percent of after tax profit) presented in the graph above do not necessarily match the payout ratios publicly reported by the service providers. The figures here are calculated in a way that allows comparison across jurisdictions. As a result, the outcomes sometimes differ from the publicly reported figures. For example, the graph shows the Water Corporation with a payout ratio of

77.8%, whereas its actual rate as reported in the State Budget and its Annual Report, was 85% of after tax profit.

The Water Corporation has previously paid dividends ranging from 80% to 95%. Historically, the Water Corporation's target dividend payout ratio has often been altered in accordance with the financial requirements of Government.

The Water Corporation's net payments to Government are considered high in comparison to other States, due largely to high tariff rates and low levels of competition. However, the geographic size and low population density of the State increases calls for CSO's, which reduces net payments. The high revenues received by the Water Corporation also increase the level of dividends that are paid to the Government.

A target dividend payout ratio of 85% has been implemented in 2004/05 and the forward estimates. This level of dividend is typical of the water industry given the relatively low levels of gearing held by the industry.

The following table shows the actual dividends paid by the Water Corporation and the forward estimates:

2001-02 Actual	2002-03[(b)] Actual	2003-04 Estimated Actual	2004-05 Budget Estimate ($million)	2005-06 Forward Estimate	2006-07 Forward Estimate	2007-08 Forward Estimate
259.8	**255.3**	**264.0**	**275.5**	**305.0**	**333.0**	**337.9**

Comparable water providers in other States do not implement formal dividend policies but typically have high dividend payout ratios and low gearing levels. Generally, the determination of the dividend payment is made through agreement between the Shareholder Minister and the Treasurer.

A report commissioned by the NCC titled "Dividend Policy Issues for Government Business Enterprises Engaged in Providing Water Services" compares the dividend payout ratio of 18 water GBEs with the average for the top 50 listed companies on the ASX using data from 2000/01. This comparison shows that the mean and median payout ratios for the top 50 ASX listed firms are typically in the range of 60% to 70% which is consistent with the median result for the water businesses (68.8%).

This report also points out that payout ratios of 100% or more are quite uncommon amongst the publicly listed firms (4%), while a larger proportion (22%) of the 18 water GBEs had payout ratios in excess of 100%, which included the Water Corporation. This is due to the inclusion of developer contributions in the dividend calculations. Because developer contributions are gifted assets, they are not normally included in the dividend calculation,

but when they are, the result can often be a dividend payout ratio in excess of 100%.

Notwithstanding that this analysis was undertaken over only one year, GBEs are subject to the potential to pay higher dividends to their shareholders as directed by government without considering the impact on business as would be the case with private companies and their shareholders.

Aqwest and Busselton Water currently do not pay dividends to Government however, under the proposed legislation review, which would see them operate more commercially in accordance with Corporations Law principles, dividend payments would be required.

A review of the Productivity Commission's "Financial Performance of Government Trading Enterprises" shows that comparable rural water providers are required to pay dividends to their respective governments however, generally, the majority of these providers do not make regular dividend payments.

Tax equivalent payments

Under the *State Enterprises (Commonwealth Tax Equivalents) Act 1996*, the Water Corporation is required to pay the Treasurer a tax equivalent sum in respect of each financial year. This tax equivalent sum is equal to the amount of any income tax for which the Water Corporation would have been liable if it was not exempt from income tax under the relevant Commonwealth Act.

The following table shows the actual payments and forward estimates of the Water Corporation's tax equivalent payments:

2001-02 Actual	2002-03[(b)] Actual	2003-04 Estimated Actual	2004-05 Budget Estimate ($million)	2005-06 Forward Estimate	2006-07 Forward Estimate	2007-08 Forward Estimate
131.8	134.4	142.9	148.5	161.7	180.3	185.6

OTHER ISSUES

International financial reporting standards

From 1 July 2005 all registered Australian companies will have to adopt (where applicable) the Australian Equivalents to the International Financial Reporting Standards (IFRS).

The key issue for the Water Corporation and the Bunbury and Busselton Water Boards is whether they can be considered to be a for-profit or not-for-profit entity.

The consensus between the DTF and the OAG is that Water Corporation will be classified as a not-for-profit entity under the IFRS as its legislation indicates that making a profit is not its principal objective.

Further information on this is at Attachment 4 to this submission.

ATTACHMENT 1: GOVERNANCE ARRANGEMENTS

Water Corporation

The Water Corporation was established on 1 January 1996 and operates under the WC Act. Its purpose is to:

- acquire, store, treat, distribute, market and otherwise supply water for any purpose; and
- collect, store, treat, market and dispose of wastewater and surplus water.

The Corporation has a 25 year licence issued by the Office of Water Regulation (now held by the ERA), which is valid until 2021, and which sets out the terms and conditions under which the Corporation operates and provides its services.

Corporations Law

The Corporation is subject to the sections of Corporations Law, which relate to financial administration and certain audit requirements (Schedule 3 of the Act).

As a result, the FAAA has limited application, with only the audit provisions applying to the Corporation (Sections 78 to 92 and 95 of the FAAA).

Tax and Rate Equivalents

The *State Enterprises (Commonwealth Tax Equivalents) Act 1996* requires the Corporation to pay the Treasurer a tax equivalent sum in respect of each financial year. This tax equivalent sum is equal to the amount of any income tax for which the Water Corporation would have been liable if it was not exempt from income tax under the relevant Commonwealth Act.

The Water Corporation is also required to pay to the Treasurer a sum equal to the amount of local government rates or charges that the Corporation would have been liable to pay in a financial year (Part 5 of the Act).

Strategic Development Plan (SDP) and Statement of Corporate Intent (SCI)

Part 4 of the WC Act requires the Water Corporation to prepare a SDP, which must be submitted to the Minister for Government Enterprises by 30 March each year. The SDP must set out economic and financial objectives and operational targets and how those objectives and targets will be achieved and it covers a forecast period of 5 years, unless a lesser period has been agreed with the Minister.

The Minister for Government Enterprises must reach an agreement with the Board on the draft SDP as soon as possible, but no later than 30 May each

year. However, it is required that the Minister receive the Treasurer's concurrence to the SDP.

The same part of the WC Act also requires the Corporation to prepare a SCI, again to be submitted to the Minister for Government Enterprises by 30 March each year. The SCI contains detailed information on the Water Corporation's operations that relate to the relevant financial year, which must be consistent with the information provided in the SDP.

Quarterly and annual reports

The Water Corporation is required to prepare quarterly performance reports under Part 4 of the WC Act, which must be submitted to the Minister for Government Enterprises within one month after the end of the quarter. The information that is required to be included in a quarterly report is outlined in the relevant SCI.

After consulting with the Board, and deleting any commercially sensitive information from the report, the quarterly report must be available to the public.

Part 4 of the WC Act also requires the Water Corporation to prepare and deliver an annual report to the Minister for Government Enterprises in each year. The Minister must present a copy of the Water Corporation's annual report to Parliament within 21 days of receiving the report.

Dividends

Part 5 of the WC Act requires the Water Corporation to pay a final dividend with respect to the financial year to the Treasurer as soon as practicable after the amount has been fixed.

The Board will make a recommendation to the Minister for Government Enterprises of the final dividend and the Minister, with the concurrence of the Treasurer, can either accept this amount or consult with the Board to determine another amount.

The Board may also make a recommendation as to the amount of an interim dividend to be paid to the Treasurer during part of a financial year.

Aqwest and Busselton Water

Aqwest and Busselton Water operate under the WB Act. Their purpose is to supply water within the regulated area.

The Water Boards have 25 year licences issued by the Office of Water Regulation (now held by the ERA), which are valid until 2021, and which set out the terms and conditions under which the Boards operate and provide their services.

The following is an overview of the corporate governance arrangements for the Aqwest and Busselton Water.

Financial Administration and Audit Requirements

The provisions of the FAAA, which regulate the financial administration, audit and reporting of statutory authorities, apply to and in respect of a water board and its operations.

Section 42 of the FAAA requires annual estimates of the water boards operations to be submitted to the Minister for the Environment.

The Water Boards are not required to prepare SCIs or SDPs, or pay local government rate equivalents and dividends.

Tax Equivalents

The *State Enterprises (Commonwealth Tax Equivalents) Act 1996* requires the water boards to pay the Treasurer a tax equivalent sum in respect of each financial year. This tax equivalent sum is equal to the amount of any income tax for which the water boards would have been liable if it was not exempt from income tax under the relevant Commonwealth Act.

ATTACHMENT 2: PRINCIPLES OF PRICE REGULATION

A strong assessment framework should guide the development of a regulatory regime for water pricing. By way of example, the regulatory assessment framework adopted by the Productivity Commission is replicated below.

Regulatory assessment: Some General Principles

Objectives

What problem does the regulation seek to address?

Is the problem significant enough to warrant a regulatory response, having regard to the likely costs of intervention? In other words, are the benefits of regulation to the community as a whole likely to exceed the costs?

General efficacy

Does the regulation target the problem effectively?

Does it have any unintended consequences and costs?

Is it consistent with related regulations?

Can it readily accommodate expected changes to the nature of the regulated activity?

Would changes to the design and implementation of the regulation improve its effectiveness?

Would alternative regulatory approaches provide a superior outcome for the community?

Administrative efficiency and accountability

Are administrative processes timely and transparent?

Are there appropriate and effective monitoring and review provisions?

Are 'regulators' accountable for their decisions?

Is there appropriate separation of policy making and regulatory functions?

Could changes be made to reduce administrative and compliance costs without undermining the regulation's effectiveness?

source: Productivity Commission 2001

An appropriate regulatory assessment framework should assist in developing an effective and efficient regulatory regime for water pricing. That is, effective in achieving the identified objectives of regulation and efficient in terms of minimising regulatory and compliance costs (Productivity Commission 2003).

What is the objective of price regulation?

The Issues Paper highlighted a range of reasons why water prices are currently regulated in Western Australia including the promotion of equity, the conservation of water and providing a reasonable rate of return on assets.

The importance and benefits of clear regulatory objectives were enunciated by the Productivity Commission as part of its review of the national access and gas access regimes:

> "Clear specification of objectives is fundamental to all regulation" (Productivity Commission 2001 p.124)
>
> "Clear objectives improve the likelihood of:
>
> - reducing administration and compliance costs of regulation;
> - reducing the scope for conflict and disputes; and
> - achieving more efficient outcomes for the gas industry." (Productivity Commission 2004 p. 161)

As highlighted in the introduction to this submission, the fundamental reason to regulate water pricing is that natural monopoly characteristics, combined with weak competitive forces, may produce inefficient outcomes. The aim of pricing regulation, is therefore, to improve efficiency in order to maximise total welfare.

Consequently, the overriding objective of economic regulation in the water industry should be to improve economic efficiency. "Economic efficiency" is general defined using three distinct categories:

Allocative Efficiency (Pricing): Allocative efficiency requires that prices accurately reflect costs. This will mean that producers make the appropriate production decisions and consumers make appropriate consumption decisions (that is, water will be allocated to their highest valued uses). Inaccurate price signals can lead to inefficient consumption, production and investment decisions.

Productive Efficiency (Technical): Productive efficiency occurs when the least cost combination of inputs is being used to produce a given level of output.

Dynamic Efficiency (Investment): Dynamic efficiency occurs when the least cost options for water supply are encouraged to enter the industry over time. Basically, this means cost effective investment in the water industry of the right type, in the right place, at the right time.

Once a clear objective is set, it should provide a guiding principle for:

- the development of the form of regulation (e.g. building blocks, benchmarking); and

- the application of the regulatory regime (deriving parameters and price determination).

What about the other objectives?

There are a variety of other possible objectives for water pricing, aside from economic efficiency. However, adopting multiple objectives for price regulation increases the risk of conflict, uncertainty in decision making and may ultimately dilute the effectiveness of the regulation.

International experience suggests that price regulation is not the most effective means of achieving broader objectives such as equity/distributional goals and environmental objectives.

> "For instance, if a regulator attempted on distributional grounds to set low access prices to assist particular groups of consumers, it could have adverse (short and long term) effects on efficiency. Yet, by using a more targeted instrument, such as budget-funded community service obligations, selected groups of consumers could be assisted without those deleterious impacts.

At a recent conference on Regulation and Investment (convened by the ACCC), it was noted that overseas experience had also shown the drawbacks of pursuing distributional goals through access (and related) regulation. For example, the former Chief Economist of OFTEL (the telecommunications regulator in the United Kingdom) noted that well-meaning regulation designed to accelerate artificially the spread of new services more broadly than otherwise would occur — for example, to 'thin' regional markets — could actually deter or delay investment in such services." (Productivity Commission 2001 p.135)

While promoting economically efficient outcomes should be the primary objective of price regulation, this does not mean that other community goals cannot be achieved through the regulatory regime. Objectives such as environmental considerations and distributional outcomes are consistent with the objective of economic efficiency. For example, providing appropriate price signals that reflect the scarcity value of water should promote water conservation.

ATTACHMENT 3: NATIONAL COMPETITION COUNCIL POLICY ON COMMUNITY SERVICE OBLIGATION PAYMENTS

The NCC wrote to all States and Territories in June 1998 noting that the payment of subsidies and CSOs represented:

> '…leakages from the goal of attaining full cost recovery [the goal being that resources are allocated efficiently and the correct signals are given in relation to investment and consumption]. To meet the requirements of 3(a)(ii) and 3(d)(i), any CSOs or subsidies would need to be clearly defined, well targeted, and justifiable in terms of departure from the general principles as well as being explicit and transparent. Hence, a situation where a jurisdiction had large undefined CSOs and large subsidies may find it difficult to prove compliance with full cost recovery goal in 3(a)(i).'

The January 1999 tripartite meeting further clarified the NCC's assessment role regarding CSOs:

> 'In making its assessment the NCC shall not seek to make its own assessment of the adequacy of the justification of any individual CSOs or cross-subsidies but jurisdictions will provide explanations of the intent of the CSOs and cross-subsidies and the NCC will examine how in totality they do not undermine the overall policy objectives of the strategic framework…'

In considering whether CSOs undermine the intent of the reform framework the NCC looks for CSOs to be well specified in terms of targeting a particular special needs group or community outcomes rather than being operating subsidies, and for any operating subsidies to be minimised and reduced over time. The tripartite meeting's reference to transitional CSOs in discussing price paths for schemes not achieving financial viability by 2001 indicates this assistance should be reduced over time so that schemes at least recover the lower bound of cost recovery.

In reviewing progress in relation to CSOs delivered by rural water services the NCC will:

- look for governments to explain the objectives of all relevant CSOs and cross-subsidies including establishing how they are consistent with the intent of the agreed COAG framework; and

- consider whether CSOs and cross-subsidies individually and collectively are consistent with the objectives of the framework (including the principles of full cost recovery and consumption based pricing).

The NCC looks for CSOs to be well targeted, with generic operating subsidies minimised and reduced over time such that sufficient revenues are earned to achieve viability as soon as practicable. A small number of schemes/services

may require ongoing operating assistance to achieve at least the lower bound of the COAG pricing principles but the number and significance of schemes should be small.

ATTACHMENT 4: INTERNATIONAL FINANCIAL REPORTING STANDARDS

For reporting periods on or after 1 January 2005 all registered Australian companies will have to adopt (where applicable) the Australian Equivalents to the IFRS.

The key issue for the Water Corporation, Aqwest and Busselton Water is whether they can be considered to be a for-profit or not-for-profit entity and the impact that could have on their asset valuations. If deemed to be a for-profit entity, then the IFRS for example would result in a $1 billion write down in the asset valuations of the Water Corporation.

A not-for-profit entity is currently defined as an entity whose financial objectives do not include the generation of profit. The IFRS (Australian equivalent: AASB 136 *Impairment of Assets)* defines a not-for-profit entity as one whose principal objective is not the generation of profit. There is no guidance provided under IFRS on the application of this definition**.**

Under the existing standards, the Water Corporation is a for-profit entity. As not-for-profit is defined under the IFRS, in the absence of any application guidance, a literal approach has been agreed between the DTF and the OAG. The consensus is that the Water Corporation will be classified as a not-for-profit entity under the IFRS as its legislation indicates that making a profit is not its principal objective.

Nevertheless, it is possible that some guidance on the application of the definition of not-for-profit may be issued in the future by the Australian Accounting Standards Board. Any such advice will need to be considered.

Under the IFRS (AASB 136), assets can not be carried at an amount that exceeds their recoverable amount. With the Water Corporation classified as not-for-profit entity, the recoverable amount under the IFRS will be the depreciated replacement cost of an asset. Given this, it is not expected that the Water Corporation will be required to write-down any of its asset values (otherwise known as impairment losses).

However, if the Water Corporation were to be classified as for-profit entity, the recoverable amount under the IFRS would be the present value of future cash flows (using a commercial discount rate), instead of the current approach which does not require discounting of cash flows. This would likely result in a major write down in asset values with the transition to the IFRS.

This write down loss would be recognised against equity on transition to the IFRS. However, there would be ongoing impacts against the bottom line. The initial write down in asset values would result in a reduction in depreciation expense in future periods. More significantly, there would likely be significant and irregular increases in expenses through future write down losses. These could occur as new assets come on stream and where price

increases (that would be needed to sustain the return on assets) are restricted by Government.