Response to the Economic Regulation Authority's Inquiry on Urban Water and Wastewater Pricing Methodology Paper

22 December 2004

WATER CORPORATION

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1. Introduction

This paper represents the Water Corporation's submission to the Economic Regulation Authority (ERA) on the issues raised in the *Inquiry on Urban Water and Wastewater Pricing Methodology Paper (15 October 2004).* In particular, this submission provides a response to the questions raised in Sections 4.2 to 4.8 of the Methodology Paper.

The Submission demonstrates that:

- The Corporation is meeting service levels required by our Operating Licence, Government and other regulators. We have conducted market research to measure customers' perception of value and willingness to pay for new initiatives and will continue to use these to guide our capital investment decisions in the future.

- The Corporation has proposed a source development program based on the requirement to meet water demands for a 7-year climate scenario, the State Water Strategy target demand of 155kL per person and groundwater extraction of 120GL per annum.

- The metropolitan demand management strategy to meet the 155kL per person target is challenging and financially justified.

- The Corporation has developed a security of supply target with an objective of minimising the probability of full sprinkler bans due to the adverse impact on the community.

- Planning is being undertaken for additional sources that would be required should:
    - the climate show a further drying trend;
    - access to groundwater be further restricted;
    - consumption exceed 155kL per person.

- Growth in the Alkimos and East Rockingham wastewater catchments has required an acceleration of wastewater treatment investment that will increase the Corporation's capital program.

Price increases based on the Consumer Price Index (CPI) have been sought, with specific additional increases required to fund the additional costs associated with:

- the Perth Seawater Desalination Plant;
- trading water gained from irrigation efficiency savings with Harvey Water.

The Corporation's proposed Base Prices reflect the current tariff structure.

2. September 2004 Submission

In September 2004 the Water Corporation provided its first submission to the ERA on pricing. This submission was presented as called for in the Authority's *Inquiry on Urban Water and Wastewater Pricing Issues Paper (22 July, 2004).*

The September submission outlined the major new opportunities and challenges facing the Corporation – both internally and externally.

The biggest immediate challenge facing the Corporation continues to be climate change. The drying climate has required a major response by the Corporation in demand management and source augmentation. The prime objective is to avoid a total sprinkler ban.

Long-term climatic change affecting weather patterns, particularly in the south west corner of the State, has resulted in a substantial reduction in streamflow to major surface water sources that supply the Integrated Water Supply System. There has also been a similar reduction in groundwater sources, particularly in superficial aquifers. This trend has strengthened substantially over the past 29 years, placing the Corporation in a challenging position to meet demand in one of Australia's fastest growing regions.

In 1996, the Corporation responded to lower rainfall trends by derating the capacity of its available water sources and accelerated a major new program of source development. The completion of the Harvey Dam, the recent commissioning of the pipehead dams on Wokalup Creek and Samson Brook, and new groundwater sources at Mirrabooka and into the Perth Yarragadee, were part of a $665 million source development program that doubled the supply capacity of the Integrated Scheme in a decade. Without this investment in new sources, more severe restrictions than the current two-day a week regime would have been unavoidable.

Stage Four Water Restrictions (that is, two days per week sprinkler watering) have been in place for the Integrated Water Supply Scheme since 8 September 2001. This has resulted in an annual average saving of around 45 gigalitres of water a year (when compared to predicted unrestricted demand), and has allowed the Corporation to manage surface water storages through the critically dry periods since 2001.

Streamflows in 2004 are again below the average. This year's streamflows extend the recent drought sequence to eight years and the principal risk now faced is the prospect that this is indicative of the future. Under an eight year streamflow scenario, the Corporation has determined there is a need for significant augmentation of water sources in addition to the desalination plant for the Integrated Scheme to restore and maintain the balance between supply and demand.

The Corporation's planning for new supplies takes into account the prospect of a drier future, with security of supply being maintained through a combination of demand management initiatives and water supply development. The benefits from many demand management initiatives will be realised over the next ten years and are expected to absorb some of the growth that is forecast to occur through that time.

However, our short-term water needs will be met through new major water supply options, beginning with the 45-gigalitre-a-year Perth Seawater Desalination Plant.

Climate change has required a major response by the Corporation. We have taken an integrated approach, including source augmentation, to avoid total sprinkler bans.

Desalination is one of the seven platforms in a 'Security through Diversity' strategy the Corporation has embarked on to ensure a sustainable water supply. The strategy for the future involves desalination, demand management, water recycling, water trading with irrigators, catchment management, and new surface water and groundwater developments. The Corporation's commitment to sustainability will mean that these are approached with social and environmental sensitivity, and delivered with the smallest possible ecological footprint.

The Corporation has plans and actions in place to thoroughly understand, investigate and apply these diverse sources and strategies.

A cornerstone of the Corporation's approach to sustainable water management, is our program to assist the community to achieve a water sensitive culture with a minimum impact on Western Australia's enviable lifestyle. The Corporation has vigorously pursued opportunities to work with the public, to achieve the targeted 45-gigalitre per annum reduction in consumption.

Support from the Corporation's customers and the community in general has ensured the success of the demand management program initiatives.

The Corporation has vigorously pursued demand management through widespread communication and advertising, the Waterwise program and increasing charges for high water users.

The Corporation intends to position itself as a leader in the sustainable management of our natural resources. Sustainability, by its very nature, is central to the way we do business. Services are delivered using a renewable resource, effectively borrowed from the environment, rented to customers and returned to the environment. The future challenge is to provide security of supply and to develop solutions that sustain the environment.

For many years, the Corporation has incorporated sustainability principles into the way we do business. The next step is to standardise and broaden the sustainability principles, with an immediate goal to ensure they are an integral part of decision-making. The Corporation supports an integrated resource management approach to managing the State's water future. Enshrining 'sustainability' into decision-making means evaluating the most sustainable program options to manage and balance demand and supply, and making transparent the risks, costs and benefits of decision-making.

Assessment of all future water sources will involve identification, analysis and assessment of the environmental, social and economic impacts of the proposal after the application of mitigation measures, including offsets. The approval to be adopted

in these sustainability assessments is based on the achievement of net benefits; and environmental, social and economic impacts.

The Corporation is committed to sustainability. We are demonstrating this commitment through an integrated approach to economic, environment and social issues in its decision making.

The Corporation plays an important role in the management of the State's water cycle. Our continued success as an organisation is closely linked to that of the Western Australian community. For the past 3 years we have been working closely with the State Government, to implement the State Water Strategy, which is designed to secure our water future.

The State Water Strategy established a consumption target of 155 kilolitres per person per year (a reduction in consumption of about 15%) for the Integrated Water Supply Scheme. The Strategy defined 84 tasks to be undertaken by various agencies, of which 26 were allocated to the Corporation. The Corporation's Water Cycle Project team is undertaking these vital projects.

The Corporation's commitment to sustainable management of the State's water resources includes our role as a key player in the implementation of the State Water Strategy.

The Corporation's sustainability principles extend to our wastewater business, where we aim to return treated wastewater and its by-products to the environment with minimum impact. Compared to other States we have one of the highest rates of reuse of treated wastewater. Of the wastewater that is not reused, most is treated to very high standards and discharged with no adverse environmental impacts. For example, monitoring of discharges to the ocean has demonstrated no evidence of any harmful effects on the receiving marine environment or beaches.

To build on our success, our Corporate vision is to become a leader in sustainable wastewater management. To this end, the Corporation has developed the Wastewater Management Framework. Through closer stakeholder collaboration, this framework aims to optimise public health and environmental outcomes whilst taking into account community desires and the available resources.

While the Corporation's wastewater system is rated highly, we are constantly seeking cost effective improvement to meet the regulators' and the community's increasing expectations.

Greenhouse emissions and energy use are major global issues. These are also major considerations for the Corporation, as we are the second highest consumer of Western Power grid electricity. This situation is partly due to Perth's flat topography and high water table, which requires a high number of wastewater pump stations to deliver wastewater to wastewater treatment plants. Delivery of water from distant sources (particularly along the Main Conduit to Kalgoorlie) also requires high energy use. In addition, business growth and increasing regulatory standards have led to the use of advanced technologies and more energy intensive solutions.

It needs to be emphasised, however, that the Corporation's greenhouse emissions are currently 25% less than 'business as usual' due to energy efficiency, carbon sequestration through woodlots, and capture and combustion of methane at some wastewater treatment sites. The Corporation is also the largest purchaser of green energy on the grid.

The challenges over the next few years are to establish greenhouse targets and select appropriate solutions within the Western Australian context.

The Corporation has been recognised for its greenhouse leadership, winning the 2003 Australian Greenhouse Challenge Gold Award.

Stakeholder participation is one of the Corporation's biggest challenges as well as the key to our goal of achieving sustainable outcomes across all our decision-making. Involvement with local communities and key stakeholder groups throughout the State is integral to the Corporation's daily work. From customer liaison through to specific project issues, the Corporation believes building solid, trusting relationships is key to maintaining our social licence to operate and improve on our corporate reputation.

A formal stakeholder management model across the organisation is being implemented. It follows the International Association for Public Participation (IAP2) model, where we are moving from a culture of just 'informing' stakeholders with many projects to one that 'involves' stakeholders. The framework is research based, reflecting the expectations of major stakeholders and opinion formers. Annual stakeholder research identifies issues and opportunities, informs of systems improvement, measures performance and provides data for social performance reporting.

The Corporation has built strong relationships with our stakeholders and will continue to develop programs to better identify, understand, communicate with and engage our stakeholders.

The Corporation operates within customer service charters, policies and operating licence conditions that are based on best industry practice. Water industry regulators have established the service standards required, influenced by customer, community and stakeholder views.

The Corporation has a track record of improved customer service through new initiatives, improved processes, and new products and services. Our objective is to improve the way we respond to customer concerns by better understanding their attitudes and positions on issues. We have a continuous improvement approach that is being further advanced through a major review of the way feedback from customers is obtained and how the Corporation responds to that feedback.

The Corporation will continue to improve the way we respond to customer concerns by better understanding their attitudes and positions on issues.

The Corporation's proposed 2004/05 – 2008/09 (five-year) Capital Investment Program totals $3,048 million, including the Perth Seawater Desalination Plant, further source development and new wastewater schemes at Alkimos and East Rockingham. The program provides substantial benefit to Western Australia, with significant focus on:

- Providing of water related services to meet Western Australia's continuing growth;
- Drinking water quality;
- Upgrading of major wastewater treatment facilities;
- Continuing the Infill Sewerage Program; and
- Participating in the provision of infrastructure for the development of the Burrup Peninsula in the Pilbara.

The Corporation's capital program needs to be framed within the State Government's budgetary constraints. The program has been prioritised based on risk management, with the most urgent projects being funded within the budget constraint. For example, the past two years has seen the need to reprioritise $172 million to accommodate new water source projects.

Issues related to the Capital Investment Program include:

- Changing water demand due to restrictions and rapid growth rates in the housing sector;
- An absence of clear level of service priorities across all regulators;
- A limitation on capital funding from Government;
- A limitation on price rises for increased service levels set by Government;
- Long lead times to deliver service level improvements due to the increasing range and complexity of regulatory approvals; and
- Changing climate and associated needs impacting on our long-term planning.

The Corporation aims to work collaboratively with the Government, communities and its customers to prioritise service level improvements.

The Corporation has been subject to significant cost increases due to higher standards and regulatory requirements.

The Corporation is seeking improvements in longer term certainty from regulators to enable a more stable Capital Investment Program.

The Corporation has embarked on initiatives to make significant changes to deliver long-term efficiency. This is an area the Corporation has strongly focussed on for many years as it allows us to minimise prices to customers and offset some price increases that may otherwise have been required to provide better levels of service.

The absolute scope of efficiency improvements available must be balanced against wider social goals, such as maintaining employment in regional communities.

The Corporation commenced a corporate-wide efficiency project with the objective of being the best performing utility in Australia without compromising service. New initiatives that will deliver cost savings and improve process integration have been identified. These cost benefits will form the core of future efficiency targets, delivering an estimated total of $51.5 million in efficiency savings over the next five years.

The Corporation has achieved positive efficiency improvements and is implementing new efficiency initiatives with the objective of being the best performing Australian utility.

3. Service Levels

(Refer section 4.2 of the Methodology Paper)

Are the proposed levels of service provision consistent with required standards and customers' expectations?

In accordance with its Operating Licence, the Water Corporation is required to provide an Operating Licence Audit report to the ERA every two years. In addition, it must comply with the introduction of progressively increasing health and environmental regulations, which include the Australian Drinking Water Guidelines and more than 200 licences issued by the Department of Environment for water source extraction and wastewater treatment.

The Corporation also undertakes market research to determine customers' perception of value and willingness to pay for new initiatives. This gives valuable insight into customer priorities and informs the capital investment process.

Regulated Service Levels

The 2004 Operational Audit was recently completed with the Corporation achieving a 100% compliance. The auditable elements include:

Water Services Provision	Customer Charter
Drinking Water Quality	Customer Advisory Council
Sewerage Systems – Overflows on Property	Information - Customer Complaints 6 Monthly Reporting
Sewerage Systems – Blockages	Information - Incident Reports
Drinking Water Restrictions	Information - Quarterly Reports
Continuity	Information - Annual Benchmarking Report
Leaks and Bursts	Notification of Drinking Water (Farmlands)
Pressure and Flow	Services provided by Agreement – Major consumers
Urban drainage	Customer Complaints
Other drainage	Telephone Answering
Non Potable Services	Services Provided by Agreement
Contracting of services	Operating Areas

Of the 24 auditable elements, 15 received a 'Meets Requirement' assessment with a single compliance element, 'Pressure and Flow', assessed as 'Meets Requirement – Improvement Suggested'. The remaining eight elements were reported to have 'exceeded' compliance requirements.

The ERA has asked service providers to verify customer willingness to pay for service levels where these exceed minimum regulatory requirements. However, in each of these eight areas, reducing the level of service to the minimum may either jeopardise compliance in the future or, where costs are fixed, may not result in any cost savings to the customer. Each of these areas is considered individually.

Customer Complaints

Compliance Element	Compliance Assessment 2004	OL Target	2004 Actual Result
Customer Complaints	Exceeds requirements	90%	96.90%

Complaints are dealt with by a number of staff across the organisation and generally form a minor part of their job function. Extending the time taken to respond to complaints would result in minor cost savings. In addition the number of written complaints per year is currently less than five hundred. Slight variations in response times have a significant impact on the result.

Drinking Water Quality

Compliance Element	Compliance Assessment 2004	OL Target	2004 Actual Result
Drinking Water Quality	Exceeds requirements	95%	99.70%

The current regulatory requirements are based on 1987 Drinking Water Guidelines. The Health Department has, however, promoted the adoption of the 1996 Australian Drinking Water Guidelines and is working with the Water Corporation to introduce the additional works in stages. The higher standards in the 1996 guidelines are the primary reason for the Corporation's result in this category.

Continuity and Leaks & Bursts

Compliance Element	Compliance Assessment 2004	OL Target	2004 Actual Result
Continuity	Exceeds requirements	75%	85.90%
Water Supply – Leaks and Bursts	Exceeds requirements	<20 per 100km	17.1 per 100km

The Operating Licence sets a relatively conservative Continuity target (75%). In reviewing past Quarterly Reports, the Regulator has indicated that this may be raised in the future. In addition, given its dependency on asset performance (Leaks & Bursts) and the relatively young age and reasonable condition of infrastructure, it is expected that this Continuity result remains high.

Telephone Answering

Compliance Element	Compliance Assessment 2004	OL Target	2004 Actual Result
Telephone Answering	Exceeds requirements	>70%; <5%	77.7%; 2.5%

The Corporation uses historical trends to determine the most cost effective resourcing requirements. However, the variability of service levels is so great that during certain periods, the removal of one full-time member of staff can reduce service levels by up to 10%. Therefore, in an effort to 'hit' the licence target (currently 70%), the Corporation internally aims for a higher target of 75% to compensate for this variability and ensure compliance.

Sewerage Systems – Overflows on Property and Blockages

Compliance Element	Compliance Assessment 2004	OL Target	2004 Actual Result
Sewerage System – Overflows on Property	Exceeds requirements	99.80%	99.89%
Sewerage System – Blockages	Exceeds requirements	<40 per 100km	21.9 per 100km

The asset age and expenditure on maintenance has an impact on the likelihood of overflows and blockages. The recent changes to the Environmental Protection Act have strengthened environmental protection policies, enforcement and penalties for both individuals and companies. These standards are beyond the current licence requirements and are therefore likely to lead to an 'Exceed' result under the current Operating Licence compliance framework, which can still create compliance issues under the DoE framework.

Services provided by Agreement

Compliance Element	Compliance Assessment 2004	OL Target	2004 Actual Result
Services Provided by Agreement – Documented Agreements, Change of Consumer& Annual Notification	Exceeds requirements	90%	100%

The Corporation has established the necessary procedures to ensure relevant documentation and notification are provided to the affected customers. As this target is met through adherence to a procedure rather than additional resources, a reduction in the level of service will not equate to cost savings. As the Corporation has a duty of care to ensure these service standards are maintained, and there are no cost savings from reducing the level of service, it would therefore be inappropriate to aim for the lower target indicated in the licence (90%).

Additional Service Characteristics

The Water Corporation regularly undertakes market research to determine the factors that influence residential and commercial customers' perceptions of overall value. The research includes a number of additional service characteristics. The following table provides the results for the September 2004 quarter.

Key Measure – Residential	**% excellent/very good/good**	**Trend**
Extend to which accounts are easy to understand	90%	Steady
Speed of response to emergency situations	83%	Steady
Amount of information provided	73%	Increased
Sufficient depth of information	77%	Increased
Taste of water	65%	Highest for 3 years, usually around 60%

In general, these results indicate that the Corporation's current levels of service are consistent with customer expectations, with the exception perhaps of aesthetic water quality. While this is a major area of concern for the Corporation, it is just one of a number of projects against which the capital funds available to the Corporation must be prioritised. While every opportunity is sought to provide affordable improvements in aesthetic water quality, other critical programs such as dam safety, water source development and compliance with health guidelines have taken priority in the Corporation's budgeting process for the next five years.

In addition, the Corporation conducted a survey in 2002 to examine a variety of initiatives that could be implemented to enhance the service to customers. Residential customers were asked to rank potential service improvements according to the value they represented to the customer, and their willingness to pay the anticipated cost. Framed in this context, water quality was deemed to be a very low priority for those customers surveyed, with 52% not willing to pay anything to improve the quality of water.

4. Provision for the Future

(Refer section 4.3 of the Methodology Paper)

4.1 Water

Are the demand projections robust?

The Water Corporation forecasts demand for Perth, Mandurah and selected South-west towns serviced by the Integrated Water Supply System (IWSS) on the basis of population projections and per-capita demand.

ie. Forecast demand = Projected population x per-capita demand.

Population growth

Current water demand estimates for the IWSS are based on the medium population growth projection to 2030 developed by the Ministry for Planning (now Department of Planning and Infrastructure) in 2000. This projection was extended by the Corporation to 2050 to provide a long term outlook.

The Australian Bureau of Statistics (ABS) published population projections for Perth in 2003, however, the Ministry for Planning (MFP) projections were favoured due to the Ministry's familiarity with land planning and development in Perth compared with the purely statistical approach adopted by the ABS.

The MFP population projection is higher than the ABS projection, but:

- there is very little difference between the two projections in the short term; and
- by 2050, the difference between the two projections is about 200,000 people.

If the ABS figure were proven correct, the result would be that the MFP target population for 2050 would be reached about 10 years later.

Per-capita demand

Current water demand estimates for the IWSS are based on per-capita water use efficiency targets proposed in accordance with the State Water Strategy.

The per-capita targets are inclusive of all classes of customer. In other words, the per-capita targets account for water useage in all sectors (ie. residential, non-residential, industrial, unaccounted for water).

In the metropolitan area, the target is to reduce per capita demand to 155 kL/year by 2012. The community's ability to achieve this target has been demonstrated by water savings of 25-30kL/capita/year in recent years under 2 days per week sprinkler restrictions. The Water Corporation is progressing a wide range of initiatives to maintain this level of water use efficiency.

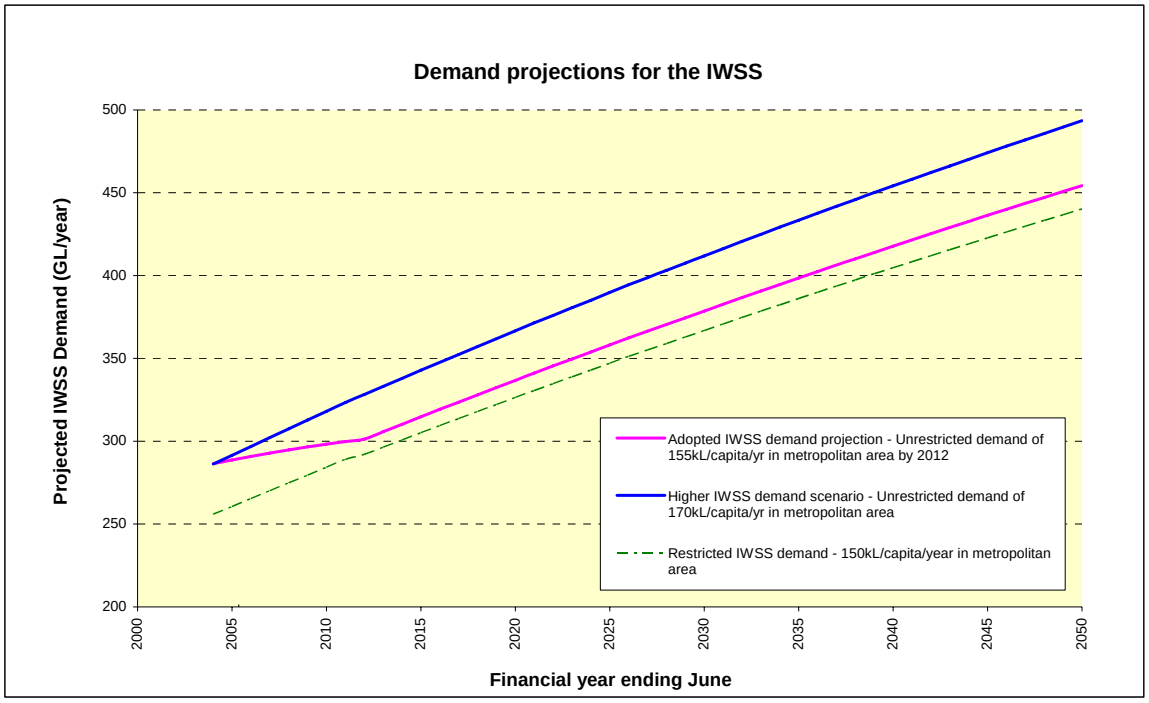
These initiatives include:

- Consideration of ongoing 3 days per week sprinkler restrictions (when storages have recovered sufficiently);
- The Government Waterwise Rebate Scheme, which was launched as part of the State Water Strategy in February 2003, and has recently been extended until early February 2005. The rebate scheme is expected to influence a market shift towards waterwise products, with ongoing water-use efficiency gains;
- Various Waterwise Programs (Plumbers / Garden Centres / Display Villages / Garden Irrigators / Businesses);
- Water efficiency advertising and community awareness campaigns;
- Support for and leadership in establishing a new nationally endorsed, mandatory water conservation labelling system;
- Waterwise Schools Program;
- Water recycling initiatives. The Kwinana Water Reclamation Project represents one such major initiative that will cater for growth in industrial demand on the Kwinana strip. Demand growth in this sector would otherwise have been dependent on increased supply of potable water from the IWSS.

Ultimately, the achievement of the water use efficiency targets will be heavily influenced by community behaviour, over which the Water Corporation has limited control. In order to ensure robust water source planning, the Corporation has assessed the sensitivity of its planning to a higher per capita demand scenario of 170 kilolitres per annum in the metropolitan area.

Demand scenarios

Under the demand scenario adopted by the Corporation as the basis of its planning for future source development, annual demands are projected to reach 455 GL by 2050 (see Chart overleaf). In the event of the higher 170 kL/year per capita outcome, demand would be increased by 40 GL/annum by 2050. The short-term implication of the higher demand scenario is significant, with a 30GL difference in demand on the IWSS over the coming decade.



Is the security buffer justified?

The Water Corporation has, until recently, undertaken its water source development planning for the IWSS on the basis that some form of restriction will be required in 10% of years. This corresponds to a frequency of having a total sprinkler ban in 3% of years.

A restriction category that requires a total sprinkler ban is now acknowledged as undesirable, and the State has undertaken to develop source capacity to ensure that the likelihood of a total sprinkler ban is very small (State Water Strategy, February 2003). To meet this requirement the Water Corporation has adopted, as the basis of its planning assessment framework for the IWSS, to reduce the probability of having a total sprinkler ban to 0.5% of years.

The Government announced its decision to proceed with the desalination plant before the outcome of the 2004 winter was known, due to the potential urgency in the delivery of the project. There is an opportunity to review this decision on completion of design.

Supporting the need to progress the project is the requirement for additional guaranteed capacity should the inflows of 2001 and 2002 be repeated.

A 290GL trigger point for a source augmentation can be calculated based on the following 2 year assumptions:

- Trigger for full sprinkler bans - end of summer storage 120GL
- Inflow scenario (40GL - 2001 80GL - 2002) 120GL
- Evaporation (20GL per annum) 40GL
- Ground Water Availability (135GL per annum) 270GL
- Consumption (260 GL per annum) 520GL

The trigger point is calculated as follows:

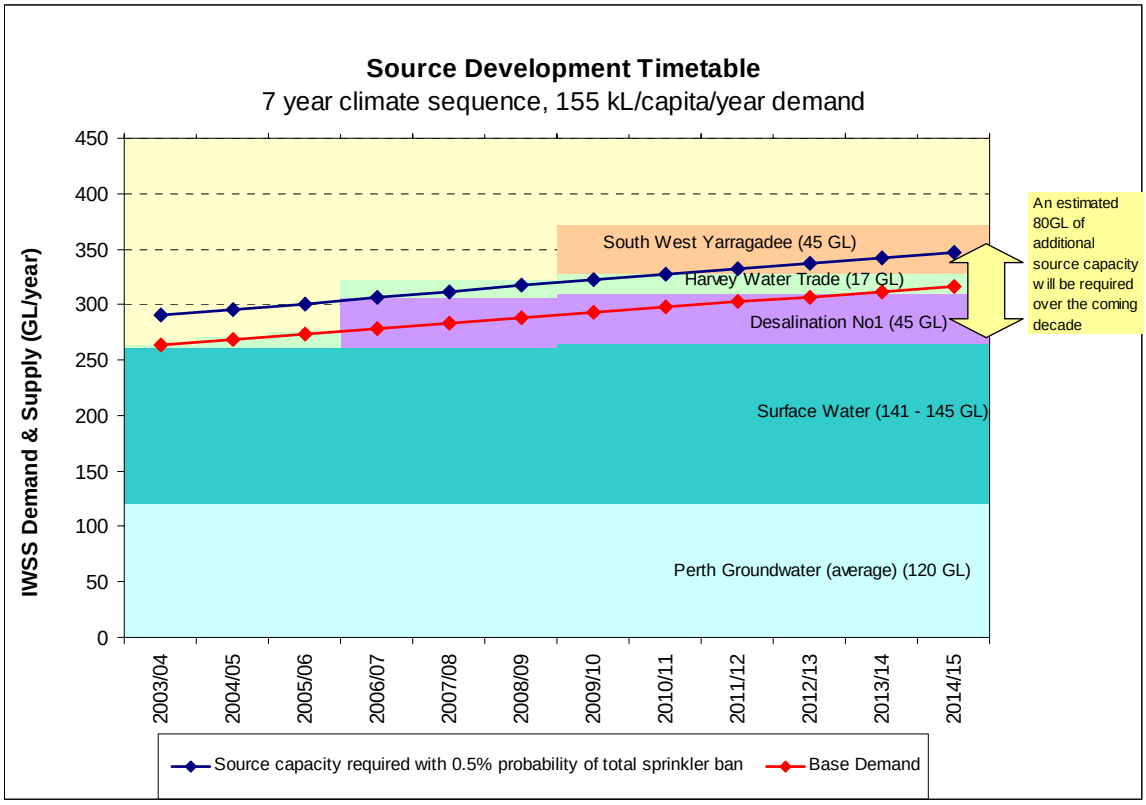
Minimum storage at end of year 2	120GL
plus consumption	520GL
plus evaporation	40GL
less inflow	120GL
less ground water	270GL
Trigger Storage	290GL

The actual outcome for 2004 was a peak storge of 252GL well below the 290GL trigger. While the trigger could be reduced through additional groundwater availability (technically up to 165GL per annum would be available under our licence conditions) and through additional trading with irrigators, neither of these is guaranteed to be sustainable under a repeat of 2001 and 2002.

Meeting Demand

Declining rainfall in recent years has resulted in reduced inflows to surface water reservoirs and declining recharge to groundwater areas. The Corporation is now planning source development on the basis of the drier climate and streamflow sequence experienced since 1997.

On this basis, there is currently a significant imbalance between demand and supply at the desired level of supply reliability (total sprinkler ban in 0.5% of years). Substantial further investment in new sources of supply will be necessary over the next decade to restore the demand/supply balance to ensure future supply reliability (see chart below).



The key features of the Corporation's planning for water source development over a ten year timeframe are:

- demand management;
- investigation of water recycling options;
- desalination (45 GL/yr at Kwinana);
- South West Yarragadee groundwater (an extra 45 gigalitres per annum); and
- Harvey Water Trading (an extra 17 gigalitres per annum on average),

These sources are required to meet demand under the base planning scenario for the next fifteen years. However, the Corporation is mindful of current uncertainty regarding:

- future access to groundwater from the Gnangara Mound for the IWSS;
- the possibility of an even drier future than the seven year sequence upon which the base planning scenario is predicated; and
- achievement of the consumption target of 155 kilolitres per person per year.

Bearing these uncertainties in mind, additional water source development could be required within the next decade.

Is the source-development timetable justified?

In the short term, there are a limited number of source options that are available for implementation. Desalination, demand management, South West Yarragadee and Harvey Water Trading proposals are the most prospective short-term source options, and form the main focus of the Corporation's proposed five-year source development program. The Corporation will continue to progress planning for other source options, eg. the Wungong catchment management trial, but acknowledges that the benefits of such initiatives to the IWSS are highly uncertain.

Demand management plays a significant role in the Corporation's source development planning for the Integrated Scheme. The Corporation is progressing a range of initiatives in partnership with Government to achieve the State Water Strategy water use efficiency target of 155 kilolitres per person per annum by 2012 in the metropolitan area.

The Government decision to proceed with a 45GL/year desalination plant at Kwinana is a major initiative that will contribute to improved supply reliability, and represents one of a range of solutions that need to be progressed over the coming decade.

The South West Yarragadee groundwater resource is the most significant underdeveloped water resource in the south west of the State, and has been the subject of detailed investigation since early 2003. Investigation and planning for this scheme are well-advanced. The scheme is currently scheduled to commence providing 45 gigalitres per year to the IWSS in December 2009, three years after water becomes available from the Perth Seawater Desalination project.

Harvey Water Trading is a new opportunity associated with the water savings achieved by replacing open channels with pipelines in the various South West

irrigation areas. The current focus on water use efficiency in the irrigation industry provides an opportunity for the Corporation to access a share of resources currently allocated to Harvey Water, thus maximising the beneficial use of existing water sources to the State.

In addition, the Corporation is investigating options for water recycling across the state. The plan submitted to government indicates that the target of 20% reuse of treated wastewater is likely to be achieved through industrial use of recycled water, and irrigation of parks and golf courses. The Kwinana Water Reclamation Plant alone will treat six gigalitres a year of wastewater for use by industry. Other potential industrial users of recycled water are being identified on a continuing basis, with planning progressed to ensure the proposed water recycling schemes become a reality.

In the longer term, the Corporation is actively progressing planning for a range of future water source options to achieve "security through diversity". The key initiatives being progressed include:

- Smarter use of water
- Further water trading
- Additional desalination
- Additional groundwater
- Additional surface water
- Further catchment management
- Water recycling.

Planning, investigation and approval of the above source options is not currently well-developed due to the acceleration of all the available sources to address the derating of the sources. A significant effort will be required to advance these sources from their current status as concepts to proposals that are certain and available for development. In light of this, a definitive timetable of future source development is not presented herein. Instead, the Corporation is actively progressing planning for the range of long-term source options.

Is an economic level of demand management demonstrated?

Since the late 1980's the Corporation has embraced the concept of managing water demand, giving prominence to community communications and education programs together with the implementation of an appropriate pricing structure. The Government's State Water Strategy was the outcome of a series of public forums and a symposium held in 2002 and its implementation is being managed by an inter agency task force chaired by the Department of Premier and Cabinet. The State Water Strategy has set a target for water consumption for Perth of 155 kilolitres per person per year by 2012, representing a 15% reduction compared with the pre drought average consumption. Another State Water Strategy requirement is for water service providers to set comparable water consumption targets for all schemes by 2004 to achieve reduced water consumption State-wide.

Perth

For Perth and the Mandurah, Pinjarra, Goldfields and Agricultural areas served by the Integrated Water Supply Scheme (IWSS), 2 days per week garden watering restrictions have been in place since 2001. Restrictions have reduced demand significantly to marginally below 155 kL per capita per annum, saving approximately 130GL over the past three years.

In 2003 the Corporation launched a suite of waterwise programs with domestic water industry associations including plumbers, garden centres, developers, builders and domestic irrigators to further reduce water consumption in the residential sector. Whilst community communications and education programs have been ongoing, water efficiency and water recycling demonstration and research projects have been recently introduced. Customer relationship staff are now working closely with major non-residential consumers to achieve improved water use efficiency in the industrial/commercial sector.

To achieve the State Water Strategy target consumption of 155 kL per person per year for Perth by 2012 without the continuation of water restrictions, significant demand management measures will be needed. Accordingly such a program is proposed to be implemented for Perth when restrictions are lifted. The programs put heavy emphasis on achieving the required savings through rebate assisted water efficient appliances and gardening practices, supported by strong community information, education and communications processes.

Country Schemes

For the Corporation's 111 country water supply schemes, the State Water Strategy requires targets for reduced water consumption to be determined by the end of 2004. Except for the State-wide daytime sprinkler ban introduced in the country in 1998, outside of Perth and towns served from the IWSS, only Manjimup has restrictions in place. For the past two years a demand management program has been in place for the West Pilbara scheme and a program has recently commenced for the Port Hedland scheme, both triggered by water allocation licence issues regulated by the Department of Environment.

It is proposed to implement a demand management strategy across all 111 country schemes to deliver a consistent, sustainable State-wide approach. It consists primarily of implementing a broad based communications program to inform and educate country customers. This approach will provide the flexibility to match the diverse circumstances and local conditions experienced across the State.

Business Impact Assessment

Not only is demand management justified on social and environmental grounds, but the reduced water consumption allows for deferment of capital expenditure, savings in water operating and wastewater pumping costs. In the metropolitan area, this project is financially positive in the longer term based on a financial cost/benefit analysis. In the country, where there is lesser scope for capital deferral, the change in costs and water sales would be reflected by changes to the Corporation's Community Service Obligation (CSO) payment, resulting in a neutral Net Present Value (NPV) outcome for the Corporation.

Is an economic level of leakage and losses demonstrated?

Although a full evaluation has not been undertaken for some time, previous economic evaluations of the Corporation's leak detection program have concluded that it would not be beneficial to pursue leak detection beyond the methods already employed. However, as a result of the State Water Strategy, a renewed focus has been placed on the management of leakages and losses. In many cases, leak management can be a cost effective and environmentally sensitive alternative to the development of new water sources.

A review of the Corporation's approach to leakage management is currently being undertaken to determine the most appropriate future direction, for both metropolitan and country systems. In addition, the Corporation is working with the Water Services Association of Australia (WSAA) to improve the process of calculating an Infrastructure Leakage Index (ILI). There have been difficulties in the past determining an ILI which is consistent amongst water utilities. The development of an acceptable industry-wide process will enable more accurate benchmarking across Australia.

4.2 Wastewater

Are the demand projections robust?

As for water, demand forecasts for wastewater services are initially based on Department of Planning and Infrastructure projections, however these are adjusted for a number of factors. Growth in wastewater services is expected to be higher than the general population growth rate due to Infill Sewerage and the fact that all new properties are required to have sewerage services available. In addition, unlike water, wastewater forecasts must be specified on a catchment basis for long term planning. Growth rates are therefore verified against a range of sources (Australian Bureau of Statistics, Sewerage Connections, Water Connections, Local Government Authorities, Regional Development bodies and historical flows) and adjusted where necessary.

In terms of customer classes, standard methods are used for contributions from residential and from various classes of commercial and industrial customers. For major industrial customers individual requirements (both quantity and quality) are calculated. However the contribution from domestic customers dominate demand and generally only minor adjustments are necessary for the other classes of customers.

While high/medium/low scenarios are used, they vary from situation to situation. A most likely scenario is used to trigger the acquisition of assets.

Is the security buffer justified?

In terms of peak flow, wastewater is required to meet regulatory requirements, which specify that containment must be sufficient to handle a one in ten year event. Unlike water, the sewerage system does not require a security buffer specifically for average yearly flows due to the smaller size of storage facilities.

Is the wastewater-plant timetable justified?

The most likely scenario growth rate predicted for wastewater services is 2.6% per annum over the next 5 years. The growth rate expected in individual catchments is shown below:

Subiaco	1%
Woodman Point	2.3%
Beenyup	2.8%
East Rockingham	8.4%
Alkimos	20%

At Woodman Point and Subiaco, a number of upgrades to the Water Corporation's existing wastewater treatment plants will be required. In addition, a major upgrade will be required at Beenyup to increase capacity from 120 megalitres per day to 135 megalitres per day.

However, the most significant capital expenditure will be required at Alkimos and East Rockingham, for which more detail is provided below.

Alkimos

The Alkimos Wastewater Scheme will provide a wastewater collection, treatment and reuse/disposal service for the north-west corridor of the Perth metropolitan area. There has been unprecedented development growth in the north-west corridor over the past six years and this is expected to continue.

The scope of work over the next five years is to build a 10 megalitre per day (MLd) wastewater treatment plant (WWTP) to produce an advanced secondary quality treated wastewater for discharge through an ocean outfall some 3,500 metres off the coast or by infiltration in the local area. The project also includes construction of the Yanchep and Quinns main gravity sewerage conveyance systems.

The projects that make up the Alkimos program of works over the next five years are:

- Alkimos WWTP Stage 1;
- Quinns Main Sewer;
- Yanchep Main Sewer; and
- Alkimos WWTP Ocean Outlet.

This work will ensure the Alkimos wastewater catchment can be adequately serviced until 2018.

East Rockingham

The East Rockingham catchment has also seen rapid development growth - wastewater flows have increased 8% per annum on average over the past ten years. This is compared to the average growth rate for the Perth metropolitan area of 3.6% per annum for the same period.

A suite of projects is proposed to provide additional wastewater collection, treatment and reuse/disposal services for the East Rockingham wastewater area. The catchment

will ultimately be serviced by a new treatment plant at East Rockingham and stage one of this development has been re-scheduled for completion by 2015.

The scope of work over the next five years is to build a 12 megalitre per day (MLd) upgrade at the existing Kwinana wastewater treatment plant, which will produce advanced secondary quality treated wastewater. The treated wastewater will be discharged through the existing Cape Peron land pipeline and ocean outfall.

The program of works over the next five years includes:

- Kwinana WWTP upgrade to 12 MLd;
- Land purchase at East Rockingham;
- Christmas Avenue pump station and pressure main upgrade;
- Seabrooke to Point Peron WWTP pressure main duplication;
- Baldivis South pump stations and pressure mains; and
- Kwinana WWTP to Cape Peron land pipeline pumping station and pressure main.

This work will ensure the East Rockingham wastewater catchment can be adequately serviced until 2015, when a major new plant at East Rockingham is due to be commissioned.

5. Revenue Requirements

(Refer section 4.4 of the Methodology Paper)

Is the initial regulatory asset base appropriate?

As several planning assumptions have changed since the Water Corporation's first submission, the Regulatory Asset Value originally provided require amendment. The Corporation's assumptions now include:

- An acceleration of Alkimos and East Rockingham wastewater treatment plants to cater for growth,
- The inclusion of South West Yarragadee and Harvey Water trading in the five year water source development plan,
- An association price variation of +1% in 2008/09 to cater for the additional expenditure.

In addition, the Water Corporation has adjusted the methodology for translating the 2008/09 asset value to 2006/07 in accordance with the ERA's preferred "roll forward" methodology.

Other than the final results, the following section is repeated from the Water Corporation's September submission for completeness.

As asset costs traditionally account for around two-thirds of a water utility's total cost, and new capital expenditure represents only a fraction of the existing asset base, the opening Regulatory Asset Value (RAV) will be the single most important determinant of price during the first pricing inquiry. While future pricing inquiries will be able to "roll forward" past RAVs, the opening value will be subject to a large degree of judgement.

Calculating prices in a regulated environment generally involves the determination of a revenue requirement based on asset values and operating costs. Although the revenue requirement can be calculated a number of ways, it is generally accepted that a corporatised utility should be compensated for operating expenditure and receive an industry return (that is, the weighted average cost of capital (WACC)) for any capital investment. In addition, they should receive a return for existing assets.

Existing assets could be valued at their acquisition cost (or some other cost based measure), however, this neglects the fact that capital invested in the past was not done so with the intention of returning a profit. If this approach was adopted, it could lead to substantial and immediate price increases.

One commonly adopted alternative is to discount the opening value such that the revenue calculation is not significantly different from existing forecasts. In privatised companies this can be achieved by examining their opening stock value, which represents the shareholders discounted forecast of future revenue.

In a government owned corporation, something similar can be achieved by writing down the value of the assets such that a commercial return on the lower asset value approximates the revenue that could have been expected based on previous forecasts. This is most easily achieved by calculating the revenue expected for a single year

(that is, the initial year of the price determination) or the organisation's planning horizon (that is, five years for the Corporation) and then "rolling forward" this reduced asset value into the future.

There is a degree of circularity in setting the opening RAV, as the asset value is based on expected revenue, but revenue for the determination period is based on the asset value. Choosing a fixed reference point for the opening RAV is, therefore, critical.

There are two options for fixing this reference point:

1. Calculate revenue based on the Corporation's previously agreed return target of 6% on assets constructed after 1996 and 4% on those constructed before corporatisation; or
2. Use the current revenue forecasts adopted by the Department of Treasury and Finance.

The RAV has been calculated by discounting future cashflows using a real pre-tax WACC of 6.5%. The revenue in 2008/09 is divided by the WACC to determine the notional present value of all forward revenue. This transformation assumes that, due to economic regulation, all investment from 2009/10 onward will deliver a return that approximates the WACC and, therefore, a present value of zero. This figure is then "rolled back" to today's value using the ERA's preferred methodology.

The underlying cashflow assumptions include:

- The Perth Seawater Desalination Plant will be constructed over the next two years;
- Intervening cashflows from 2004/05 until 2008/09 will be in accordance with Department of Treasury and Finance forward estimates;
- Cashflows are adjusted for developer contributions; and
- "Financing" costs such as borrowing and dividend repayments are removed (as they are accounted for in the WACC).

The Water Corporation's preferred methodology is the second (ie using revenue forecasts adopted by the Department of Treasury and Finance), which would produce and opening asset value of $9.1 billion in 2006/07.

Is the capital expenditure programme appropriate?

The following text appeared in the Water Corporation's response to the ERA's Issues Paper, however several figures have been removed as the Corporation is in the process of reformulating its capital program, including the addition of the projects outlined at the beginning of the previous section. The program information provided below is based on planning for a 7 year climate scenario with consumption of 155kL/person and groundwater extraction of 120GL per annum.

Repeated from the Water Corporation's September submission for completeness.

The Corporation's 2004/05 – 2008/09 (five-year) Capital Investment Program totals $3,048 million, including the Perth Seawater Desalination Plant, South West Yarragadee and Harvey water trading. The program provides substantial benefit to Western Australia, with significant focus on:

- Providing of water related services to meet Western Australia's continuing growth;
- Drinking water quality;
- Upgrading of major wastewater treatment facilities;
- Continuing the Infill Sewerage Program; and
- Participating in the provision of infrastructure for the development of the Burrup Peninsula in the Pilbara.

The Corporation's capital program needs to be framed within the State Government's budgetary constraints. The program has been prioritised based on risk management, with the most urgent projects being funded within the budget constraint.

Issues related to the Capital Investment Program include:

- Changing water demand due to restrictions and rapid growth rates in the housing sector;
- An absence of clear level of service priorities across all regulators;
- A limitation on capital funding from Government;
- A limitation on price rises for increased service levels set by Government;
- Long lead times to deliver service level improvements due to the increasing range and complexity of regulatory approvals; and
- Changing climate and associated needs impacting on our long-term planning.

Industry standard capital drivers

In December 2003, four industry standard capital drivers were adopted for the Regulated Capital Investment Program. Commercial Business Development was considered separately as an additional driver specific to the Corporation, as the funding and pricing of these projects are separate issues from the determination of regulatory pricing. The drivers are based on those used by OFWAT and IPART, and adapted to meet the Corporation's needs.[1]

The drivers are:

1. Base Capital Maintenance – to maintain the current level of service to existing customers. Works required for renewal, repair or improvement of assets to maintain condition or performance.

2. Supply and Demand Balance – to meet capacity requirements. Works required to increase capacity to satisfy demand.

[1] OFWAT: Office of Water Services, UK; IPART: Independent Pricing and Regulatory Tribunal of New South Wales.

3. Quality and Standards – to meet new standards that have been externally imposed. Also, to meet mandatory standards imposed by external regulators or Government.

4. Enhanced Service – to enhance service level. Works that enhance the level of service being provided to existing customers.

5. Commercial Business Development – to undertake commercially justified projects. These projects are priced and funded outside the regulatory pricing determination.

Capital investment in the longer-term

In projecting long-term capital requirements, the Corporation identifies major items of capital expenditure, including those required to meet levels of service. We foresee the difficulties of delivering these projects in an environment of continued constrained capital budgets.

In addition to the new standards reflected in the Capital Investment Program, the Corporation needs to manage other longer-term regulatory and environmental issues. This is because there are increasing calls from regulators and the community for tighter standards relating to water quality and for improved effluent quality, placing significant pressure on costs that, ultimately, are borne by customers through increased prices.

The Corporation works actively within this regulatory environment to achieve a realistic balance between the expectations of the community, regulators and our customers. We have a policy of advising regulators and stakeholders of emerging pressures, and at all times seek to gain a better understanding of longer-term regulatory direction and priorities. Through this approach, the Corporation seeks to gain agreement to long-term service levels that meet the needs of our customers and the community.

The Corporation's capital expenditure is divided into programs that reflect the purpose of the expenditure. Significant capital programs for the next five years are:

Distribution network. Continuing program of network expansion, upgrade and replacement activities to ensure the Corporation has the assets required for delivery of its services.

Water sources and drought response. Ongoing program of source development throughout the State, and completion of the established Drought Response Program to improve the security of water supply to the Integrated Water Supply Scheme following dry winters in 2000, 2001 and 2002. This program also includes the recently announced Perth Seawater Desalination Project, which impacts the capital budget in 2004/05 to 2005/06.

Infill sewerage. The continuation of the program and a spread of funding for all years, following deferrals in 2002/03 to accommodate drought-related projects.

Wastewater treatment and odour management. The need to upgrade plants and to improve odour management has been recognised. Works at Beenyup and Subiaco wastewater treatment plants are scheduled for completion in 2004/05.

Information technology. The continued replacement and upgrade of systems to support the Corporation's operations.

Dam safety. This program covers a wide range of works in both metropolitan and country areas in response to the Australian National Guidelines for Large Dams released in 1999.[2] Key projects for the period are the upgrade of Churchmans Brook, Logue Brook and Wellington dams.

Australian Drinking Water Guidelines and aesthetic water quality. This program is being undertaken to allow the Corporation to fulfil the requirements of the 1996 Australian Drinking Water Guidelines and to improve water quality aesthetics in selected country schemes.[3]

Commercial program. The Government has approved funding for multi-user infrastructure on the Burrup Peninsula that will be completed in 2004/05. Additionally, the program includes the Kwinana Water Reclamation Plant (to be completed in 2004/05) and the Water Supply Project to Western Power at Collie. These projects are excluded from the capital program required to calculate regulated prices.

Reprioritised capital expenditure

A major issue faced by the Corporation is the need to reprioritise capital expenditure due to unanticipated events. The Corporation's planning process has identified capital projects beyond the current five-year budget period, which may need to be funded earlier. Some of these projects are growth driven. Examples are the proposed Alkimos and East Rockingham wastewater systems, and new source options, such as the South West Yarragadee groundwater source. Others are driven by regulatory requirements, for example, the work required under the Australian Drinking Water Guidelines, managing the risk of wastewater overflows, increased wastewater reuse and the requirement to reduce greenhouse emissions.

Projects required to meet future growth have been scheduled in the five-year Capital Investment Program on a projected demand basis. However, it is possible extraordinary demand situations (such as that created by the 2001 to 2003 drought) may require some of these projects to be bought forward into the five-year budget period and, hence, the pricing period. Also, regulators may impose deadlines for implementing new requirements within the price period, although the associated costs are not budgeted for.

As a result, the ERA and the Corporation must agree on a methodology to ensure that prices can be adjusted appropriately for major items of expenditure bought forward

[2] The guidelines were issued by the Australian National Committee on Large Dams.
[3] The Australian Drinking Water Guidelines 1996 were issued by the National Health and Medical Research Council.

into the current price period as well as meeting future capital requirements. The Corporation recommends that where these items are significant, they are referred to the Government on a case-by-case basis. In all other cases, they should be considered by the ERA in the following Price Inquiry, with 'catch-up' revenue included in the calculation of future prices. However, to avoid uncertainty, the mechanism for determining allowable expenditure should be agreed during the current *Price Inquiry*.

Is the level of depreciation appropriate?

The Water Corporation proposes using straight-line depreciation based on the indexed regulatory asset value. The Corporation has separately supplied the ERA with standard asset lives on which this calculation would is based. Based on the figure's use in the revenue requirement calculation, "regulatory depreciation" would be written down in the same proportion as the write down of the replacement cost value to the regulatory asset value. Accordingly, it would also require annual escalation and the addition of new capital expenditure less developer contributions. Estimates of depreciation for the next five years are shown in Attachment 1.

For future Pricing Inquiries it will be worth considering a renewals annuity methodology, as adopted in the UK. However, as the Water Corporation is proposing to write assets down to reflect revenue forecasts for the next five years, the choice of methodology will not affect the revenue level for this period. To avoid the additional complexities of the renewals approach in the initial Inquiry, it is therefore proposed to continue with the current depreciation plus return on assets methodology.

Is the value of the regulatory asset base for each of the next five years appropriate?

In accordance with the ERA's methodology, the roll forward of the asset base is outlined in Attachment 1.

Is the requested rate of return appropriate?

Repeated from the Water Corporation's September submission for completeness.

In considering an appropriate or reasonable rate of return, it is necessary to use a consistent methodology. The Capital Asset Pricing Model (CAPM) and the Weighted Average Cost of Capital (WACC) formulae are widely used throughout the business community and by regulators in other jurisdictions.[4] The real pre-tax WACC is calculated as follows:

$$\text{Real Pre-tax WACC} = \frac{(1 + \text{Nominal Pre-tax WACC})}{(1 + \text{Inflation Rate})} - 1$$

[4] Source: Essential Services Commission, Consultation Paper No. 1 – Economic Regulation of the Victorian Water Sector, February 2004.

$$\text{Nominal Pre-tax WACC} = \frac{k_e}{(1-t(1-\gamma))} * \frac{E}{V} + k_d \frac{D}{V}$$

$$k_e = (r_f + (r_m * \beta))$$

The application of this methodology, based on the assumptions outlined below, provides a real pre-tax WACC of 6.5% (shown in Table 2).

Table 2. Real Pre-tax Weighted Average Cost of Capital
As at 30th June 2004

Inflation rate	2.50%

Cost of Debt	
Debt funding (D/V)	60.00%
Nominal risk Free Rate (r_f)	5.84%
Add Cost of Debt Margin	1.10%
Cost of Debt (K_d)	6.94%
Corporate Tax Rate (t)	30.00%
After Tax Cost of Debt Kd x (1-T)	4.86%

Cost of Equity	
Equity Funding	40.00%
Nominal Risk Free Rate	5.84%
add Market Premium (r_m)	6.00%
x Beta (*B)*	78.00%
Nominal Cost of equity (K_e) Ke = r_f + *(r_m * β)*	10.52%
Corporate Tax Rate (t)	30.00%
Dividend imputation facor (γ)	45.00%
After Tax Cost of Equity Ke * (1-t)/(1-t(1-γ))	8.82%
1-t(1-γ)	83.50%

Nominal Post Tax WACC	6.44%
Nominal Pre Tax WACC	9.20%
Real Pre Tax WACC	**6.54%**

Debt to total assets: $\frac{D}{V}$

Where,
D = market value of interest bearing debt
V = market value of the entity

The Corporation accepts the finding of other Australian regulators, including IPART, that a debt to total assets ratio of 60% is appropriate for the WACC calculation (although this is not the actual gearing ratio used by the Corporation).[5]

Nominal risk free rate: r_f

The Australian Competition & Consumer Commission (ACCC) acknowledges that the yield on Government bonds provides an estimate of the risk free rate.[6]

The major focus of the ACCC study on the risk free rate was concerned with pricing. They concluded that as pricing agreements are to be reviewed every five years, the most appropriate bond maturity would be five years. On the other hand, the majority of Corporation assets have lives in excess of ten years. Therefore, to align the WACC with the Corporation's financing decisions, a more appropriate rate to apply may be one which matches project lives.

However, very long term bond markets are illiquid and consequently pricing is volatile. For this reason, the Corporation accepts the use of the Commonwealth ten year bond rate.

The risk free rate has been derived from the average of the nominal yield on the ten year Commonwealth Bond for the previous 20 trading days. For the purpose of this submission the risk free rate calculated on this basis is 5.84% (although this will be subject to change over time).

Cost of debt: k_d

The appropriate cost of debt is the rate at which a typical water utility would be expected to be able to borrow. It is normally expressed as the risk free rate plus a debt margin. The Western Australian Treasury Corporation offers ten year debt to the Corporation, which is rolled over quarterly.

The Essential Services Commission recently commented that the appropriate credit rating that a utility business should be able to maintain if it were geared as assumed by the Commission is BBB+, with the term of the debt instrument being ten years.[7] The debt margin was set in February 2004 as 1.10%. This would imply a cost of debt of 6.94%.

Market risk premium: r_m

In the past, there has been some debate over whether the measure most often used (that is, the premium of equity returns over ten year Commonwealth bonds) is the most appropriate. Traditionally, Australian studies have suggested the long term market risk premium to be in the range of 6% to 7%.[8] It has been argued, however,

[5] IPART (ibid).
[6] As referred to in a commercial-in-confidence report by Macquarie Bank Limited, commissioned by the Water Corporation.
[7] Essential Services Commission, Workshop Discussion Paper – Economic Regulation of the Victorian Water Sector – Estimating a Return on and of Capital Investments, (18 March 2004).
[8] Macquarie Bank (ibid).

that the more stable inflationary environment may mean that the relevant market risk premium is less than has been observed over recent years.

The ACCC has chosen to use a value of 6% as the market risk premium for the purpose of calculating WACC.[9] IPART has accepted a market risk premium of between 5% and 6%.[10]

The Corporation, therefore, supports a market risk premium of 6%.

Corporate tax rate: t

The statutory long term corporate tax rate is 30%.

The Corporation has estimated that its effective tax rate is significantly less than 30%. The issue of whether the statutory tax rate or effective tax rate should be used in the WACC calculation has been debated. The ACCC and IPART have, however, recommended the use of the statutory rate and this is accepted by the Corporation.[11]

Impact of dividend imputation: γ = imputation factor

There has always been debate whether gamma has any value at all, based mainly on the argument that Australia is a price taker in world capital markets and, hence, imputation credits have little value.

However, the concept of imputation benefits has been the subject of some discussion in previous ACCC decisions (for example, the Victorian Gas Access Arrangement and Draft Principles for the Regulation of Transmission Revenues).[12] The ACCC acknowledges that market risk premiums are likely to have fallen following the introduction of dividend imputation, and for this reason the 'partially grossed-up' premium is appropriate within the WACC model.

In its recent Discussion paper, the Essential Services Commission also commented on the value of imputation benefits for Victorian water businesses that do not pay Australian income tax, by virtue of their government owned status.[13] However, as it intends to assess the rate of return implied by proposed prices based on an efficient privately owned firm, a gamma estimate should be consistent with Australian capital market evidence.

Studies by Hathaway & Officer (1996), concluded that an average of about 45% of the tax collected from companies is redeemed as franking credits on personal tax.[14] In recent determinations by IPART, for a water business, a gamma factor of between 50% and 30% was assumed.[15]

[9] Macquarie Bank (ibid).
[10] IPART (ibid).
[11] Macquarie Bank (ibid) and IPART (ibid).
[12] Macquarie Bank (ibid).
[13] Essential Services Commission (ibid).
[14] Macquarie Bank (ibid).
[15] IPART (ibid).

Therefore, the Corporation supports a gamma value of 45% for the purpose of the WACC calculation.

Beta – the systematic risk of equity: The Corporation has accepted the beta assumptions as outlined in the recent determinations by IPART of between 65% and 90%.[16] A mid-point value of 78% has been adopted for the purpose of the Corporation's WACC calculation.

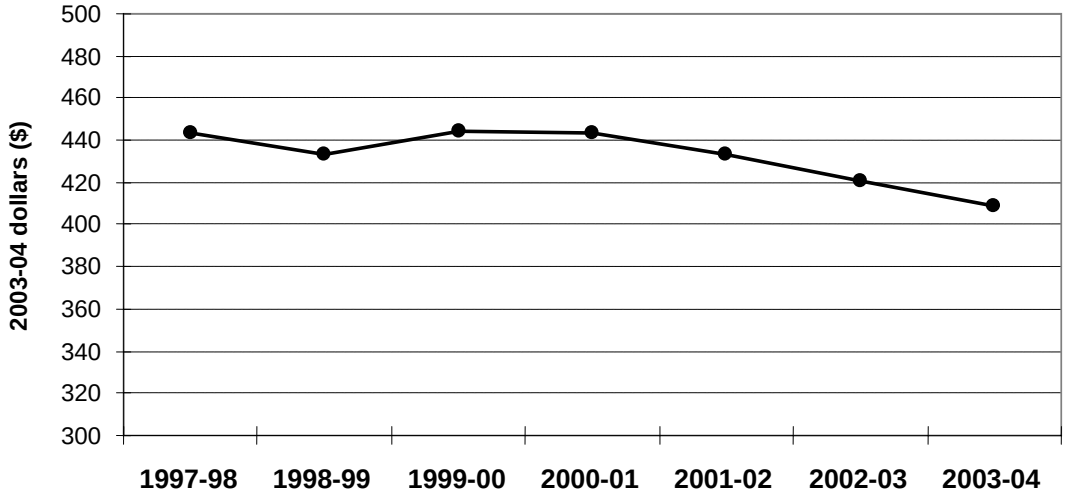
To what extent is operating and maintenance expenditure at an efficient level and what scope is there for efficiency gains over the next five years?

Repeated from the Water Corporation's September submission for completeness.

The Corporation strives to achieve annual efficiencies in line with best practice in the industry. These cost efficiencies refer to an annual reduction in the cost of servicing each property, with adjustments to allow for extra costs incurred to provide environmental improvements and higher levels of service to customers.

Chart 3 shows the total cost for water and wastewater services (allowing for environmental and level of service adjustments) for the past seven years.

Chart 3. Total Operating Cost per Property



With one exception, the chart demonstrates a steady reduction in the real cost per property. This reflects the Corporation's past endeavours to achieve a yearly operating cost efficiency of 2.5%. Actual results in the recent past show that efficiency results achieved ranged between -1.4% and 4.3%. This is similar to the average levels of efficiency established by OFWAT. The Corporation's efficiency also far exceeds OFWAT's minimum target for the period of 1.4%.[17]

[16] IPART (ibid).
[17] Source: OFWAT, Final Determinations: Future Water and Sewerage Charges 2000-05, 25 November 1999.

The minimum rate is applied to the industry leaders and recognises that scope for additional efficiencies reduces as companies approach best practice. Forcing costs below these levels may promote cost cutting at the expense of service levels.

Also, the absolute scope of efficiency improvements available must be balanced against wider social goals, such as maintaining employment in regional communities.

Having consistently achieved positive efficiency in the past, the Corporation commenced a corporate-wide efficiency project with the objective of being the best performing utility in Australia without compromising service. Project briefs were developed detailing benefits and costs and high level implementation timelines for each of the 65 initiatives identified. The new initiatives will deliver cost savings and improve process integration. These cost benefits will form the core of future efficiency targets, delivering an estimated total of $51.5 million in efficiency savings over the next five years.

What are the implications of the above decisions on the amount of required revenue for each of the next five years?

The total revenue requirement established by the proposed methodology is outlined in Attachment 1. The proportion of revenue required to carry out functions that are not commercially viable are identified in the table as CSOs.

What level of financial performance is implied by the requested level of required revenue?

The results of the financial ratios outlined in the ERA's Methodology Paper are shown in Attachment 1.

6. Identifying Base Prices

(Refer section 4.5 of the Methodology Paper)

What are the prices that each service provider would set before taking into account social considerations and externalities appropriate?

The ERA has asked how service providers would set prices without demand restrictions and other social policy considerations or the need to include externalities.

As a corporatised entity, the Water Corporation is charged with ensuring that the business earns sufficient revenue to support the level of investment made by the organisation. While the Corporation has an interest in the tariff structure that raises this revenue requirement, there is not a single optimum tariff structure that meets our commercial objectives.

The Corporation's previous tariff submissions to Government have been based on balancing our pricing objectives of:

- providing appropriate price signals to customers;
- prices that are easy for customers to understand;
- prices that are simple to administer;
- prices that are fair and equitable.

The combination of these objectives is aimed both at ensuring efficient use of our services and reducing the cost of billing, including the cost of customer contacts associated with explaining or defending the basis of charges.

As there is no single solution that meets all of these objectives, and due to the social impact of charges and the impact on the State budget, it is appropriate that Government determine the final balance.

The Corporation has supported the tariff reforms that have resulted in business tariffs moving from valuation based charges to user pays charges. The Corporation has also supported the elimination of free water allowances for residential and business customers to encourage efficient water use. However, while simpler tariffs for residential sewerage have been considered, the Government has chosen to retain valuation based charges due to the impact of change on low income households.

The Corporation supports the Government's uniform pricing policy as it is seen as fair, easy for customers to understand and easy to administer. However, this tariff structure would be unsustainable without the Government supporting the underlying social policy through a Community Service Obligation payment to the Corporation.

As the Corporation's prices are regulated, the Corporation's commercial interests are met if the regulated prices raise sufficient revenue to provide an adequate return on investment. The specific tariffs adopted by Government will therefore only be detrimental to the Corporation's interest if they cannot raise sufficient revenue or are overly cumbersome to implement. As the current tariff structure does not result in

either of these difficulties, the Water Corporation is happy to adopt the current tariff structure for the Base Prices.

Although it is insufficient to generate the Corporation's return target of 4% on asset constructed prior to 1996 and 6% on assets constructed thereafter, the Corporation has proposed price increases until 2008/09 equal to the Consumer Price Increase, with variations for expenditure in addition to that proposed in its 2004/05 Strategic Development Plan. There are only two variations to date, both of which will be applied to water services only:

- 13.5% for the additional annual cost of approximately $50m associated with the Perth Seawater Desalination Plant in 2006/07 and,
- 2.1% to recover the costs of water trading with Harvey Water in 2008/09.

With the exception of these two variations, the Base Prices represent a general price increase across all prices to achieve the required revenue. The additional increases of 13.5% in 2006/07 and 2.1% in 2008/09 are on water prices only. An alternative would be to apply these as 6.1% and 1% respectively as a general increase across all prices (including wastewater and drainage). If applied only to water volume charges, this would equate to increases of 26% and 4% respectively, however this would impact the cost for essential use at low volumes and result in a price far exceeding the marginal cost of supply for high volume use.

While the desalination plant and Harvey Water trade will improve the security of supply to all metropolitan customers and country customers connected to the Integrated Water Supply Scheme (Mandurah, the Goldfields and Agricultural areas, and some south west towns), it is appropriate to apply the increase uniformly across the State as in most cases, the cost of supply to non-connected country schemes is much higher than Perth. It would be inappropriate for customers of these more expensive schemes to pay less than Perth customers.

The Corporation's proposed Base Prices for 2004/05 to 2008/09 are provided in Attachment 2.

In its Methodology Paper, the ERA has indicated that it is interested in comparing the proposed Base Prices with estimates of short-run and long-run marginal costs.

The short-run marginal cost is around 8 cents per kilolitre for water and 9 cents per kilolitre for wastewater. This cost is based on the change in short term variable costs that would occur due to a change in volume consumed/treated, *if* appropriate capacity already existed.

The definition of short-run marginal cost in the ERA's paper – that is, the price that would need to be charged to balance supply and demand without resorting to investment in additional capacity – refers to price rather than cost. However, if the elasticity of water supply is around -0.3 and growth in the number of services approximately 2.5% pa, then the price increase required to keep demand steady would be around 8% per year. As these increases would continue *ad infinitum*, this strategy would be unsustainable in the long term.

Residential wastewater does not currently have a volumetric price, however even if one were introduced, demand for wastewater services is even less elastic than water and therefore volume related price increases would need to be significantly higher again.

The long run marginal cost for water is around 80-85 cents per kilolitre and for wastewater around $1.80 per kilolitre. This is the cost of developing additional water sources and wastewater treatment plants and their associated trunk mains.

7. Adjusting Base Prices

(Refer section 4.6 of the Methodology Paper)

How should the base prices be adjusted to take into account social considerations?

Using demand restrictions rather than price increases to engender a demand response to shortages in water supply.

In general, the Water Corporation aims to minimise the likelihood of restrictions in any year. However, against this must be weighed the environmental and cost impacts of new water source developments. Therefore, the level of supply capacity must equal to demand plus a margin for security. Due to the variability of climate and other factors, this margin will never be adequate to totally guard against possible shortages. This was the case in September 2001, when the Water Corporation introduced water restrictions as a direct response to the change in climate and a reduction in stream inflows.

The Water Corporation's long term planning aims to have sufficient water available to keep restrictions to a minimum. Although the recent climate change has proved an exception, the relative infrequency of restrictions in the long term and the community acceptance of sensible watering practices when required make short term price variations undesirable. If implemented, it is likely that such increases would prove unpopular and would be viewed with suspicion by water customers. Not only would intermittent price increases disadvantage large families and those unable to significantly alter their consumption, but would send a mixed price signal to customers who are making long term decisions about investments in water saving devices.

Discounting the price for the first 150KL of water usage.

Prior to 1978, metropolitan residential customers received a water allocation based on their valuation based water rates. When a fixed water service charge was introduced in 1978, a uniform free water allowance of 150kL was introduced. Steps were commenced in 1993/94 to bring metropolitan and country charges into line up to 350 kL. As country customers had no free allowance (but lower charges between 150kL and 350kL) charges for the first 150 kL were introduced for metropolitan residential customers, and charges between 150kL and 350kL increased for country customers.

A continuing rationale (or social objective) for the low price of water for the first 150KL of use is to ensure every household has access to water to ensure a basic standard of hygiene ie at an affordable price. A similar overall water bill could be achieved by reducing the fixed service charge and increasing the consumption charge. However, this option has been rejected in the past due to the impact on certain customer groups such as tenants (who pay only the volumetric component of a water bill) and Seniors (who only receive a concession on the fixed part of the water bill).

Discounting the price for pensioners and Seniors.

Pensioner and Senior concessions are governed by legislation that applies to all local government and water service providers, including the Water Corporation.

Pensioners were originally 'exempted' from charges (1922) and those charges were deferred until the property was sold or they died. From 1 July 1977 pensioners were offered a 25% rebate if they paid their service charges, or could continue to defer them. The rebate was amended to 50% from 1 July 1979. Concessions on water consumption charges were introduced in 1993/94 as part of the tariff reform program.

Customers with both a State Seniors card and Commonwealth Seniors healthcare card were provided with the same level of rebate (and ability to defer) as pensioners from 1 July 2001.

The 50% concessions were introduced as a means of providing reduced water, sewerage and drainage charges for low income households.

Holders of Seniors' cards were first allowed a rebate on service charges from 1 July 1990. The rebate available was 25%, but was also capped at the level of rates charged to 75% of customers. This was considered appropriate because the seniors' card was not means tested.

The Seniors' card is available to all West Australians over 60 who are no longer working full time. It offers members access to WA Government concessions and discounts, in recognition of the contribution they have made to the Australian Community.

The provision of pensioner and Seniors concessions is a directive from Government, administered by the Water Corporation. The Corporation therefore receives a Community Service Obligation (CSO) payment, which in 2003/04 totalled $41.2 million. On 14 November 2004 the State Government announced that it would also extend these concessions to people living in retirement villages, park homes and caravan parks.

Setting tariffs that increase in steps.

Water consumption tariffs, increasing in steps, were originally introduced to the metropolitan tariff in 1985/86. Setting tariffs that increase in steps has always been seen as socially and environmentally responsible as it represents a higher water prices for higher water users. This concept has continued to be endorsed by successive Governments and is, in fact, currently being introduced in utilities across Australia.

Setting water usage tariffs up to 350KL at the same level for residential customers throughout the State

The uniform pricing policy commenced in 1993/94 as part of the pay for service/pay for use tariff reform. Part of the Government's vision was to have a State-wide consumption charge for average consumption, to end discrimination between metropolitan and country households. This concept has been maintained by successive Governments.

The provision of water at below cost to country towns is supported by Government. through a CSO payment to the Corporation for the loss associated with operating country schemes, which in 2003/04 totalled $120 million.

Adjusting for Externalities

On of the Corporation's immediate goals is to embed sustainability principles into all decision-making. In addition, water industry regulation seeks to ensure that, where possible, social and environmental implications of water source development are minimised or offset altogether. This implies that, in many (if not most) cases, externalities will be "internalised" and included within the Corporation's cost structure.

A current example is the energy requirements of the Perth Metropolitan Desalination proposal. As the major environmental issue facing the project, it is proposed that the greenhouse gas emissions of this energy use will be offset by planting several hectares of trees in salinity prone areas.

Other examples of "internalised" externalities include:

- As a contributor to the nutrient load discharged into Southern Geographe Bay each year, the Water Corporation developed the Busselton Environmental Improvement Initiative (EII) to address the nutrient load on a catchment wide basis. The Busselton EII is a $1 million funding program aimed at assisting rural landowners to implement projects on their property to reduce contaminant discharge to surface and groundwater systems.
- More stringent odour control conditions have resulted in greater expenditure on odour control cost at wastewater treatment plants.
- The Corporation is investigating opportunities for the use of recycled water. Where such opportunities are not viable based on standalone financial considerations, the Corporation will be examining the environmental and social benefits associated with the scheme to determine how it rates amongst other water supply options.
- As the Water Corporation is committed to the principles of sustainability, the least expensive solution is not always appropriate, depending on the environmental and social consequences. In many cases, implicit costs such as site location, construction methods and rehabilitation of surrounding land are undertaken to minimise the impact on the ecosystem and surrounding residents.

One of the externalities not currently internalised by the Corporation is the cost of water resource management (as outlined in the ERA Issues Paper), as the Western Australian Government has investigated and rejected such a charge. Water resources management in Western Australia is carried out by the Department of Environment, which receives around $50 million of the State and Commonwealth Governments' funding for this purpose.

As noted in the ERA Issues Paper, other States have introduced water resources management charges to recover these costs from water consumers. In their submission to the ERA's Issues Paper, the Water and Rivers commission estimated this cost to be around 5 cents per kilolitre.

The Corporation is concerned that if any such charge were to be implemented, it should apply equally to all beneficiaries of water resource management activities, not only to water utility customers.

8. Current Prices and Recommendations

(Refer sections 4.7 and 4.8 of the Methodology Paper)

Comparison with Current Prices

The proposed Base Prices in Attachment 2 represent the following increases on the current prices. No change in tariff structure is proposed.

	2005/06	2006/07	2007/08	2008/09
Price Increase - Water	2.2%	16.0%	2.5%	4.6%
Price Increase - Other	2.2%	2.5%	2.5%	2.5%

Price Recommendations

The Corporation's proposed Base Prices are provided in Attachment 2.

ATTACHMENT 1: Financial Forecasts

Case Specification		2004/05	2005/06	2006/07	2007/08	2008/09
Consumer Price Index		2.5%	2.5%	2.5%	2.5%	2.5%
General Tariff Increase – Water		2.4%	2.2%	16.0%	2.5%	4.6%
General Tariff Increase – Other		2.4%	2.2%	2.5%	2.5%	2.5%
Capital Expenditure	$ million	416	701	547	689	723
Growth- assessments		2.5%	2.5%	2.1%	2.2%	2.1%
Volume growth		1.9%	2.0%	1.7%	1.8%	1.9%

Financial Outcomes		2004/05	2005/06	2006/07	2007/08	2008/09
Net debt	$ million	1170	1533	1796	2134	2507
Operating Profit After Income Tax	$ million	377	405	431	443	454
Target return on fixed assets		4.50%	4.57%	4.63%	4.70%	4.76%
Forecast return on assets		3.96%	4.59%	4.61%	4.59%	4.52%

Regulated Asset Information		2004/05	2005/06	2006/07	2007/08	2008/09
Opening Regulated Asset Value	$ million	na	na	9,099	9,535	10,112
Regulated Depreciation	$ million	na	na	237	252	273

RATIOs		2004/05	2005/06	2006/07	2007/08	2008/09
Funds flow Interest Cover	*Times*	8.2	6.1	6.1	5.5	4.7
Debt Payback Period	*Yrs*	2.1	2.6	2.9	3.1	3.5
Internal Financing Ratio		47.0%	28.2%	35.1%	32.5%	31.2%
Gearing: Net Debt to Total Assets		11.6%	14.5%	16.5%	18.9%	21.3%

Corporation Profit / Loss ($ million)	2004/05	2005/06	2006/07	2007/08	2008/09
General Revenue					
From customers	797	831	918	959	1010
CSO	275	342	344	369	385
Other	17	14	11	11	11
Developers' Contributions	165	112	119	110	110
Total	**1254**	**1298**	**1391**	**1448**	**1516**
Expenses					
Operating before depreciation	411	407	445	470	496
Depreciation	248	250	259	268	282
Net interest	54	60	69	74	87
Total	**713**	**717**	**773**	**812**	**865**
Operating Profit before Tax	541	582	618	636	651
Less Income Tax Expense	-164	-177	-188	-193	-197
Operating Profit After Tax	**377**	**405**	**431**	**443**	**454**

ATTACHMENT 2: Base Prices

WATER SERVICE CHARGE 2004/05 to 2008/09					ATTACHMENT 2	
General Increase Water			**2.2%**	**16.0%**	**2.5%**	**4.6%**
Standard Fixed Service Charge ($)		**2004/05**	**2005/06**	**2006/07**	**2007/08**	**2008/09**
		$149.00	**$152.30**	**$176.70**	**$181.10**	**$189.40**

Applies to:
Residential
Vacant Land (Residential & Non-Residential)
Semi-rural residential
Community residential (no. of equivalent residential units)
Strata title business sharing a water meter
Farmland (each service)
Stock
Country Local Government standpipes
Country Additional Services (residential)
Metro Additional Services (residential)
Metro Fire Services
Country Fire Services

Note: Pensioners and, State and Commonwealth Seniors receive up to 50% discount on the standard service charge
State Seniors receive up to 25% discount on the standard service charge

Meter Based Service Charge ($)		**2004/05**	**2005/06**	**2006/07**	**2007/08**	**2008/09**
Meter Size (mm)	15, 20	$452.00	**$461.90**	**$535.80**	**$549.20**	**$574.50**
	25	$706.30	**$721.70**	**$837.20**	**$858.10**	**$897.70**
	30	$1,017.00	**$1,039.30**	**$1,205.60**	**$1,235.70**	**$1,292.60**
	35, 38, 40	$1,808.00	**$1,848.00**	**$2,143.00**	**$2,197.00**	**$2,298.00**
	50	$2,825.00	**$2,887.00**	**$3,349.00**	**$3,433.00**	**$3,591.00**
	70, 75, 80	$7,232.00	**$7,390.00**	**$8,573.00**	**$8,787.00**	**$9,192.00**
	100	$11,300.00	**$11,548.00**	**$13,395.00**	**$13,730.00**	**$14,363.00**
	140, 150	$25,425.00	**$25,982.00**	**$30,139.00**	**$30,893.00**	**$32,316.00**
	200	$45,200.00	**$46,190.00**	**$53,580.00**	**$54,920.00**	**$57,450.00**
	250	$70,625.00	**$72,172.00**	**$83,719.00**	**$85,813.00**	**$89,766.00**
	300	$101,700.00	**$103,928.00**	**$120,555.00**	**$123,570.00**	**$129,263.00**
	350	$138,425.00	**$141,457.00**	**$164,089.00**	**$168,193.00**	**$175,941.00**
Minimum Charge all meters		$452.00	**$461.90**	**$535.80**	**$549.20**	**$574.50**

Applies to:
Commercial/Industrial
Additional commercial/industrial services
Commercial/Residential
State Government and Government Non Commercial (connected)
Commercial Caravan Parks (as per "Meter Based Service Charges" above adjusted for declared long-term caravan bays)
Country CBH Grain Store
Shipping
Land under special Acts
Country Irrigated market gardens

Special Service Charges	**2004/05**	**2005/06**	**2006/07**	**2007/08**	**2008/09**
Connected Metro Exempt	Nil	Nil	Nil	Nil	Nil
Country Institutional Public	Nil	Nil	Nil	Nil	Nil
Charitable organisations	Nil	Nil	Nil	Nil	Nil
Country Government (Local Government Business)	Nil	Nil	Nil	Nil	Nil
Strata Title and Long Term Residential Caravan Bays	$102.50	**$104.80**	**$121.60**	**$124.60**	**$130.30**
Strata Title Storage Units and Parking Bays	$51.45	**$52.60**	**$61.00**	**$62.50**	**$65.40**

WATER CONSUMPTION CHARGES **ATTACHMENT 2**
2004/05 to 2008/09

General Increase Water		**2.2%**	**16.0%**	**2.5%**	**4.6%**

Statewide Standard Consumption Charges

Residential Consumption Charges	**2004/05**	**2005/06**	**2006/07**	**2007/08**	**2008/09**
	(c/kL)	**(c/kL)**	**(c/kL)**	**(c/kL)**	**(c/kL)**
0-150kl	41.6	**42.5**	**49.3**	**50.5**	**52.8**
151-350kl	67.4	**68.9**	**79.9**	**81.9**	**85.7**

Standard Consumption for Metro and Country South above 350 kL

	Metro (c/kL)				
	2004/05	**2005/06**	**2006/07**	**2007/08**	**2008/09**
351 - 550 kL	91.0	**93.0**	**107.9**	**110.6**	**115.7**
551 - 750 kL	120.0	**122.6**	**142.2**	**145.8**	**152.5**
751 - 950 kL	120.0	**122.6**	**142.2**	**145.8**	**152.5**
951 and over	150.0	**153.3**	**177.8**	**182.2**	**190.6**

	Class 1 (c/kL)				
	2004/05	**2005/06**	**2006/07**	**2007/08**	**2008/09**
351 - 550 kL	83.3	**85.1**	**98.7**	**101.2**	**105.9**
551 - 750 kL	120.0	**122.6**	**142.2**	**145.8**	**152.5**
751 - 1150 kL	152.6	**156.0**	**181.0**	**185.5**	**194.0**
1151 - 1550 kL	219.3	**224.1**	**260.0**	**266.5**	**278.8**
1551 - 1950 kL	252.7	**258.3**	**299.6**	**307.1**	**321.2**
over 1950 kL	293.7	**300.2**	**348.2**	**356.9**	**373.3**

	Class 2 (c/kL)				
	2004/05	**2005/06**	**2006/07**	**2007/08**	**2008/09**
351 - 450 kL	85.7	**87.6**	**101.6**	**104.1**	**108.9**
451 - 550 kL	110.7	**113.1**	**131.2**	**134.5**	**140.7**
551 - 750 kL	125.2	**128.0**	**148.5**	**152.2**	**159.2**
751 - 1150 kL	206.8	**211.3**	**245.1**	**251.2**	**262.8**
1151 - 1550 kL	302.2	**308.8**	**358.2**	**367.2**	**384.1**
1551 - 1950 kL	373.7	**381.9**	**443.0**	**454.1**	**475.0**
over 1950 kL	477.1	**487.6**	**565.6**	**579.7**	**606.4**

	Class 3 (c/kL)				
	2004/05	**2005/06**	**2006/07**	**2007/08**	**2008/09**
351 - 450 kL	85.7	**87.6**	**101.6**	**104.1**	**108.9**
451 - 550 kL	121.6	**124.3**	**144.2**	**147.8**	**154.6**
551 - 750 kL	144.2	**147.4**	**171.0**	**175.3**	**183.4**
751 - 1150 kL	230.6	**235.7**	**273.4**	**280.2**	**293.1**
1151 - 1550 kL	349.7	**357.4**	**414.6**	**425.0**	**444.6**
1551 - 1950 kL	461.2	**471.3**	**546.7**	**560.4**	**586.2**
over 1950 kL	556.6	**568.8**	**659.8**	**676.3**	**707.4**

	Class 4 (c/kL)				
	2004/05	**2005/06**	**2006/07**	**2007/08**	**2008/09**
351 - 450 kL	85.7	**87.6**	**101.6**	**104.1**	**108.9**
451 - 550 kL	132.8	**135.7**	**157.4**	**161.3**	**168.7**
551 - 750 kL	159.5	**163.0**	**189.1**	**193.8**	**202.7**
751 - 1150 kL	262.4	**268.2**	**311.1**	**318.9**	**333.6**
1151 - 1550 kL	477.1	**487.6**	**565.6**	**579.7**	**606.4**
1551 - 1950 kL	572.5	**585.1**	**678.7**	**695.7**	**727.7**
over 1950 kL	667.7	**682.4**	**791.6**	**811.4**	**848.7**

	Class 5 (c/kL)				
	2004/05	**2005/06**	**2006/07**	**2007/08**	**2008/09**
351 - 450 kL	85.7	**87.6**	**101.6**	**104.1**	**108.9**
451 - 550 kL	136.5	**139.5**	**161.8**	**165.8**	**173.4**
551 - 750 kL	174.6	**178.4**	**206.9**	**212.1**	**221.9**
751 - 1150 kL	294.2	**300.7**	**348.8**	**357.5**	**373.9**
1151 - 1550 kL	588.2	**601.1**	**697.3**	**714.7**	**747.6**
1551 - 1950 kL	683.8	**698.8**	**810.6**	**830.9**	**869.1**
over 1950 kL	763.2	**780.0**	**904.8**	**927.4**	**970.1**

Applies to:
Residential (incl. Community residential and Semi-rural residential)
Vacant Land (held for residential purposes)

WATER CONSUMPTION CHARGES **ATTACHMENT 2**
2004/05 to 2008/09

Country North (and certain towns with harsh climate conditions) Consumption
Residential Customers in the North (and certain other towns) receive concessions for harsh climatic conditions

	Class 1 (c/kL)				
	2004/05	2005/06	2006/07	2007/08	2008/09
0-150kL	41.6	**42.5**	**49.3**	**50.5**	**52.8**
151 - 550 kL	67.4	**68.9**	**79.9**	**81.9**	**85.7**
551 - 650 kL	76.0	**77.7**	**90.1**	**92.4**	**96.7**
Over 650 kL	same as country south				

	Class 2-5 (c/kL)				
	2004/05	2005/06	2006/07	2007/08	2008/09
0-150kL	41.6	**42.5**	**49.3**	**50.5**	**52.8**
151 - 550 kL	67.4	**68.9**	**79.9**	**81.9**	**85.7**
551 - 650 kL	81.4	**83.2**	**96.5**	**98.9**	**103.4**
Over 650 kL	same as country south				

Note: Pensioners receive 50% concession on standard consumption charges - Metro - First 150 kL
Country South - First 400 kL
Country North - First 600 kL

Non-Residential Consumption Charges

	Metro (c/kL)				
	2004/05	2005/06	2006/07	2007/08	2008/09
0-600kL	71.0	**72.6**	**84.2**	**86.3**	**90.3**
601 - 1,100,000kL	79.4	**81.1**	**94.1**	**96.5**	**100.9**
over 1,100,000 kL	77.3	**79.0**	**91.6**	**93.9**	**98.2**

	Class 1 (c/kL)				
	2004/05	2005/06	2006/07	2007/08	2008/09
0-300kL	82.9	**84.7**	**98.3**	**100.8**	**105.4**
over 300 kL	144.8	**148.0**	**171.7**	**176.0**	**184.1**

	Class 2 (c/kL)				
	2004/05	2005/06	2006/07	2007/08	2008/09
0-300kL	110.1	**112.5**	**130.5**	**133.8**	**140.0**
over 300 kL	196.3	**200.6**	**232.7**	**238.5**	**249.5**

	Class 3 (c/kL)				
	2004/05	2005/06	2006/07	2007/08	2008/09
0-300kL	120.9	**123.6**	**143.4**	**147.0**	**153.8**
over 300 kL	218.8	**223.6**	**259.4**	**265.9**	**278.1**

	Class 4 (c/kL)				
	2004/05	2005/06	2006/07	2007/08	2008/09
0-300kL	132.2	**135.1**	**156.7**	**160.6**	**168.0**
over 300 kL	249.1	**254.6**	**295.3**	**302.7**	**316.6**

	Class 5 (c/kL)				
	2004/05	2005/06	2006/07	2007/08	2008/09
0-300kL	135.8	**138.8**	**161.0**	**165.0**	**172.6**
over 300 kL	279.2	**285.3**	**330.9**	**339.2**	**354.8**

Applies to
Commercial/Industrial
Commercial Caravan Parks(other than "residential" concession)
State Government and Government non commercial
Metro vacant land (non-residential)
Metro Connected exempt
Metro Chartiable organisation
Metro Shipping
CBH Grain Storage
Country Shipping
Country Irrigated Market gardens

Country institutional public (non-government schools, churches, community facilities etc)
Country Charitable organisation
Country Local Government business
} Note: Charged at Non-Residential Class 1 rates

	2004/05	2005/06	2006/07	2007/08	2008/09
	c/kL	c/kL	c/kL	c/kL	c/kL
Stock	93.1	**95.1**	**110.3**	**113.1**	**118.3**
Farmland	93.1	**95.1**	**110.3**	**113.1**	**118.3**
Country Local Government standpipes	93.1	**95.1**	**110.3**	**113.1**	**118.3**
Mining (Other than Special Agreements)					
Volume Charge (c/kl)	164.6	**168.2**	**195.1**	**200.0**	**209.2**

WATER CONSUMPTION CHARGES (Con't) AND DRAINAGE 2004/05 to 2008/09 — **ATTACHMENT 2**

General Increase Water		**2.2%**	**16.0%**	**2.5%**	**4.6%**
Special Consumption Charges	**2004/05**	**2005/06**	**2006/07**	**2007/08**	**2008/09**
Denham Desalinated:					
Residential:	(c/kL)	**(c/kL)**	**(c/kL)**	**(c/kL)**	**(c/kL)**
up to quota	45.0	**46.0**	**53.4**	**54.7**	**57.2**
over quota by < 1kL per 7kL of quota	330.7	**338.0**	**392.1**	**401.9**	**420.4**
over quota > 1kL per 7kL of quota	1030.5	**1053.2**	**1221.7**	**1252.2**	**1309.8**
Non-Residential:					
up to quota	45.0	**46.0**	**53.4**	**54.7**	**57.2**
over quota	1030.5	**1053.2**	**1221.7**	**1252.2**	**1309.8**
Metro Commercial/Residential	(c/kL)	**(c/kL)**	**(c/kL)**	**(c/kL)**	**(c/kL)**
0 - 150 kL	41.6	**42.5**	**49.3**	**50.5**	**52.8**
151 - 750 kL	71.0	**72.6**	**84.2**	**86.3**	**90.3**
over 750 kL	79.4	**81.1**	**94.1**	**96.5**	**100.9**

Country Commercial/Residential

	Class 1 (c/kL)				
	2004/05	**2005/06**	**2006/07**	**2007/08**	**2008/09**
0 - 150 kL	41.6	**42.5**	**49.3**	**50.5**	**52.8**
151 - 450 kL	82.9	**84.7**	**98.3**	**100.8**	**105.4**
over 450 kL	144.8	**148.0**	**171.7**	**176.0**	**184.1**

	Class 2 (c/kL)				
	2004/05	**2005/06**	**2006/07**	**2007/08**	**2008/09**
0 - 150 kL	41.6	**42.5**	**42.5**	**42.5**	**42.5**
151 - 450 kL	110.1	**112.5**	**130.5**	**133.8**	**140.0**
over 450 kL	196.3	**200.6**	**232.7**	**238.5**	**249.5**

	Class 3 (c/kL)				
	2004/05	**2005/06**	**2006/07**	**2007/08**	**2008/09**
0 - 150 kL	41.6	**42.5**	**42.5**	**42.5**	**42.5**
151 - 450 kL	120.9	**123.6**	**143.4**	**147.0**	**153.8**
over 450 kL	218.8	**223.6**	**259.4**	**265.9**	**278.1**

	Class 4 (c/kL)				
	2004/05	**2005/06**	**2006/07**	**2007/08**	**2008/09**
0 - 150 kL	41.6	**42.5**	**42.5**	**42.5**	**42.5**
151 - 450 kL	132.2	**135.1**	**156.7**	**160.6**	**168.0**
over 450 kL	249.1	**254.6**	**295.3**	**302.7**	**316.6**

	Class 5 (c/kL)				
	2004/05	**2005/06**	**2006/07**	**2007/08**	**2008/09**
0 - 150 kL	41.6	**42.5**	**42.5**	**42.5**	**42.5**
151 - 450 kL	135.8	**138.8**	**161.0**	**165.0**	**172.6**
over 450 kL	279.2	**285.3**	**330.9**	**339.2**	**354.8**

Strata-titled/Long Term Caravan Bays	2004/05	**2005/06**	**2006/07**	**2007/08**	**2008/09**
	(c/kL)	**(c/kL)**	**(c/kL)**	**(c/kL)**	**(c/kL)**
Statewide first 150kL	41.6	**42.5**	**49.3**	**50.5**	**52.8**
Metro over 150 kL	79.4	**81.1**	**94.1**	**96.5**	**100.9**
Class 1	144.8	**148.0**	**171.7**	**176.0**	**184.1**
Class 2	196.3	**200.6**	**232.7**	**238.5**	**249.5**
Class 3	218.8	**223.6**	**259.4**	**265.9**	**278.1**
Class 4	249.1	**254.6**	**295.3**	**302.7**	**316.6**
Class 5	279.2	**285.3**	**330.9**	**339.2**	**354.8**

Country Vacant Land and Building					
Volume Charge (c/kl)	119.8	**122.4**	**142.0**	**145.6**	**152.3**

Drainage - Metropolitan Only		2004/05	**2005/06**			
General Increase Drainage			**2.2%**	**2.5%**	**2.5%**	**2.5%**
Residential	Rate in $ GRV (c in $ GRV)	0.574	**TBD**	**TBD**	**TBD**	**TBD**
Vacant Land	Rate in $ GRV (c in $ GRV)	0.664	**TBD**	**TBD**	**TBD**	**TBD**
Non-Residential	Rate in $ GRV (c in $ GRV)	0.695	**TBD**	**TBD**	**TBD**	**TBD**
Minimum Annual Charge		52.20	**53.30**	**54.60**	**56.00**	**57.40**
Strata Titled Single Caravan Bays ($)		15.65	**16.00**	**16.40**	**16.80**	**17.20**
Strata-titled storage units & parking bays ($)		6.40	**6.55**	**6.70**	**6.85**	**7.00**

SEWERAGE 2004/05 to 2008/09				ATTACHMENT 2	
General Increase Wastewater		**2.2%**	**2.5%**	**2.5%**	**2.5%**
Non-Residential Tariff Reform Phase-in		**3.4%**	**3.2%**	**0.0%**	**0.0%**
Residential	**2004/05**	**2005/06**	**2005/06**	**2005/06**	**2005/06**
Metropolitan					
Annual Charge Rate	(c in $ GRV)	**(c in $ GRV)**	**(c in $ GRV)**	**(c in $ GRV)**	**(c in $ GRV)**
First $8,700 GRV	5.59	**TBD**	**TBD**	**TBD**	**TBD**
next $14,900 GRV	3.37	**TBD**	**TBD**	**TBD**	**TBD**
over $23,600 GRV	1.53	**TBD**	**TBD**	**TBD**	**TBD**
Minimum Annual Charge ($)	236.10	**241.30**	**247.30**	**253.50**	**259.80**
Country					
Rate in the Dollar in each town subject to indexation, except for schemes that are revalued in the current year					
Minimum Annual Charge	220.30	**241.30**	**247.30**	**253.50**	**259.80**
Maximum Annual Charge ($)	599.20	**612.40**	**627.70**	**643.40**	**659.50**
Limitation of 10% plus GPI applies to GRV related increases					
Non-Residential	2004/05	**2005/06**	**2005/06**	**2005/06**	**2005/06**
Metropolitan and Country Major Fixture Charges					
Metro based on 94/95 GRV charge, adjusted for reductions above target charge.	($/fixture)	**($/fixture)**	**($/fixture)**	**($/fixture)**	**($/fixture)**
Country based on 02/03 GRV charge, adj for reductions above target charge.					
First	488.60	**516.00**	**545.40**	**559.00**	**573.00**
Second	209.10	**220.80**	**233.40**	**239.20**	**245.20**
Third	279.30	**294.90**	**311.70**	**319.50**	**327.50**
Over 4 (each)	303.70	**320.70**	**339.00**	**347.50**	**356.20**
Limitation of 10% plus GPI applies to the increase in total sewerage bill.					
Metropolitan and Country Volumetric Charges	(c/kl)	**(c/kl)**	**(c/kl)**	**(c/kl)**	**(c/kl)**
Volumetric Charge	182.9	**193.1**	**204.1**	**209.2**	**214.4**
Volumetric Allowance	200kl	**200kl**	**200kl**	**200kl**	**200kl**
Applies to:					
Commercial / Industrial					
Metro State Government and Government Non Commercial (Connected)					
Country State Government and Government Non Commercial (Connected)	from 2004/05				
Metropolitan Vacant Land	c in $ GRV	**c in $ GRV**	**c in $ GRV**	**c in $ GRV**	**c in $ GRV**
First $9,100 GRV	2.88	**TBD**	**TBD**	**TBD**	**TBD**
over $9,100 GRV	2.85	**TBD**	**TBD**	**TBD**	**TBD**
Country Vacant Land					
Rate in the Dollar in each town subject to indexation, except for schemes that are revalued in the current year					
Minimum Charges					
Metropolitan and Country property (non residential)	488.60	**516.00**	**545.40**	**559.00**	**573.00**
Metropolitan Vacant Land (residential and non residential)	177.70	**181.60**	**186.10**	**190.80**	**195.60**
Country Vacant Land (residential and non residential)	155.50	**158.90**	**162.90**	**167.00**	**171.20**
Special Sewerage Charges	2004/05	**2005/06**	**2005/06**	**2005/06**	**2005/06**
Strata title Business sharing facilities (Align to 4th Fixture)	303.70	**320.70**	**339.00**	**347.50**	**356.20**
Strata-titled single and long term residential caravan bays ($)	171.80	**175.60**	**180.00**	**184.50**	**189.10**
Volumetric Allowance (Long Term Res Only)	75kl	**75kl**	**75kl**	**75kl**	**75kl**
Strata-titled storage units & parking bays ($)	51.45	**52.60**	**53.90**	**55.25**	**56.65**
Commercial Nursing Homes ($/bed)	94.15	**96.20**	**98.60**	**101.05**	**103.60**
Volumetric Allowance	75kl	**75kl**	**75kl**	**75kl**	**75kl**
Connected Metropolitan exempt ($ per fixture)	139.80	**142.90**	**146.50**	**150.20**	**154.00**
Metro Charitable Organisations ($ per fixture)	139.80	**142.90**	**146.50**	**150.20**	**154.00**
Metro Non-profit homes for the aged & all Connected Country Exempt (incl. Institutional Public, charitable organisations)					
1st major fixture ($)	139.80	**142.90**	**146.50**	**150.20**	**154.00**
Additional fixtures ($)	61.50	**62.85**	**64.40**	**66.00**	**67.65**
Country Government & General Exempt ($/connection)	777.00	**794.10**	**814.00**	**834.40**	**855.30**