SUBMISSION TO THE ECONOMIC REGULATION AUTHORITY'S INQUIRY INTO TARIFFS OF THE WATER CORPORATION, AQWEST AND BUSSELTON WATER

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1 Executive Summary

The Water Corporation (*the Corporation*) is pleased to offer this submission in response to the Economic Regulation Authority (*the ERA*) on the issues raised in the Issues Paper: *Inquiry into Tariffs of the Water Corporation, Aqwest & Busselton Water (4 August 2008).*

In making this submission, the Corporation notes the background to this inquiry. That is, it follows on from a series of reviews undertaken by the ERA on various elements of the Corporation's charges beginning with a detailed assessment of the tariff structure and revenue requirements in 2005. Since that time the Government has endorsed a number of the ERA's recommendations, with approved price increases reflecting the ERA's recommendations and a series of tariff reforms initiated with most being phased in by 2013/14. With the exception of the ERA's treatment of contributions by developers, the Corporation supports the ERA's overall approach to determining revenue requirements and hence, associated changes to the prices required. Accordingly, this submission does not seek to readdress the regulated revenue requirements nor the price path proposed by the ERA in December 2007 as documented.

Instead, this submission focuses on some of the key issues raised in the Issues Paper. Discussion on items of greater significance to the Corporation is summarised as follows:

Operating Environment and Capital Program

Climate change, unprecedented growth and competition with a booming minerals industry for construction and operation resources have presented the Corporation with a number of challenges in the recent past and continuing into the foreseeable future. These challenges have been further compounded by external pressures from both regulators and the community to deliver increasing standards of service.

Meeting these challenges has placed significant pressures on the Corporation's financial resources with large increases required in both capital and operating expenditure. Despite the increased costs, the Corporation continues to provide its services efficiently and effectively while maintaining its compliance obligations and customer service standards. Managing the Corporation's assets and meeting its future demands requires a combination of capital and non-capital solutions.

The Corporation has remained focused on the 2% per annum operating efficiency target and continues to do so in the short term. In saying this however, there is some evidence that maintaining this target is impacting on the Corporation's ability to continue to deliver services efficiently in the medium to long term and there is a limited ability to sustain these tight efficiency targets indefinitely. A revision to the target may be warranted to ensure the Corporation maintains its ability to deliver the high standard of service expected of it.

Furthermore, the Corporation has developed and continues to refine, a best practice capital delivery strategy. This has allowed it to efficiently deliver a very large capital works program in recent years, and places it in a good position to meet the State's water and wastewater requirements into the future. The Corporation's approach to the efficient allocation and expenditure of capital encompasses all elements of the capital process including planning, funding prioritisation, acquisition and subsequent asset management. These processes however, need to recognise the expectations on the Corporation as part of the State's broader infrastructure

requirements with increased service levels demanded by both regulators and the community. These expectations must be met in a State budgeting environment that constrains the overall funding available.

The Corporation has adopted a "Security through Diversity" approach to meeting the State's water needs: demand management is an integral part of this approach, as is a wide range of water source alternatives. Central to the Corporation's source development is a commitment to the long term sustainable abstraction of groundwater, while managing the supply security of the majority of the State's potable water.

Demand management initiatives receive wide community support as a sustainable approach to managing the State's water requirements. They are a compliment to source development options. Effective demand management requires a combined approach of education, regulation and appropriate financial incentives and pricing signals. This therefore includes the current watering roster which has been instrumental in instilling efficient behavioural habits and preventing the need for total sprinkler bans experienced in the Eastern States. Relaxing them should only be considered if there is significant community support to do so and provided circumstances were such that the additional supply was possible. This is not the case right now and is unlikely to be for a number of years.

Tariff Structure, Reforms and Revenue Sufficiency

The Corporation agrees with the overall approach used by the ERA in determining the total revenue requirements of the organisation. Furthermore, it supports the various reforms that have been introduced following the previous reviews. The Corporation would prefer to see these reforms implemented prior to re-opening the debate on which approach to pricing is appropriate.

Having said this, there are some minor modifications proposed to metropolitan residential water charges. These modifications retain the essence of the current reforms. The changes reflect recent revisions to the long run marginal cost (LRMC) estimate as well as the community's ever-increasing focus on the need to use water efficiently. They include a revision to the LRMC of new sources for the first and second pricing tapers, while basing the third (and top) taper on the cost of a seawater desalination plant. Furthermore, the Corporation proposes a reduction to the threshold at which the second and third tapers apply. Finally, it is proposed that the timing of phasing-in the changes for metropolitan non-residential water usage charges is accelerated from July 2013 to July 2010 for very large water users.

As noted above, the Corporation supports the continued use of the LRMC as the basis of calculating volumetric charges, with the main focus being issues of:

- The appropriate source strategy to price for; and
- The appropriate time frame to calculate the LRMC over.

The Corporation notes significant economic and social weaknesses with a scarcity based pricing approach (compared with water restrictions) and would not support it. When facing short term supply shortages, scarcity pricing is ineffective where demand and supply are inelastic and wrongly assumes total community value can be maximised based on a household's willingness to pay for water. Furthermore, scarcity pricing is inappropriate as a signal for influencing long term demand and supply decisions, thereby risking the long term efficiency of the system.

There is some merit to a pricing alternative with a locked-in price for supply independent of climate. This would require a long term commitment by customers and could not be accessed in the short term to avoid restrictions at the point they are imposed.

The Corporation would support a move away from valuation based prices for wastewater and drainage services, as they are administratively cumbersome and difficult to explain to customers who complain that they bear no relationship to the cost of providing the service. In saying this, the benefits of any alternate structures would need to be clearly demonstrated with any adverse impact on customers with low valued properties carefully managed.

Technical Issues

A significant potential issue noted by the Corporation concerns the determination of the cost of capital. Since the Weighted Average Cost of Capital (WACC) was originally set in 2005, there have been a number of parameter changes to the calculation inputs, largely driven by changes in global financial markets with increased costs of funds for those wishing to secure debt or equity financing. These parameter changes may result in significant price increases required to recognise the increased cost of capital.

In estimating this increase, the Corporation has determined what it considers to be a reasonable range for the WACC. It has stopped short of recommending a particular position, as this is a technical pricing issue for the ERA and one which has the greatest impact on the Corporation's shareholder (the State Government). The Government will need to balance the price impact on customers from the higher WACC, against the potential effect of discouraging competition if the higher cost of capital is not reflected in higher prices.

An additional technical issue is the treatment of developer contributions for pricing purposes. The Corporation's strong preference is to change the current approach by either:

- Excluding developer's asset contributions from the asset base and accordingly, not recognising them as upfront revenue when received. Similarly, cash contributions would be netted-off against the asset base and not recognised as revenue; or

- Including asset contributions in the asset base and recognising the revenue equivalent to the cost of the assets over their life. Cash contributions should be spread over the average life of the Corporation's conveyance assets (at least 50 years).

Both approaches result in spreading the benefit provided by the contribution over the life of the asset. While it is acknowledged that all alternatives discussed by the ERA deliver the same amount of revenue over time, the Corporation's preference is based on minimising pricing volatility and on intergenerational equity. This is of particular significance in smaller country schemes, which may only receive contributions from occasional development activity.

Finally, the Corporation would like the ERA to consider the option of fixing a real price path for three years. Obviously, such a decision is for the Government to make as they would need to commit to a pricing decision for a number of years. However, the Corporation would like the ERA to consider the merits of such an approach including the mechanics of how the arrangement might work.

2 Setting the Scene

This submission represents the Water Corporation's response to the Economic Regulation Authority (ERA) on the issues raised in the Issues Paper: *Inquiry into Tariffs of the Water Corporation, Aqwest & Busselton Water (4 August 2008).*

2.1 Layout of the Submission

The submission is laid out in two mains sections:

- Section 3: Major Topics for Consideration. Six issues raised in the Issues Paper have been addressed in detail in this section.
- Section 4: Addresses the specific issues raised in the ERA's paper. With the exception of the topics addressed in Section 3, most issues raised by the ERA are addressed here.

Furthermore, the section below provides the Water Corporation's position on the background to the inquiry.

2.2 Background to the Inquiry

The Corporation aims to provide sustainable water services to make Western Australia a great place to live and invest. While we strive to best meet our customers' needs for now, we are also managing our assets and planning for Western Australia's water future. The pricing policies are determined by the Minister for Water Resources and are an important part in meeting the Corporation's overall objectives.

Accurate prices ensure the economic viability of the Corporation, allowing it to continue to provide for current and future water services. However, it is essential that in meeting economic objectives, price setters also consider their impact on customers – including the development community, commercial customers and residential households. Furthermore, as a provider of services across a State as large and as varied as Western Australia, the tariff structure also aims to strike a balance between reflecting the cost of the service provided while ensuring an affordable service is made available to all West Australians regardless of where they reside.

This inquiry follows on from a series of reviews undertaken by the ERA on various elements of the Corporation's charges. The ERA's initial review, Urban Pricing Inquiry (November 2005) set the framework for the overall determination of revenue requirements. The Corporation supported the overall approach used by the ERA and continues to do so. This support included the adoption of the ERA's pricing model for the determination of tariffs. Because of these past reviews, this submission by the Corporation does not intend to revisit any of the discussion on the overall revenue approach, but instead, takes it as a given. There is however, one notable exception, being the treatment of developer contributions for the purposes of calculating regulated prices. This is discussed in more detail in Section 4.

Furthermore, as noted in the issues paper, the ERA have also undertaken two reviews on the Corporation's tariffs with a major focus being on anticipated price paths. The latest of these reviews was tabled in Parliament on 17 January 2008 following which the Government continued to endorse the price path recommended by the ERA. As the Corporation supports the methodology used to determine the price path, it therefore supports the ERA's calculation of the required changes to prices. Accordingly, on the basis that actual expenditure remains in line with those forecast for the Corporation in the 2008/09 State Budget, this submission does not propose to vary the price path previously recommended by the ERA in its "Inquiry on the Water Corporation's Tariffs – 2008". This position is subject to the proviso that changes may be warranted depending on the pricing treatment of contributions by developers.

Finally, it is noted that following the recommendations by the ERA in previous inquiries, the Government decided to introduce a number of tariff reforms. These reforms largely concern country and metropolitan water usage charges, with further deliberations still underway on the recommendations from the inquiry into contributions by land developers. Most reforms are being phased in over a number of years, predominately targeting 2013/14 as the final year. As the Corporation is in the midst of implementing these decisions, it does not intend to revisit them as part of this review.

The Corporation's preference is to continue to implement all reforms in the first instance, with any possible revisions to be considered at a later date. The exception to this is for some (relatively) minor adjustments to metropolitan residential water usage charges. The proposed adjustments however, are still consistent with the overall goal of the existing reforms.

3 Major Topics for Consideration

3.1 Metropolitan Water Usage Charges

In the ERA's initial pricing inquiry (2005) it was recommended that consumption charges reflect the Long Run Marginal Cost (LRMC) of new sources, with annual fixed charges required to reflect the difference between the LRMC and the total cost (net of developer contributions) of providing the service.

Pricing based on LRMC is well established in many jurisdictions in the water industry. This approach is supported by the premise that for reasons of efficiency, the LRMC:

(i) Provides an efficient signal to users about the consequences of their water use by reflecting the long term cost of new source development;

(ii) Allows users to signal their willingness to fund the construction of new sources;

(iii) Guides the user to make an informed decision on the efficient development of alternative supplies and demand management initiatives by better understanding the cost of scheme supply.

In appreciating the benefits of long run marginal cost pricing, it must also be recognised that the supply and consumption of water should not be driven by economic considerations alone, with social and environmental factors equally important. As a State owned utility, the Corporation is committed to ensuring that as a minimum, water is available at a reasonable price for a moderate standard of living. Furthermore, the Corporation is committed to a combination of demand and supply initiatives to pursue certain environmental outcomes (for example, groundwater abstraction targets).

Finally, it needs to be recognised that efficient outcomes can only be achieved if customers (or potential suppliers) actually respond to a pricing signal. By definition, non-discretionary water use is almost completely price inelastic (consumption doesn't change as prices increase or decrease) and even discretionary use has a low responsiveness to price. Furthermore, there is little point in signalling a price to potential suppliers if they are unable to respond in a timely manner.

For the above reasons, the Corporation's preference is to retain the current approach targeting LRMC for metropolitan water consumption charges, but with some modifications. That is, to set metropolitan water consumption charges to target:

(i) One price taper for all consumption by non-residential (commercial) metropolitan customers, based on the middle to upper end of the LRMC range; and

(ii) The LRMC for the majority of water used by residential customers, with the third and highest taper based on the full cost of a climate independent source (proposed as a seawater desalination plant). The Corporation proposes some modifications to the current reforms being implemented that recognise the impact of higher cost estimates for new sources as well as the increasing community support for more cost reflective prices. This is discussed in more detail below.

Calculation of the Long Run Marginal Cost

Since the initial calculation of the LRMC undertaken during the ERA's 2005 review, there have been significant changes in the source development plan. These include changes to the anticipated source options (most notably the Southern Seawater Desalination Plant replacing the southwest Yarragadee bore field), revisions to the cost estimates of new sources and further deliberations on the yield of climate dependent sources.

The revised source development strategy is discussed in more detail in Section 3.2. It must be noted however, that the source plan used to calculate the LRMC has been calculated for pricing purposes only. It represents only part of a range of plans being formulated by the Corporation.

The Corporation's revised forecast of the LRMC is estimated to be in the range of $1.11 to $1.55 per kilolitre (in 2007/08 dollars). The main variables influencing this range include the future yield of rainfall dependent sources (dams) and the long term trend for changes in demand.

While the Corporation supports the notion of prices reflecting the LRMC of new sources, an issue for consideration is the time period over which the LRMC is calculated. The above calculation is based on a notional 100 year forecast. This is consistent with the approach adopted by the ERA in previous inquires.

The 100 year LRMC calculation reflects the very long term impact of cost changes as a result of changes in demand. However, demand (and probably most supply) decisions are not made with such long time frames in mind. Customers are unlikely to consider time horizons beyond 20 years, with the possible exception of some commercial customers who may consider a 50 year outlook. Likewise, alternative sources to scheme water (for example, grey water schemes or rainwater tanks) are unlikely to have useful lives beyond 20 to 50 years.

While the Corporation recognises the weaknesses of a pricing signal calculated with a very long time horizon, it also notes that short time periods are also problematic. Using a 20 year time period can produce highly volatile results, including very low estimates (in the order of 12 – 50 cents / kL) when an organisation is committed to a short / medium term strategy. This is currently the case with the Corporation's existing source development plan, with the commitment to construct the Southern Seawater Desalination Plant in 2011. This is required to relieve the pressure on the groundwater resources and (climate permitting) begin to replenish the dam water supplies. In this instance, the marginal value of the water is far greater than the indicative cost of 12 cents of supply water from dams because of the environmental benefits and additional supply security that the new source delivers.

Proposed Changes to Non-Residential Water Usage Charges

In the latest pricing review undertaken by the ERA (completed in December 2007), it recommended a target price for non-residential consumption of $1.70 per kilolitre (kL). This recommendation was supported by the Corporation and endorsed by Government. The price reflected the Corporation's "most likely" LRMC estimate, although it was recognised at the time that this was a draft, indicative figure with the number requiring further consideration as part of the current inquiry.

Having undertaken the additional work on the LRMC since that date, the Corporation now proposes that the new target for the non-residential water usage charge is $1.55 / kL, with

appropriate matching reductions to the service charge to maintain revenue sufficiency. The new target price reflects the upper range of the revised LRMC estimate. The Corporation recognises that any figure within the $1.11 to $1.55 / kL LRMC range may be an appropriate consumption charge and prefers that the upper range is targeted as:

(i) It more closely reflects the actual average cost of new sources (average estimated at $1.75 / kL). The upper range of the LRMC therefore provides a stronger price signal to encourage the investigation of efficient alternative water sources and is consistent with the objectives of the State Water Recycling Strategy.

(ii) The greater the emphasis on the consumption charge (relative to the annual service charge) the better charges reflect the principle of "user pays"; and

(iii) A higher consumption charge is more likely to encourage the adoption of water efficient appliances and measures.

The Corporation supports the continued phase-in to reduce the number of tapers from three to one, as well as the continuing to target 2013/14 as the year in which all changes are finalised.

There is however, one exception to the timing of the phase-in, being the charges for very high metropolitan commercial customers. Given the benefits of the reforms in encouraging the efficient use of water and the development of alternative water sources – the quicker the reforms are phased in for large customers, the faster these benefits can be realised. Accordingly, the Corporation would encourage the adoption of the target consumption price for customers using more than 20,000 kilolitres by 1 July 2010. The threshold of 20,000 kL is selected as these customers are required to submit a Water Efficiency Management Plan by 1 July 2009.

Proposed Changes to Residential Water Usage Charges

Metropolitan residential water usage charges should be based on the Long Run Marginal Cost (LRMC) of new sources, but with a higher charge applied to very high consumption. The Corporation considers that a three tiered water usage charge for residential customers is optimal, in addition to a fixed annual charge to ensure revenue sufficiency.

Indicative results from the Corporation's preliminary assessment of the LRMC are:

- First taper: $1.11 / kL (or the lower end of the LRMC range)
- Second taper: $1.55 / kL (or the middle to upper end of the LRMC range)
- Third taper: $2.00 / kL (being the indicative cost of future potable water from the seawater desalination)

The above prices are largely consistent (although slightly higher) with the prices and reforms currently being implemented. The marginal increase is justified given that the costs of new sources have also increased since the previous assessment.

Furthermore, the Corporation proposes a reduction in the target taper thresholds as follows:

- First Taper: 0 – 300 kL p.a.
- Second Taper: 301 to 500 kL p.a.
- Third Taper: > 500 kL p.a.

The reduction in the thresholds (from 550 kL and 950 kL) will further encourage the efficient use of water. The current thresholds are considered too high to be effective as only 6% of all water supplied is priced at the second or third taper prices.

Again, on the basis of further encouraging the efficient use of water, there may be additional merit in reducing the taper thresholds beyond those proposed above (to say 150 and 300 kilolitres). This water efficiency objective however, should be weighed up against the potential impact that a reduced threshold might have on large families (whose essential use component is greater than 150 kilolitres per year) and the short term impact on tenants.

Setting prices at the above taper rates will result in an increase in water usage charges and hence, require a decrease in the annual service charge to ensure total revenue does not exceed the cost of the service. This rebalance between fixed and consumption charges has the potential to adversely impact (albeit minimally) tenanted households as they typically only pay the water usage charges. The adjustment however, may be justified as it places a greater share of the responsibility of paying for water on those who actually use it. However, this reform should be phased in over a number of years (2013/14 – consistent with the current reforms) to minimise the annual impact of any change.

Targeting the lower end of the LRMC range for the first taper is justified:

(i) As there are numerous, significant social benefits associated with a high quality, public water supply. A responsibility of a public utility is to ensure the community has access to affordable water necessary for maintaining a reasonable lifestyle;

(ii) For reasons of revenue sufficiency, it is quite probable that if water is all priced at the upper range of the LRMC, then a discount for the non-discretionary usage is required to ensure the Corporation does not over recover the cost of providing the service.

Water supplied at the second taper should predominately apply to a customer's discretionary use. The Corporation would encourage this rate to be set at the middle to upper range of the LRMC justified for the same reasons as those detailed in the discussion on non-residential use. That is, to encourage the efficient practice of using water wisely, the efficient investigation of potable source substitutes and water saving devices.

The Corporation's support for the third taper (and its target price) is based on the preference for all large consumers to pay the full cost of a climate independent source. Pricing based on the LRMC delivers long term, economically efficient outcomes and hence the Corporation's support for this approach for the vast majority of water supplied. However, after an organisation has committed to a new source, the marginal cost is lower than the full cost of those new sources. This is currently the case for the Corporation. Accordingly, pricing for high usage based on the

actual cost of future sources signals to very high users the actual cost of their very discretionary water use.

While some may justify the higher priced taper on the basis that it represents a penalty for excessive consumption, the Corporation preference for this approach is because it is consistent with the user pays principle. Used in conjunction with LRMC pricing, it encourages the efficient use of water and the efficient adoption of water saving equipment

The decision to select $2 / kL is based on the cost of potable water from the Southern Seawater Desalination Plant and associated bulk water integration assets. The first 50 gigalitres (GL) from this plant is estimated at $2.05 / kL and the second 50 GL expansion at $1.90 / kL. The $2 / kL price taper represents a convenient middle ground. These costs for the desalination plant incorporate a cost estimate for the price of using renewable energy. In essence, it therefore partly captures an environmental externality of this source, to the extent that the Corporation will incur operating costs for the renewable energy sources.

Scarcity Pricing

The ERA has raised the issue of scarcity pricing for consideration. The Corporation believes it is not appropriate to apply this concept to water. This position is justified on a number of grounds:

- Scarcity prices are only effective as a means of controlling demand or supply if these are responsive to price signals.

- Water demand is typically insensitive to price (price inelastic) and the degree of sensitivity uncertain. Restrictions are a more reliable approach to managing demand when facing short term supply shortages.

  In assessing the responsiveness of demand to pricing signals, the ERA indicated in its report, prices would need to increase by between 62 to 143 per cent to deliver a similar effect to level 3 restrictions. Increases of this magnitude ($230 to $500 yearly) would place significant financial pressures on lower socioeconomic customer groups.

  Wealthy customers would be able to afford these increases and are unlikely to reduce consumption significantly. The required reduction in consumption would have to come from those that could not afford the price increase.

  Fluctuations in the price of water may lead to uncertainty about long term water costs and therefore may not promote efficient investment in long term water saving initiatives such as water efficient gardens and whitegoods.

- The responsiveness of supply options is limited given the nature of available sources and the time periods required to deliver them. There is little scope to transfer water from alternative uses (for example, irrigation) to potable water use in response to increasing scarcity values.

The concept of allocating scarce water resources to customers on the basis of the price they are willing to pay rather than by set rules embodied in restrictions has been the subject of a number of research papers in recent times (for example see Productivity Commission Towards urban reform: a discussion paper 2008, ABARE Urban water management: optimal price and investment policy under climate variability 2008). The advocates of scarcity pricing claim that water restrictions impose significant costs on consumers in the form of allocative efficiency costs and inconvenience costs and that scarcity pricing could potentially avoid many of these costs.

The Corporation's analysis of customer behaviour and pricing signals suggests that:

- The effectiveness and benefits from scarcity pricing are likely to be overstated;
- Willingness to pay is unlikely to measure the actual relative value of water consumption across the community;
- There will be longer-term inefficiencies if prices are based on short-term pricing rather than LRMC, both as a signal to customers and to potential suppliers; and
- There are practical problems for implementation.

The summary above is discussed in more detail…

In setting the volumetric water charge to send a signal to customers and producers, only one objective can be targeted. The two broad pricing options are:

- Set the volumetric charge at the LRMC and deal with periodic shortages due to climate dependent sources with demand management through restrictions, rebates and advertising campaigns.
- Manage short-run demand through scarcity pricing, allowing customers to decide how much water to use based on a "market" clearing price.

Basing prices on the LRMC gives the correct pricing signal for long-term decisions that embed efficiency into the demand and supply of water. For example, on the demand side - should customers install a swimming pool, what type of garden should be established, should customers pay extra for an efficient washing machine or dishwasher? On the supply side – is it efficient to develop an alternative water source such as a reuse scheme? Once these investments decisions have been made, the sunk costs will impact on water consumption and supply for many years, so an efficient decision requires a longer term view of the cost of water.

Scarcity pricing is targeted at short-term conditions and should therefore ideally target behavioural changes. Is that longer shower or a spa bath valued more highly than a lush well watered lawn or vice versa? Making long-term water use decisions (swimming pools, reuse schemes) on the basis of a short-term price created by climatic variation would result in inefficient decisions. Customers are also unlikely to personally make a good estimate of the

long-term cost of water for these decisions given the relatively low value and the difficulty and effort required (even if the ERA provided a free LRMC model to everyone).

Additionally, scarcity pricing would have distributional impacts which have clear economic costs. When the water available is constrained by poor inflows, consumption by one customer is at the expense of another. Increasing the price does not increase the amount of water available. An affluent customer would be able to afford to continue to water their lawns inefficiently 7 days a week while a pensioner may not be able to afford to water then at all. Under the existing arrangements, two day a week restrictions allows them both to enjoy their gardens, under scarcity pricing only one does. This would clearly be a net cost to the community. Compensating the pensioner will not alter the situation if the affluent customer can continue to use water inefficiently.

The volumetric charge can either signal to consumers and producers the estimated long run marginal cost of supply, or it can be used to manage demand to short-term water use objectives. It can't do both. A decision needs to be made as to which is the most valuable price signal. In assessing the economics of which approach to adopt, the following issues need to be addressed:

What options are available to trade-off if price is used to control demand rather than restrictions?

Arguments in favour of scarcity pricing are based on the ability of customers to choose how to reduce their consumption. If restrictions apply to the same types of consumption that are price sensitive (which would be expected), then scarcity pricing will simply create the distributional impacts described above, with the resulting inefficiencies.

Internal water consumption is price inelastic, particularly in the short-term. Cooking, laundry and toilet flushing are essential and behaviour should not be modified by the water price. An analysis of the impact of the cost of water on internal activities with some element of discretion (long showers and spa baths) shows that the cost of heating water is currently in the order of 5 times the cost of the water. Doubling the cost of water from (say) $1/kL to $2/kL would increase the total cost of hot water from around $6/kL to $7/kL (16%). The cost of a shower would increase by just 2c a minute. Appealing to people's social responsibility is likely to have much more effect than price in modifying this type of consumption.

In the longer-term, the cumulative impact of the cost of water may influence the purchase of water efficient washing machines, dishwashers and shower heads. These decisions should be made on the basis of the long-term water cost, not the price to balance short-term availability (supply) and demand.

Short-term water reductions driven by price increases would be made outside the house and, distribution impacts aside, would therefore be very similar to the impact of restrictions. However, as described above, increasing price is likely to impact on those with a low ability to pay, rather than reflect those that fundamentally value water more.

ABARE have suggested that the less severe stages of restrictions work by imposing inconvenience to discourage consumption. However, for those with sprinkler timers the inconvenience only extends to reprogramming the timer and restrictions still result in a reduction

in consumption. Limiting the number of days gardens can be watered is a method of rationing which forces efficient and necessary use.

As discussed above, value is not well measured by willingness to pay. For more severe restrictions, imposing the inconvenience of hand watering is probably a better indication of relative water value than willingness to pay, and provides a means of allowing water use for very high value outside use. "If customers can not spare the time then they can not value the water that much" is more likely to be the case than "if the customer cannot spare the money, they do not value the water".

Practical Difficulties

The scarcity price would be calculated to achieve a target reduction in water consumption to provide the desired level of security, in the same manner as the level of water restriction is determined. The target reduction would need to be centrally determined as someone needs to determine the value of security and water in storage. There is not a market option to determine this value.

The price elasticity of demand for water is very uncertain and many studies have come up with a wide range of results. Demand reductions from restriction are more predictable. As summer garden use is the most price sensitive consumption, any mis-pricing for these months would result in a year of lost saving, hardly the time scale required for a response to drought conditions. Very high prices that target essential indoor water use in winter would be a very poor substitute.

Meter reading practices may need to be reviewed. Meter reading would need to occur at the time the scarcity price changes was changed, currently limiting price changes to twice per year and potentially creating timing inequities if substantial price changes were required.

To implement scarcity pricing the existing reduction in water consumption from the current "2 day per week water efficiency measures" would need to be built into the price as a first step. Assuming 50% of the 50GL savings has already been embedded in behavioural changes and an external water price elasticity is -0.4 (10% increase in price results in a 4% reduction in consumption), the required price increase assuming 50% external use is 42.5%. If the elasticity is -0.2, the required price increase is 85% or for an elasticity of -0.1, 170%.

Consideration needs to be given to the impact of relying on price. Scarcity pricing has the potential to destroy community good will towards meeting consumption objectives, making them harder to achieve. Currently people moderate their consumption for community objectives even though they would be willing to pay more for higher levels of use in normal times. If these people don't moderate their use, price increases will have to be greater, transferring the impact of reduction in consumption onto those who can't afford the higher prices.

The Issues Paper notes the possibility of alternative price plans, including a locked-in price for consumption independent of storage levels. This alternative has merit provided customers who choose this option commit to funding the construction of a climate independent source for a number of years. The option would need to be based on a 100% secure source and chosen before restrictions needed to be imposed or at least, with enough time to construct a climate independent source.

3.2 Source Development Strategy

The Corporation is continually reviewing its strategy for meeting the demand for water services in a growing State experiencing significant uncertainty on climate forecasts. The most recent example of this planning is the Corporation's current focus on the 'Water Forever' project which (among other objectives) seeks to revise its long term source development strategy. This project is exploring a wide range of alternatives covering both demand management and source supply, under different climate scenarios with a keen focus on engaging all stakeholders, including strong community involvement.

At the core of the planning options being developed, is the recognition that:

- Long term groundwater abstraction targets must be achieved. The current arrangement for the groundwater draw from the Gnangara mound is based on a variable abstraction rule which permits the Corporation to draw more water in times of scarcity. For environmental reasons however, it is essential that any temporary overdraw must be repaid in the short/medium term to ensure long term sustainable yields are maintained. Given the low dam levels in recent years (as a result of significantly reduced rainfall/inflows) and the associated high groundwater abstraction that resulted, the Corporation is committed to constructing the Southern Seawater Desalination Plant (SSDP) to enable it to relieve the current pressures on the groundwater system.

- Meeting the needs of a growing State requires a combination of both water source solutions and demand management initiatives. The Department of Water now requires the Water Corporation and other licensees to develop and implement water efficiency measures as part of the standard licensing process.

- In developing the source strategy, a security through diversity approach is required. There is no 'silver bullet' to meeting the State's water needs. The range of sources includes water recycling, desalination, groundwater options and catchment management alternatives.

It is essential that when undertaking source planning, a range of situations are considered – both optimistic and pessimistic. It is only prudent to plan for worst case scenarios to enable the organisation to meet future challenges as they unfold. For pricing purposes however, the Corporation has based its calculation on a more moderate prediction of source development. While more dire circumstances may unfold, so may more favourable ones. The Corporation wishes to foreshadow a "more likely" view in its current prices and has opted for a source development plan with:

(i) Per capital demand consistent with current actual demand under the 2 day per week sprinkler roster. In assuming this demand profile for pricing purposes, the Corporation notes that it will continue to pursue efficient demand management initiatives, reducing demand where justified (which includes being cost competitive with new source development alternatives).

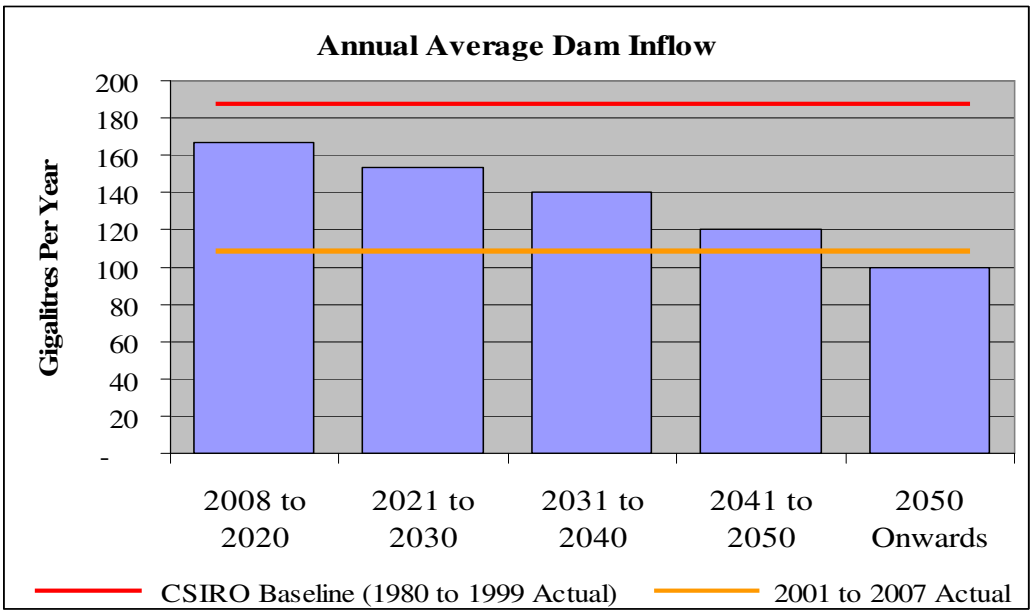
(ii) An assumption for the long term sustainable groundwater abstraction of 120 GL per year, drawn under the current variable abstraction arrangement. This is below the

current arrangement which targets 135 GL per annum. Reducing the long term average abstraction aims to be achieved by ensuring the timely construction of sources. In undertaking its analysis, the Corporation notes the significant benefit that the variable abstraction rule offers in terms of its supply security. Any future amendments to this arrangement should consider the benefits of this supply security against the cost of new source development and the environmental impact of the groundwater abstraction. For example, fixing the annual abstraction to 120 GL has considerable disadvantages to a flexible alternative which (for instance) reduces the lower end of the variable abstraction range. This reflects the higher value of groundwater draws when dam levels are low.

(iii) Two climate scenarios are considered for the determination of rainfall, or more particularly, annual inflows to dams.

The first scenario reflects the expectation for reduced rain inflows noted by CSIRO and the Australian Bureau of Meteorology in "Climate Change in Australia: Observed Changes and Projections" (October 2007). This publication outlines the range of predicted changes to rainfall in Australia, as a result of climate change.

This publication notes that the most likely (50th percentile, median emissions) scenario in the southwest of Western Australia is for a 10% reduction in rainfall (from the 1990 baseline) by 2030 and a 20% reduction by 2050. Relatively small changes in rainfall result in considerably greater changes to stream flows. The Corporation's modelling translates this lower rainfall into 140 GL (gigalitres) of average annual inflows through to 2030, reducing to 100 GL by 2050, as reflected in the graph below. These inflows exclude the losses from any surface water evaporation. For comparative purposes the 1980 to 1999 actual inflows (used by CSIRO as a baseline) is also shown, as is the actual inflows experienced between 2001 and 2007.



The second climate scenario modelled is based on the actual inflows between 2001 and 2007. This scenario was selected because it reflects the most recent actual rainfall events.

In modelling the two scenarios, the Corporation is able to examine the sensitivity of the source development plan (and hence volumetric pricing signals) to annual rainfall. The Corporation faces the predicament of forecasting for an input as fundamental as rainfall, under the current environment of uncertainty about climate change. While a myriad of potential rainfall patterns are possible, for simplicity's sake only two have been selected.

It must be noted however, that these scenarios were chosen for pricing purposes only. As is being highlighted by the Water Forever Project, it is prudent to plan for reduced rainfalls at the lower end of the predicted ranges, to ensure adequate supply security. In the event of higher rainfalls in future years, investments in new water sources can be deferred or developed in stages. The Water Forever Science Panel and community engagement on the project supports this approach to source planning.

(iv) A range of source options include water recycling (through groundwater replenishment), seawater desalination, development of the Wellington catchment, smaller localised groundwater sources and catchment thinning. The source development plan includes the completion of the Southern Seawater Desalination Plant by 2011.

(v) While the long term average groundwater abstraction is the key driver in triggering the need for source development, secondary considerations include delivering the sources at least cost to the community and aiming to deliver a long term average security of supply of no less than a 2% (1 in 50 year) chance of a total sprinkler ban.

3.3 Demand Management Initiatives

Justification of Demand Management Initiatives

The current water efficiency initiatives under the new state-wide Water Efficiency Measures include sprinkler rosters, best practice Waterwise programs, the Waterwise Rebate Scheme, behaviour change programs and other initiatives. The measures have been instrumental in reducing Perth's average annual per capita consumption from 185 kL in 2001 to 147 kL in 2007. This amounts to 61 GL of water saved per year, water that will not need to be provided through additional source development. By comparison, the Perth Seawater Desalination Plant can produce approximately 45 GL per year.

The current sprinkler roster for the IWSS was introduced as a necessary response to climate change and has been pivotal in preventing the need for more severe restrictions currently experienced in the eastern states. Furthermore it has been very effective in instilling behavioural changes in customers to encourage the efficient use of water, while still allowing for the adequate maintenance of a healthy garden. This approach to demand management has wide community support.

The Corporation is committed to the sustainable management of water services. Embodied in this philosophy is the recognition that providing water is not just about meeting customer demands even if they are wasteful, it is also about ensuring customers understand the importance of using water wisely and encouraging the adoption of water efficient practices. Effective demand management requires a combined approach of education, regulation and appropriate financial incentives and pricing signals. This is in addition to encouraging a suitable range of alternative practices and equipment is available should an individual wish to acquire them.

The range of behaviour change programs and other demand management initiatives are typically compared against the long run marginal cost for all new water sources, and are only implemented when they compare favourably to the alternative of available new sources. In addition to being a cost-effective method for meeting future demand, water efficiency measures are justified:

- As a means of implementing the directives of the State Water Strategy (2003), which established the need for water licensees to develop and implement water conservation/efficiency plans (WCEPs) to ensure improved water use efficiency. The Department of Water now requires the Water Corporation and other licensees to develop and implement water efficiency measures as part of the standard licensing process.

- As a pro-active strategy for managing the current and projected impacts of climate change within Western Australia. One such impact is reduced rainfall in the South West, which has resulted in flows to public water supply dams decreasing by 70% since the mid 1970s.

- In response to growing community demand for sustainable water management. Market research indicates that 93% of the community supports the most recent water efficiency measures.

Finally, the current watering roster delivers financial savings to the Corporation from the reduction in the peak flow rates required. These savings are significant with regard to the capital funds of conveyance assets and also include savings in annual energy costs from reduced peak energy requirements. Despite the high growth in property numbers in recent years, the Corporation has been able to meet its service requirements partly from the capacity made available in the conveyance network from the two day watering roster. This demand management initiative could not be relaxed without additional investment in the distribution infrastructure to increase the capacity required for peak flows.

Implications of the Southern Seawater Desalination Plant on the Current Sprinkler Roster

The Southern Seawater Desalination Plant (SSDP) will produce around 50 GL of water per year when it begins operating in 2011, with the potential for future expansion. This source is essential in reducing the reliance on the Gnangara Mound aquifer, which is currently stressed as a result of reduced yields from the Corporation's surface water sources.

The SSDP is an essential part of the Corporation's "Security Through Diversity" approach to the State's future water needs. It is required to not only meet the demands of a growing State, but its timing is fundamental to ensuring the Corporation is in a position to reduce its draw on the Gnangara Mound aquifer and 'pay back' the overdraw that has been necessary in the past few years. The SSDP should not be seen as a means to replace efficient demand management measures, but rather to complement them and strengthen the Corporation's diversified approach to water management.

The State Government may wish to consider revising its position on the watering rosters and other demand management initiatives following completion of the second desalination plant once licensed groundwater abstraction from the Gnangara Mound is known. While the Corporation maintains that the two day per week sprinkler roster is an efficient and effective approach to watering, it would consider its support for relaxing them at some point in the future if:

- The current stress on the groundwater resources is relieved, with the overdraw in the last few years paid back to the environment;
- The sources (including dam levels) are sufficient to accommodate the additional demand without compromising supply security;
- The appropriate water efficient behaviours have been instilled in the community as a matter of habit; and
- There is community support to modify the sprinkler roster.

Demand Management Initiatives in Country Regions

Sprinkler rostering is currently justified in country towns not only because it instils appropriate behaviours for efficient water use, but also because a large number of country schemes are under supply stress. The sprinkler rosters are required in these instances in the absence of timely supply alternatives. These country schemes include a large number of towns in the Goldfields and

Agricultural regions that are part of the integrated water supply scheme and accordingly, under the same supply stress as the Perth metropolitan region.

The current sprinkler rostering approach, which is applied on a North and South of the State basis, was developed in consultation with a garden industry reference group. The group determined the optimum number of watering days for each zone, above which additional watering would be unnecessary and therefore, wasted.

Under the Department of Water's licensing arrangements, Water Corporation is required to improve water use efficiency wherever it is possible and cost-effective to do so. A North and South approach fulfils this requirement in an equitable manner.

The implementation of scheme-by-scheme regimes would be complex and costly to develop and administer. It would need to take into account the unique characteristics of individual schemes, and likely seasonal and other environmental changes, as well as being administered and 'policed' at a local level. This would require significant additional resources.

The market research which confirmed the very high support for the sprinkler roster in the Perth Scheme also confirmed similarly high support for the country and bore use initiatives.

3.4 Operating Expenditure

The Corporation's operating expenditure (OPEX) budget has come under unprecedented pressure over the past few years with further expectation of significant increases required for the medium term forward estimates. These pressures have primarily been the result of:

- Significant increases to the Corporation's capital program, to provide a secure water supply in response to the drying climate and accommodate above-average population growth associated with the West Australian minerals boom;
- Increased skilled-labour and materials costs associated with the West Australian minerals boom;
- Meeting new and/or tighter regulatory conditions being imposed on the Corporation;
- Exhaustion of new, cheaper water source alternatives e.g. dam water and ground water, requiring more expensive source alternatives e.g. desalination, to be brought online; and
- Increased asset maintenance costs associated with an aging asset profile.

Annual movements in operating costs are typically caused by a combination of cost inflation, growth in properties served, changes to capital programs, new corporate initiatives and existing asset replacements (excluding those in the capital program). When forecasting these OPEX requirements, the Corporation adopts the following approach:

(i) Customer Growth

Meeting the needs of a growing State requires the continued investment in new infrastructure. The Corporation's growth forecasts are based on assessments within each region of the level of development activity anticipated, with the overall allowance for growth based on customer numbers. Most growth related OPEX is driven by the cost of operating and maintaining new capital infrastructure constructed to meet this growth. In limited circumstances, allowances are also made for increasing the operating budgets for support services.

(ii) Operating Cost Inflation

To calculate cost inflation pressures on its operating program, the Corporation uses an internally calculated Operating Cost Index (OCI) rather than the Consumer Price Index – Perth (CPI). The OCI is a composite of indexes published by the Australian Bureau of Statistics, selected specifically to reflect the composition of the Corporation's operating program. The composition of the OCI is shown in the table on the following page:

Operating Cost Index		
ABS Index	**To capture the cost of…**	**Weighting**
Labour Price Index Electricity, Gas & Water Supply	Labour (Internal & External)	49%
Producer Price Index Articles Produced by Manufacturing Sector	Materials	14%
Producer Price Index Property & Business Services	Business Services	25%
Consumer Price Index Perth	General Expenses	11%
		100%

The OCI was developed for budgeting purposes. It reflects of the cost pressures facing the organisation, specifically recognising the Corporation's operating and construction environments.

(iii) Level of Service (LOS) expenditure is a broad category encompassing three primary items:

- Expenditure resulting in an improved level of service to customers, the community or to the environment. Typically these initiatives are aimed at improving the quality of the products and services provided, reducing the risk of service disruption or improving the environmental outcome of the Corporations activities;
- Regulatory/Externally imposed conditions. The ever increasing expectations and demands by social, environmental and economic regulators are a significant cost driver, particularly in the capital program but also with operating expenditure. The Corporation endeavours to meet the additional requirements as efficiently as possible; and
- Ministerial requirements. As a State owned utility, the Corporation is often required to undertake activities which assist the Government in discharging its responsibilities. These requests are usually funded by the Government in the form of a Community Service Obligation payment, but some may be funded from the general customer base (for example, the renewable energy used in the Southern Seawater Desalination Plant).

(iv) Efficiency Targets

The Corporation is under continued pressure to deliver its services as efficiently as possible with the ERA only permitting price increases for efficient expenditure. The current OPEX efficiency target is 2% per annum. The determination of this figure and the pressures it places on the Corporation is discussed in more detail below.

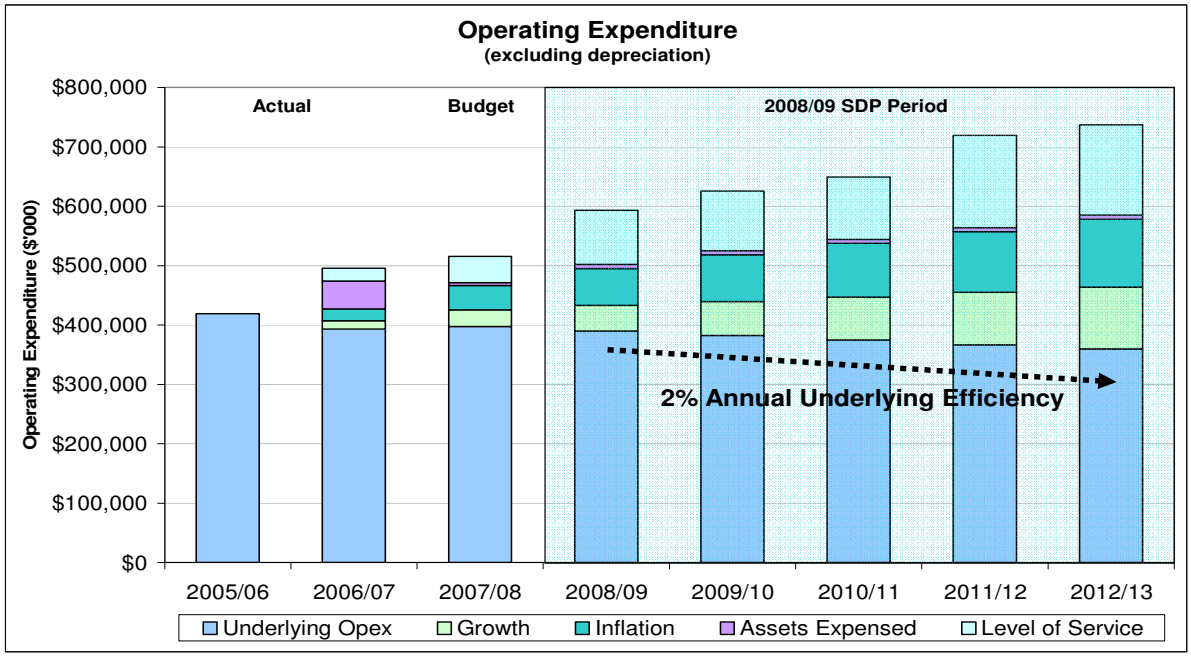
(v) Items generating non-residential Revenue

A small proportion of the Corporation's activities are dedicated to commercial projects. While cost increases associated with non-regulated activities need to be included in the Corporation's budgets, these costs are not passed onto the general customer base but are instead funded by non-regulated revenue streams.

(vi) Assets Expensed

As depreciation is based on the likely asset life (which is actually variable), every year the Corporation invariably writes-off the cost of some assets or makes a permanent adjustment to their value. As a capital intensive business, these costs items are not unusual. While they are generally small in value, their nature makes the cost unpredictable with occasional spikes in some years not unexpected. This cost item (like depreciation) is better considered as a cost of capital.

Summarising the above discussion on operating expenditure, the Corporation's expenditure forecasts detailed in the 2008/09 Strategic Development Plan is shown below. This graph reflects this efficiency target of 2% underlying the Corporation's budget, but shows that with the added cost pressures from growth, inflation, service level expectations and asset write-offs, the overall expenditure is expected to increase significantly:



The

Operating Efficiency

Operating efficiency is traditionally discussed in terms of an annual change in the real operating cost per property serviced. By definition therefore, when comparing annual expenditure adjustment is made for growth in the number of properties serviced and the impact of inflation. As discussed above, the Corporation uses its OCI to reflect the inflationary pressures. This approach is justified on the basis that the OCI reflects the terms of trade (or specific cost pressures) under which the Corporation operates.

The traditional approach to measuring efficiency is improved by recognising changes in the service level provided. Failure to recognise the cost of a change in the level of service could provide disincentives for service improvement if an organisation were forced to achieve short sighted operating cost targets. Without this recognition, an organisation can potentially make so-called "efficiency gains" by lowering its standards, the quality of its products or by taking greater levels of risk. None of these outcomes is desirable in the provision of essential water services.

In order to provide meaningful comparisons between years and to promote positive efficiency outcomes, the Corporation measures operating efficiency based on annual movements in its underlying operating expenditure. Discussed above, the underlying operating expenditure recognises the effect of the cost pressures on the OPEX budget, namely growth, inflation, the three categories of service level expenditure, items with offsetting revenue and assets expensed.

Furthermore, there is an issue as to whether efficiency targets should recognise once-off, abnormal costs that are beyond the Corporation's control and are large enough in magnitude to influence the Corporation's operating performance. By their nature, these adjustments would be exceptional with the Corporation only identifying two such occurrences in its recent past. These both related to actuarial adjustments on the Corporation's superannuation fund and workers compensation provisions. Central to answering this issue of one off adjustments, is the question of whether the Corporation should be expected to absorb these one-off imposts, whether it is reasonable to allow it to pass them on to customers or whether the efficiency target is adjusted for these known unknowns?

Since 2005/06 the Corporation has adopted an annual operating efficiency target of 2%. This figure represented a midpoint between the efficient expenditure target of 1.6% identified by the Corporation under its Process Improvement Program and the 2.4% recommended by the ERA in its 2005 review. In achieving this target, the Corporation notes that:

- Typically, large utilities generate some of their efficiencies from the increasing scale of their operations (economies of scale). While this is also true of the Corporation, these opportunities have been limited in recent years due to the magnitude of the growth associated with the mining boom. Furthermore, the nature of ever increasing regulation plus the gradual elimination of "cheap" new sources places added cost pressures on projects primarily driven by growth.

- Much of the Corporation's actual efficiencies have been generated from a focus on continuous improvement and a general 0.5% efficiency which has been forced onto all areas of the business, with the expectation that area managers must continually seek ways to reduce the cost of their service. Examples of efficiencies from its continuous improvement include the Centralised Operations Centre, e-procurement system and the effective renegotiation of the energy supply contract. While the Corporation continues to pursue such opportunities, their availability becomes increasingly limited.

- Reductions in discretionary initiatives. The Corporation is expected to undertake various initiatives, which while not necessary for the immediate delivery of service improvements, are nonetheless required to efficiently and effectively manage the

business in the longer term. These initiatives are required to maintain "organisation capacity". Examples include water main asset condition inspections and alternative source development & catchment management practices. Continuing to meet the 2% target has driven the Corporation to significantly reduce the funding of this discretionary expenditure. The ability to continue to do this in the future is limited.

While the Corporation continues to target a 2% efficiency target, there are difficulties in maintaining this into the future. There is little motivation to meet an "efficiency target" if it begins to compromise the high service standards currently being delivered.

The issues paper recognises the distinction between catch-up and continuing efficiency, with the Corporation considering its efficiency gains from past endeavours placing it beyond the efficient frontier. Additional cost cutting will impact on the Corporation's ability to effectively manage its business and deliver the required level of service. Accordingly, a revision to the 2% target that removes (or reduces) the "catch-up" element of the target may appear to be warranted. Either that, or recognition that the 2% should only be applied to the controllable elements of the organisation. As part of this inquiry, the Corporation is considering its position and operating cost requirements.

3.5 Capital Expenditure

The Water Corporation is undertaking a substantial capital investment program in order to deliver a reliable, high quality water, wastewater and drainage services across Western Australia. The Corporation places a high priority on efficiency initiatives in order to ensure that its customers continue to receive the optimum balance between supply, quality and service at an efficient cost.

Given the current economic environment throughout the State, there is significant pressure on the Government to deliver large infrastructure projects serving a range of industries. These pressures mean the Corporation's capital program faces constrained funding limits. The limited pool of skilled resources and higher capital input costs has added significant budgetary pressures upon the Corporation's capital program. These pressures are further compounded by the continuing expectations from regulators, customers and industry guidelines to deliver an ever increasing standard of service.

Despite the capital constraints and external pressures, the Corporation feels confident in delivering the record projected capital expenditure through a range of contract and delivery strategies, utilising internal project management resources and by implementing robust critical processes. Central to the Corporation's capital program, is the concept of business risk, with the focus on ensuring the greatest risks are managed as a priority. Through its procurement and contracting strategies, the Corporation endeavours to deliver an efficient capital program at least cost while meeting specified levels of service to all of its customers. The processes implemented by the Corporation currently reflect what would be considered 'industry best practice'.

Consideration of the Corporation's capital expenditure needs to be viewed in the context of the State's overall planning requirements. The scope for efficiencies may be significantly influenced by planning decisions made external to the Corporation. These external decisions are based on maximising the gains to the wider West Australian population – the Corporation aims to maximise its own efficiencies subject to the conditions placed upon it.

When evaluating the requirement for capital expenditure, the optimisation strategy available to the Corporation can potentially include non-capital solutions. The Corporation evaluates the need for capital expenditure in the context of these alternative solutions. The overall aim is to deliver an efficient asset management process, minimising whole of system costs over the asset life cycle by identifying the most efficient mix of capital and operating expenditure.

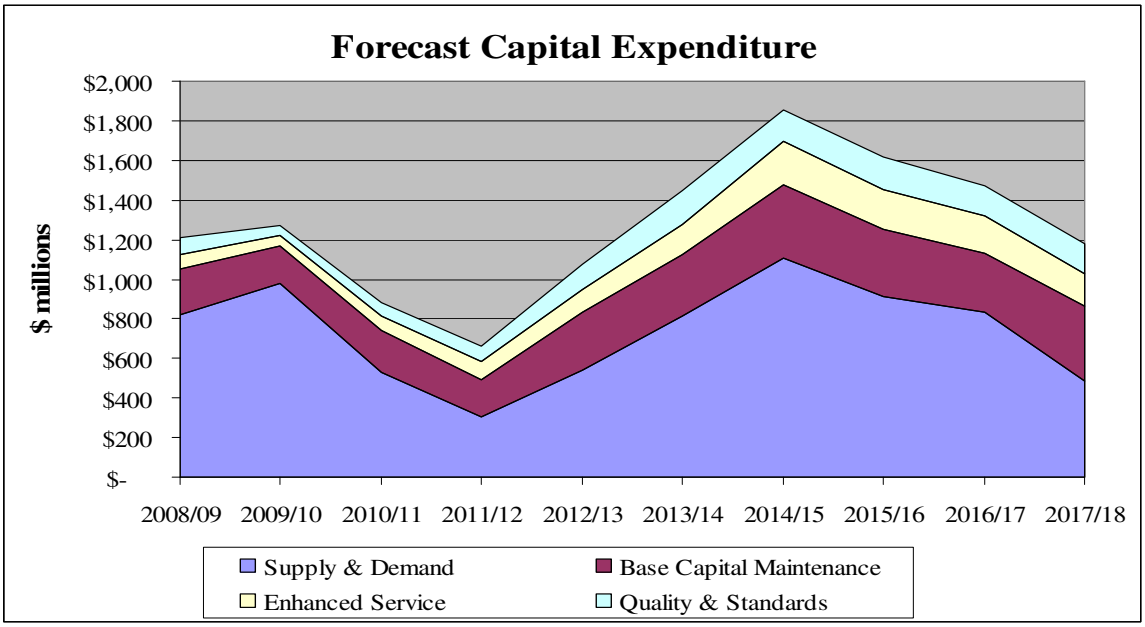
However, the Corporation is also aware that it is necessary that the processes it uses for capital acquisition must continuously evolve. This ensures that Corporation remains at the forefront in the water industry in managing its capital assets.

Drivers of Capital Expenditure

The Corporation's capital expenditure detailed in its Strategic Development Plan (SDP) and included in the approved State budget totals just over $4 billion from 2008/09 to 2011/12. This record level of capital expenditure reflects the need to upgrade and invest in new infrastructure to meet the needs and service expectations of customers, as well as to meet the increasing costs of new and continued external regulatory obligations. All capital expenditure undertaken by the Corporation is classified by the appropriate cost driver. Project cost drivers remain a crucial

input into the capital process to ensure that capital expenditure is undertaken in an efficient manner relative to the intended output that the capital will provide.

Capital project drivers have been developed to more closely align projects within the Capital Investment Program with strategic investment decisions and to match reporting requirements. Program managers are responsible for the assignment of project drivers according to the four industry standard/best practice project drivers detailed on the following page.



The Corporation notes that in a capital intensive business with long-lived assets that investment tends to be lumpy. However, the above graph highlights a very large capital program between 2013/14 and 2016/17 peaking in 2014/15. The Corporation is currently exploring alternative measures that can be adopted to potentially smooth capital expenditure over this period. This includes attempts to delay or bring forward planned capital projects which may result in efficiencies given the current economic climate. The current review recognises the importance of the various projects within the 10 year capital program. Rather than seeking to reduce the services delivered, it is examining alternative time frames and delivery strategies to completing the required works.

Consistent with the classification adopted for other Government capital works, four main drivers are used for assessing and reporting the Corporation's capital investment programs:

- **Base capital maintenance** — including works to maintain, refurbish or replace current assets to ensure satisfactory performance;
- **Supply and demand balance** — including works to maintain water supply and system capacity to meet demand. Examples of supply and demand driven infrastructure expenditure include water sources and treatment, water distribution, wastewater conveyance and wastewater treatment.

- **Quality and standards** — including works to comply with current and future standards. This includes infill sewerage, ADWG compliance, dam safety, overflow risk management and prevention of falls

- **Enhanced service** — including works to improve levels of service to existing customers and operational improvements. This can include such initiatives as improving aesthetic water quality, increased odour control, improvement environmental sustainability and business development.

Due to the relatively young age of most of the existing assets, climate change and the growing development of the State, currently the largest driver for infrastructure asset acquisition is to meet Supply / Demand (Growth) needs.

As assets age, the need for replacement and refurbishment of assets will increase. The projects listed under Base Capital Maintenance (currently about 30% of the program) can be expected to grow in number and value as the existing asset base increases in age.

While commercial projects are also classified by economic driver, they must also meet commercial requirements. The principal requirements for asset acquisition for commercial projects are that the calculated Net Present Value (NPV) for asset acquisition is positive and that these activities do not detract from the regulated business.

Capital Efficiency

The terms 'capital efficiency' can be applied across the entire spectrum of the capital delivery process, broadly encapsulated under the 'plan, acquire and manage assets' headlines. That is, an efficient capital program is one which is appropriately:

- **Planned**: this includes a range of tasks from identifying the need for capital works, and analysing the options for delivering the required result. The process includes an understanding of the factors driving capital expenditure and how best to allocate funds appropriately to maximise the total output. Central to the entire planning process is the notion of possible impacts/risks to the Corporation (and the State) and how best to manage these.

- **Acquired**: this focuses on the ability of an organisation to deliver its capital strategy, including best practice contracting, construction and procurement services. The Corporation has increasingly used external parties to deliver capital works as a means of increasing efficiency. The focus therefore, is on developing a suite of procurement strategies that encourage a competitive delivery environment and risk/reward structures that encourage efficient project construction.

- **Managed**: optimising an integrated system's operating performance including appropriate maintenance programs. This includes asset condition assessments, risk assessments, analysis of operations, ensuring necessary data is complete and accurate for analysis and developing optimal maintenance plans.

Regulators both nationally and internationally have recognised that encouraging an organisation to be capital efficient is not done by reducing the capital budget, but rather by ensuring the entire

plan, acquire and manage capital delivery strategy incorporates best practice approaches. Having an efficient process gives comfort that the end result is therefore, also efficient.

The planning phase offers the greatest opportunities for efficiencies, while the least scope for efficiencies to be achieved occurs after the construction phase has began. While the Corporation believes that the Plan, Acquire, Manage framework is a robust and effective way in delivering capital projects, recent efforts to improve capital efficiency have focused upon the gains that can be achieved at the early stages of the capital planning process. Whilst making the right capital decision is obviously the most important aspect in this context we should also recognise that, given the long lives of our assets, any small efficiency gains from the "operate and maintain" processes will also have a positive impact.

An additional element to the concept of capital efficiency is the issue of whether the State appropriately funds the provision of water services to maximise the total welfare of the State. This issue is one for the State Government to determine rather than any individual service provider. However, it is still one of significance for the Corporation due to:

(i) The funding constraints placed on the Corporation in delivering its services. The planning process has identified a number of projects requiring completion, but for which there is no available funding. In constraining the Corporation's funds, the marginal benefit of alternative services needs to be higher than the benefit of the Corporation unfunded works. Furthermore, constraining a capital program may mean that the most efficient solution cannot be delivered, but instead, the Corporation optimises its overall delivery in managing a constrained capital program.

(ii) The pressures on the Corporation's capital program as a result of the requirements of external parties (for example, regulators, public interest groups, legal requirements). The cost of externally imposed regulation is not an issue for the Corporation per se, as it simply delivers the outcome directed by the regulator. The issue, becomes one for the State as a whole with a requirement to ensure that the benefits of the imposed requirements justify the cost, and also that the desired outcome is best achieved by a particular entity.

(iii) Much of the Corporation's capital expenditure required to meet the State's growth requirements, needs to be appreciated in the overall context of the State's infrastructure planning process. The Corporation's contributes to the total efficiency of the State to the extent that strategic land planning has been undertaken efficiently. Furthermore, a particular outcome for the Corporation may not be the most efficient solution for the Corporation as an individual organisation, but may nonetheless be an efficient outcome from a whole of State perspective. For example, the ideal technical location for the Alkimos Wastewater Treatment Plant compromises the planning for the area was therefore moved at extra cost.

Risk Assessment and the Capital Process

The assessment of risk is an integral part of the Corporation's capital process. The Corporation is committed to establishing a holistic, integrated Risk Management Framework consistent with best practice Australian standards which is an integral component of corporate governance, strategic and business planning process and optimising operations.

The Corporation applies standard practices to assess risk, being a determination of the consequence or impact on the business and the likelihood or probability that the risk will become an actual event. The level of risk enables prioritisation and provides a first indication of whether a risk is 'acceptable' or 'unacceptable', therefore requiring treatment through the development of a mitigation plan. The risk assessment criteria require the application of three measures when determining the level of risk:

- *Control effectiveness.* That is, the strategies in place which minimise the occurrence of risk. Controls are assessed on how well they are understood, how reliable they are and how often they are applied.

- *Consequence or Impact.* That is, the most likely outcome should the risk manifest into an event. The commonly impacted areas for the Corporation include finance, people, environment, service interruption, reputation and compliance, with a set of criteria determined for each to rate the significance of the consequence.

- *Likelihood.* That is, the probability that particular consequences will occur.

Consequence and likelihood are brought together in a Level of Risk matrix to provide an indication of the total risk and indicate the business's risk tolerance. This approach is based on, and meets the criteria of, Australian Standard 4360 (2004).

Level of Risk matrix

CONSEQUENCES	Level of Risk				
5 Catastrophic	**H**	**H**	**E**	**E**	**E**
4 Major	**M**	**H**	**H**	**E**	**E**
3 Moderate	**L**	**M**	**H**	**H**	**H**
2 Minor	**L**	**L**	**M**	**H**	**H**
1 Insignificant	**L**	**L**	**L**	**M**	**M**
	E Rare	**D** Unlikely	**C** Possible	**B** Likely	**A** Almost Certain
	LIKELIHOOD				

The Corporation applies the above approach to risk assessment at many levels in the capital process. Its application aims to ensure that resources are appropriately allocated at a strategic level to address the highest risk. This is done through risk assessments (reviewed monthly by the Board) to identify the Corporation's high level risks and detail the capital and operating strategies aimed at addressing them. In doing this, unavoidable, tolerable and residual risk needs to be acknowledged.

Furthermore, the Corporation's Strategic Asset Management group applies the risk assessment tool in monitoring the Corporation's operating environment. This particularly applies to existing

assets requiring maintenance, refurbishment or replacement. The capability of the Corporation's water and wastewater systems are monitored against service requirements with capability shortfalls (or impending shortfalls) identified. The degree to which these capability shortfalls are addressed through a range of capital or operating strategies is partly dependent on the risk of the system failure and the controls in place.

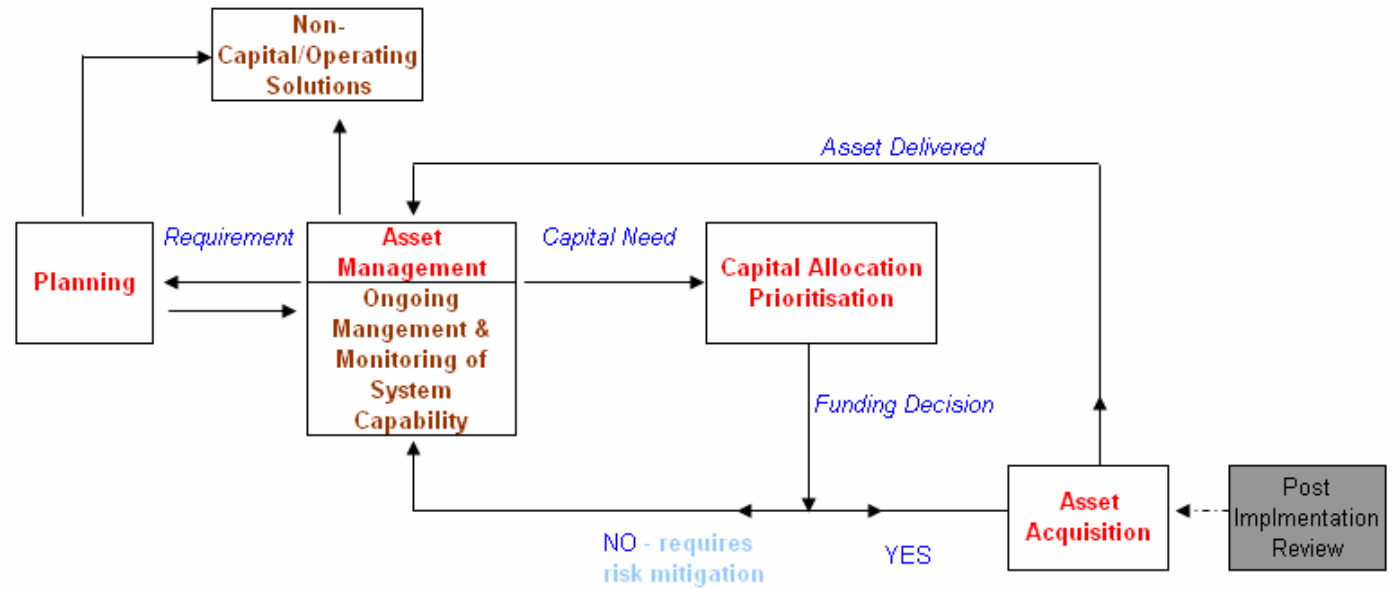
Finally, the Risk Matrix is a key input in the capital prioritisation process. In a capital constrained environment, the Corporation needs to prioritise which of the identified projects will receive funding (and in which years). The initial prioritisation is driven by the risk assessment.

Within the asset management processes the System Capability Matrix (SCM) is an important tool. It provides the ability to view the level of risk in each of the Corporation's asset systems throughout the State to view data for a selected Business, Operating Group or District. Data can be sorted to highlight the high risk systems. Information about a system as a whole, or about the assets and asset components within that system can all be accessed.

SCM therefore provides a consolidated view, drawn from various corporate systems, of current and future risk at a system level and of risk factors and proposed risk treatments. It can detect where there are gaps in either risk assessments or risk treatments.

Capital Process

The Corporation follows a Plan, Acquire, Manage strategic framework. The process for capital planning and acquisition is demonstrated using the flowchart on the following page.



The flowchart shows how the Asset Management process is central to the management of the Corporation's capital process. Through the ongoing management and monitoring of the capability of the Corporation's schemes and systems, it initiates both the need for scheme plans to be reviewed and the requirement for capital funds to be allocated. When funding is made available, the Asset Acquisition process begins, finishing with the creation of an asset that becomes the responsibility of the Asset Management process to manage. This entire process is described in more detail below under the appropriate Plan, Acquire and Manage headings.

Plan

Asset Management

As the name implies, the Asset Management process manages and monitors the Corporation's assets, and identifies the need for capital works. Assets are grouped into systems and the capability, performance, condition and risk of those systems monitored to ensure they are able to meet the current and anticipated performance requirements.

A range of factors drive the need for asset creation/replacement/refurbishment; for example, growth in number of services, deterioration in the asset's condition and new regulatory standards. The Corporation views the identification of the drivers of capital expenditure as an essential input in the asset management process. These factors are considered in the context of non-capital solutions such as maintenance and operational expenditure or through renewals and refurbishment strategies.

Planning Process

The current capability of the Corporation's assets and the inherent risks that present themselves are the principal focus of the asset planning process. Once a requirement is identified within the Corporation for asset creation or replacement, the planning group identifies the appropriate response to an identified need.

The Corporation's planning process aims to manage risk and the potential impact that risks impose on the asset profile and the Corporation as a whole. The planning process requires input from a range of stakeholders, both internally and external to the organisation. The focus is much broader than just exploring technical solutions, but encompasses environmental, political and social considerations.

It also considers the financial aspect of proposed capital projects. Through the use of a Financial Impact Statement, the whole of life implications of competing options are analysed. A key input in any financial analysis is the availability of accurate financial estimates. The Corporation's estimating group uses a standard project estimate matrix describing the project staging, type of estimates prepared and the design input. These inputs are continually revisited and updated.

Capital Allocation/Prioritisation

The Corporation assesses the funding requirements of identified capital works within the context of overall budgetary pressure. Currently, the sum of the total identified capital expenditure exceeds the budgetary constraint, thereby requiring the prioritisation of capital projects.

The Capital Investment Planning Committee is central to the capital allocation and prioritisation process in that it recommends (for the Board to ultimately decide) on the availability of funding and the relative priority of each project. Again, much of this is a risk based assessment informed through the risk assessment process.

Where the prioritisation process identifies that certain capital projects cannot progress at that particular point in time due to the overall budgetary constraint, the asset management process is again revisited in order to identify alternative solutions such as project deferral or interim operating solutions.

Acquire

The asset acquisition phase of the capital process allows the Corporation to seek further efficiency/gains, particularly through the effective management and planning of the procurement and delivery process.

At the program level a range of capital delivery strategies have been implemented to maximise the value of asset acquisitions. These strategies have resulted in the creation of alliances and partnerships with the private sector and in the bundling of projects. "Water scores", a benchmarking system, has been introduced to drive continuous improvement and the adoption of "best practice" industry approaches across all aspects of the acquisition process.

At the project level, a risk based contracting strategy approach is used to ensure optimisation of the commercial framework and delivery vehicle. This covers all aspects of the supply management chain from supplier selection and contract establishment through to monitoring construction processes and commissioning.

The Corporation has successfully taken a proactive role in engaging the private sector in acquiring its capital assets, with the private sector delivering in over 95% of capital program.

Manage

Post Implementation Review

The capital projects undertaken by the Corporation are assessed and monitored through the Post Implementation Review process. The purpose of a post implementation review of a capital project is to compare the business outcomes achieved with those planned. The needs, risks and justifications for the project as detailed in the implementation business case are revisited after the asset(s) delivered by the project has been in service for sufficient time, normally a full financial year after project practical completion.

Strategic Asset Management Plan (SAMP)

The ongoing management of the Corporation's assets are guided by the SAMP process to ensure that assets are continually monitored in order that they meet their intended outcome as well as support the provision of the Corporation's services in the most effective manner. A comprehensive asset register and the forward looking 10 year capital program are integral components in the ongoing management of the Corporation's assets.

3.6 Cost of Capital

The Water Corporation will continue to support the Weighted Average Cost of Capital (WACC) being calculated in a manner consistent with ERA's past methodology. The return on equity component should continue to be calculated using the Capital Asset Pricing Model (CAPM) and the return on debt component should continue to be calculated using a debt risk premium over that of the risk-free rate. A large number of parameters used in calculating a WACC for regulatory decisions have effectively been locked in over a number of years through regulatory precedent based upon market observations. It is not the Water Corporation's intention to propose any significant changes to these parameters.

However in continuing with this approach, the Corporation notes that parameters that have changed considerably since the WACC was set by the ERA in 2005, namely the Real Risk Free Rate and the Debt Risk Premium. Developments over the last 12 months on global financial markets have resulted in increased margins for those wishing to secure debt or equity financing. These developments will ultimately flow through to the Corporation's Cost of Capital. Furthermore, the Water Corporation is considering its organisation specific position on the Equity Beta.

An indicative range for a possible revision to the WACC is shown in the table below:

	Current	Low	Medium / Low	Medium
Nominal Risk Free Rate (Rfn)	5.23%	6.34%	6.34%	6.34%
Real Risk Free Rate (Rfr)	2.42%	3.49%	3.49%	3.49%
Inflation Rate (I)	2.74%	2.75%	2.75%	2.75%
Debt Proportion (D)	60.0%	60.0%	60.0%	60.0%
Equity Proportion (E)	40.0%	40.0%	40.0%	40.0%
Cost of Debt; Debt Risk Premium (Drp)	1.000%	2.100%	2.450%	2.700%
Cost of Debt; Debt Issuing Cost (Disc)	0.125%	0.125%	0.125%	0.125%
Cost of Debt; Risk Margin (DRm)	1.125%	2.225%	2.575%	2.825%
Australian Market Risk Premium (Rp)	6.0%	5.5%	6.0%	6.0%
Equity Beta (Be)	0.80	0.65	0.80	0.90
Corporate Tax Rate (T)	30.0%	30.0%	30.0%	30.0%
Franking Credit (g)	50.0%	50.0%	50.0%	50.0%
Nominal Pre Tax WACC (WPn)	8.53%	9.80%	10.59%	11.02%
Real Pre Tax WACC (WPr)	**5.63%**	**6.87%**	**7.63%**	**8.05%**

The three aforementioned key variables have been highlighted in yellow, with possible variations resulting in a change the WACC from the current 5.63% to a range of 6.87% to 8.05%. The Corporation has presented a range of estimates which may be considered low to medium pricing alternatives. Revenue aggressive private companies may pursue higher returns, however as a state owned utility with objectives beyond financial outcomes, the Corporation has chosen a more conservation range of returns.

Real Risk Free Rate

Consistent with recent regulatory decisions, a risk-free rate based upon a 20 day rolling average of Federal Government 10 year Nominal Treasury Bonds over a pre-agreed period should be used for estimating the nominal risk free rate. This period should generally coincide with a time

period close to the release date of the ERA's final decision. The real-risk free rate would be calculated using the Fisher Equation by estimating an expected inflation rate over the equivalent 10 year period. The Reserve Bank provides its forecast of inflation over the short term (i.e. next two years). Beyond that, the mid-point of the Reserve Bank's target inflation band is the appropriate forecast of inflation. The risk-free rate has increased since the last ERA decision due to global conditions increasing the premium required on all securities. A supply imbalance in real riskless federal government securities has lead to the expected inflation rate being used to calculate the true risk free rate

Debt Risk Premium

The Corporation's position is that the calculation of the debt risk premium should continue to be calculated on the spread between BBB/BBB+ long term (10 year) corporate bonds and riskless debt securities as determined independently by market data on Bloomberg or CBA Spectrum. This is consistent with regulatory practice throughout Australia. The above table reflects some current estimates on the premium for long term BBB/BBB+ corporate bonds. It appears that in April this year this premium reached a high before retracting slightly over recent months. The exact value for the debt risk premium is obviously dependant on market conditions at the time of the final decision.

Equity Beta

The Corporation considers that its systematic risk relative to the market as a whole is not dissimilar to that of other utilities. As there are no comparable private water businesses in Western Australia, it is difficult to gather empirical estimates so any statistical analysis warrants a cautious approach.

Analysis of water industry equity betas adopted by regulators in other jurisdictions tends to show equity betas in the range of 0.65 – 1.0 (assuming 60/40 gearing). Victoria adopted an equity beta of 0.65 based upon an earlier regulatory decision on gas distribution businesses in which it determined an equity beta of 0.7. IPART and the ICRC adopted higher equity betas in line with their recent decisions in the electricity and gas distribution sector.

The Corporation notes that, given the pricing approach applied by the ERA, the Corporation faces no demand risk with any variance between forecasts and actual revenue requirements adjusted for in future years. This is an argument for an equity beta that is lower than eastern state utilities. However, another significant difference that would warrant an equity beta at the higher end of the plausible range concerns the certainty of price paths. Technically speaking, the uncertainty of price paths does not affect systematic risk, yet it does impact significantly upon Corporation-specific risk. Under the current regulatory arrangements in West Australia, the ERA provides pricing recommendations only. Any debate concerning the systematic risk profile of the Corporation needs to be considered in the current context of the inherent uncertainty with prices are only linked to costs subject to annual reviews.

An equity beta of 0.8 remains consistent with past ERA water industry decisions and lies within the regulatory decisions elsewhere in Australia.

Conclusions on the Cost of Capital

The return on assets represents a very significant proportion of the Corporation's revenue requirements. Clearly, changes to the WACC of the magnitude indicated in the Table above would result in significant increases in prices, estimated to be between 10 to 20% ($180m to $290m).

While the Corporation has presented what it considers to be a reasonable range for the WACC, it has stopped short of concluding with a preferred return. This is a technical pricing issue for the ERA and one which has the greatest impact on the Corporation's shareholder (the State Government). The Government will need to balance the impact to customers of higher prices, against the State's financial position if the increased cost of capital was not recognised.

A further consideration in this issue is to appreciate the potential effect of discouraging competition if the higher cost of capital is not reflected in higher prices. While the Government may choose to not pass on the additional cost, a private company would not be able to take this position.

4 Issues Raised

The specific issues raised by the ERA in the Issues Paper are bulleted in normal font, with the Corporation's response shown in blue italics.

Service Standards

- Are the current levels of service appropriate?

  To a large extent, the Corporation's service standards are dictated by the terms of its operating licence.

  The Corporation has a proven track record of meeting the operating licence requirements. While it currently has the resources to do this, trends of ever increasing regulatory obligations places continuing pressures on the Corporation's future resource requirements.

  With the growth of recycling schemes and potential for use inside the home of non-potable water, services levels for non-potable water should be considered as part of the future direction for service standards.

Water Usage Charges

Refer to Section 3.1 of this submission for a detailed explanation of the Corporation's position on water usage charges.

- What pricing principles should guide the setting of water usage charges?

  Water usage charge should be based on the Long Run Marginal Cost (LRMC) of new sources. However, variations to this approach may be appropriate:

  (i) For essential use of residential customers which may be delivered at a discount to the LRMC to ensure non-discretionary water is affordable for all residents;

  (ii) For very high residential consumption, with prices potentially based on the full cost of new water sources;

  (iii) For very high cost regional schemes; or

  (iv) Where the administrative resources required to determine an accurate marginal price does not justify the potential benefit of this pricing approach.

Depending predominately on rainfall assumptions and demand profiles, the Corporation has assessed the LRMC for metropolitan Perth to be in the range of $1.11 to $1.55 per kilolitre (kL).

Metropolitan non-residential charges should reflect the LRMC. In most instances the LRMC is calculated as a range rather than a definite figure. Choosing an appropriate point within this range depends on the extent to which other (possibly non-financial) objectives are being sort.

Metropolitan residential water usage charges proposed by the Corporation are predominately based on the LRMC of new sources. The Corporation considers that a three-tiered water usage charge continues to be optimal, in addition to a fixed annual charge to ensure revenue sufficiency. Indicative rates for residential charges are:

(i) First taper (0 – 300 kL): $1.11 / kL (lower bound of the LRMC)

(ii) Second taper (301 – 500 kL): $1.55 / kL (middle to upper bound LRMC)

(iii) Third taper (>500 kL): $2.00 / kL (full cost of a climate independent source).

The Corporation's proposal is a reduction to the current taper thresholds (as indicated above) to encourage the efficient use of water. There may be efficiency merits in reducing the thresholds further – for example, reducing the second and third tapers to 150 and 300 kLs respectively. However consideration should be given to the impact of higher prices for the non-discretionary use required by large families.

Setting prices at the above rates will result in an increase in water usage charges and hence, require a decrease in the annual service charge to ensure total revenue does not exceed the cost of the service.

The source development plan used to calculate the LRMC has been developed for pricing purposes and is less conservative than that required for competent planning under conditions of uncertainty. It is only one of a range of strategies being considered, consistent with any prudent planning approach. In determining the LRMC, the source strategy targets a long term sustainable groundwater draw as its primary driver for triggering new sources. A range of sources are factored into the calculation, consistent with the Corporation's 'Security through Diversity' approach. Managing demand to encourage the sensible use of water is also a key component of the overall strategy.

On the issue of scarcity based pricing, the Corporation is against the approach (as an alternative to water restrictions) predominately because:

- *It is ineffective where there is price inelasticity of supply or demand. Restrictions are a more reliable approach to managing demand when facing short term supply shortages;*

- *Due to issues of social equity. For example, scarcity pricing will impact more on the behaviour of the less affluent and therefore assumes a garden is worth more to a wealthy customer than to a poor one; and*

- *The responsiveness of supply options is limited given the nature of available sources and the time periods required to deliver them. There is little scope to transfer water from alternative uses (e.g. irrigation) to potable water use in response to increasing scarcity values.*

Furthermore, the Corporation notes that the analysis of customer behaviour and pricing signals suggests:

- *Willingness to pay is unlikely to measure the actual relative value of water consumption across the community;*

- *There will be longer-term inefficiencies if prices are based on short-term pricing rather than LRMC, both as a signal to customers and to potential suppliers; and*

- *There are practical problems for implementation.*

The Issues Paper notes the possibility of alternative price plans, including a locked-in price for consumption independent of storage levels. This alternative has merit provided customers who choose this option commit to funding the construction of a climate independent source for a number of years. It would also require a commitment prior to the implementation of restrictions or with enough time to construct a climate independent source.

- Should country water usage charges be set in relation to marginal cost?

Marginal cost water usage charges are appropriate for sending pricing signals for the efficient use of water. However, basing usage charges on marginal cost could result in considerable increases in country towns where the cost of future sources may be very high.

Furthermore, there are significant administrative costs required to determine the marginal cost for each scheme which is further complicated by the uncertainties inherent in any approach that seeks to forecast future events.

For these reasons, marginal pricing in country schemes is only warranted in limited circumstances. The Corporation applies the approach for major commercial and industrial customers, with charges based on the cost of scheme augmentation.

For the remaining regulated customer base, the Government has recently made the decision (in early 2008) to base country charges on the average cost of existing sources. The Corporation supports this decision and would prefer to see the current reforms phased-in prior to reopening the discussion on what is an appropriate pricing approach.

Charges based on a scheme's average cost (or the average cost of a group of schemes) still allows for some distinction in prices based on the cost of providing the service, but removes much of the administrative burden (and possible pricing volatility) that would result with marginal pricing.

- Should the uniform tariff threshold be changed?

  The Corporation considers either of two options for the uniform tariff threshold to be reasonable, being:

  (i) 300 kL (current threshold) roughly based on the average annual household water usage; or

  (ii) 150 kL per household, based on the average non-discretionary household water usage.

  Any departure from the current threshold is a decision for the Government. In general, a lowering of the threshold will remove part of the current discount given to country customers, thereby increasing the total charge to them. This social impact should be weighed against the potential benefits of sending an efficient pricing signal.

- Should discounts be provided for non-discretionary water usage, such as the first 150 kL of annual water usage?

  Water usage charges should be based on the LRMC of new sources, with non-discretionary used based on the lower bound of the LRMC range.

If this lower bound is still considered unreasonably high (such as in many country areas), then a discount is warranted because:

(i) There are numerous, significant social benefits associated with a high quality, public water supply. A responsibility of a public utility is to ensure the community has access to affordable water necessary for maintaining a reasonable lifestyle;

(ii) For reasons of revenue sufficiency, it is possible that if water is priced at the upper range of the LRMC, then a discount for the non-discretionary usage is required to ensure the Corporation does not over recover the cost of providing the service.

The Corporation has calculated the lower range of the LRMC to be $1.11 / kL. As this is not considered to be excessive and comparable to the $0.91 (in 2007/08 $s) currently being targeted, then no discount is proposed for non-discretionary consumption.

- Should very high volume water users pay a penalty rate?

  This issue is linked to the question on whether externalities should be included in the price of services. That is, a penalty rate is appropriate where there are significant negative environmental or social impacts associated with high consumption.

  The Corporation's preference for a three tiered tariff structure includes a price for the top taper that is based on the full cost of a desalination plant powered by renewable energy sources. This price signals to customers (as far as is practical) the full cost of their high consumption and is consistent with the user pays principle.

  The price is not a penalty charge, but rather one whereby some of the environmental impacts from the energy use and security of supply risks are effectively captured in the charge – to the extent that the Corporation actually incurs expenditure in mitigating these two externalities.

- Should the current method for allocating costs of water service provision in the metropolitan area between residential and non-residential customers, which is based on maintaining existing relativities, be modified in some way to achieve a more cost reflective allocation of costs?

  The Corporation makes the following observations when considering this issue:

  - *Using price for efficient outcomes only becomes important where a price signal can be effective (such as volumetric charge). Where there is no price effective*

signal (for example, with fixed annual service charges) then social considerations including 'ability to pay' may justify cost recovery in differing proportions for different customer bases.

- *Given the method used to determine current prices and the use of a regulatory asset value, there is no reason why residential and non-residential charges should be the same.*

  Rebalancing the proportion may simply shift the current discount (from writing down the regulatory asset value) from residential customers to non-residential customers. Non-residential charges need only be considered for "rebalancing" if they are greater than the cost of the full replacement value of the assets.

Wastewater Charges

- Should residential wastewater charges be decoupled from property values?

The Corporation strongly supports decoupling residential wastewater charges from property values predominately because GRV based charges are administratively cumbersome and difficult to explain to customers who complain that they bear no relationship to the cost of providing the service.

The Government has previously rejected alternative charging options for wastewater charges on the basis that any proposed change could adversely impact lower socio-economic customers. Traditionally, property valuation was used as a proxy for income or affordability. While there is truth to this assumption, the correlation continues to weaken as Perth ages. Older, more centralised neighbourhoods continue to increase in property values, increases which may not be matched by proportionate increases in the income of existing residents.

The standard alternative to valuation based charges for residential customers is a fixed service charge. Other approaches based on the quantity of discharges into the sewer also have merit, but are not currently available as there are difficulties associated in measuring the discharge. Additionally, there should be no incentive to avoid discharging domestic effluent to the sewer.

There is a trade-off between cost reflective charges and a tariff structure that is simple to administer. The quality and quantity of the discharge, coupled with peak flow requirements and distance to the treatment plant are the main cost drivers that can vary between customers.

Due to the difficulties associated with pursuing cost reflective prices and as there very little level-of-use decision to be made by residential customers when using the wastewater service, simplicity and customer acceptance should be of primary consideration to any charging alternative. While the Corporation supports a move away from valuation based charges, it is mindful of the adverse impact this may have on customers with low GRV properties. Any changes should be phased in so that the transition to an alternative tariff structure minimises the impact to these customers.

- Do interested parties have any concerns with the current approach to charging non-residential customers for wastewater services?

  Non-residential wastewater customers potentially pay three charges for wastewater services, to reflect:

  (i) The benefit of having a wastewater service available (fixed annual service charge);

  (ii) The quantity discharged into the wastewater system (volumetric charge); and

  (iii) The quality of discharge in the wastewater system (industrial waste charges).

  Collectively, these charges represent a robust approach to cost reflective pricing. They were initially introduced in the metropolitan region in 1995 and subsequently applied to the country region in 2003. In both instances, the approach was reviewed and determined that on balance, the charges are as good as any alternative available options.

  The Corporation is not aware of any customer pressure to adopt an alternative charging methodology.

- Should country non-residential wastewater charges be set equal to metropolitan non-residential wastewater charges?

  In 2002 the Expenditure Review Committee requested that the Minister for Government Enterprises establish a working group to examine alternatives to valuation-based charges for sewerage and drainage that included the options for country commercial wastewater charges.

  In November 2002, the Joint Working Party considered a number of alternative options for country commercial wastewater pricing and recommended that it was most appropriate to introduce the metropolitan model for country customers. The rationale behind the recommendation was largely based on a preference for state-wide uniform charging so that country businesses were not disadvantaged relative to

metropolitan businesses, together with the recognition of the advantages of the metropolitan tariff structure over valuation based charges. The country commercial wastewater tariff reform was therefore introduced in 2003/04.

Additionally, it is noted that unlike water sources whose cost can vary enormously between schemes, the cost of wastewater services is generally comparable between country and metropolitan schemes.

- Should the current method for allocating costs of wastewater service provision in the metropolitan area between residential and non-residential customers, which is based on maintaining existing relativities, be modified in some way to achieve a more cost reflective allocation of costs?

  As noted with the equivalent issue raised for water charges, the makes the following observations when considering this issue:

  - *Using price for efficient outcomes only becomes important where a price signal is effective (such as a volumetric charge). Where there is no effective signal, social considerations (such as 'ability to pay') may justify cost recovery in differing proportions for different customer bases. This is particularly relevant for wastewater charges as there is typically no level-of-use decision to be made.*

  - *Given the method used to determine current prices and the use of a regulatory asset value, there is no reason why residential and non-residential charges should be the same.*

    Rebalancing the proportion may simply shift the current discount (from writing down the regulatory asset value) from residential customers to non-residential customers. Non-residential charges need only be considered for "rebalancing" if they are greater than the cost of the full replacement value of the assets.

Drainage Charges

- What is the most appropriate charging basis for metropolitan customers for drainage services?

  Customers do not face a level-of-use decision with drainage services. Without any responsiveness to prices, principles of equity (as opposed to efficiency) are of greatest consideration for annual regulated charges for drainage services.

  Annual drainage charges are currently based on a property's GRV. As with residential wastewater charges, GRV based charges are administratively

cumbersome and difficult to explain to customers who complain that they bear no relationship to the cost of providing the service. The Corporation would strongly support a change from valuation based charges, acknowledging, however, that departure from the current approach is likely to result in increased charges to low valued properties. This impact however, is only likely to affect commercial customers as most residential customers currently pay the fixed minimum charge of a (relatively) low $63 per year.

Additionally, as information on the land value of non-residential properties is only maintained for drainage charges, there would be cost efficiency gains to the Corporation in moving off GRV based charges. Similar efficiencies for residential customers would only be available if wastewater charges were also decoupled from property values.

The Corporation has considered alternatives to drainage charges, each of which has potential issues. Of greatest consideration is identifying who the beneficiaries of the service are and who contributes to the need for drainage infrastructure. This answer should determine whether drainage charges apply to the whole metropolitan region, or only to those households serviced directly by the Corporation's main drainage infrastructure (as opposed to local authority drains).

Beneficiaries may vary depending on whether drainage infrastructure is installed for the prevention of flooding (as is traditionally the case) or provided for improving water quality. All metropolitan residents benefit from water quality initiatives to the extent that they enjoy the region's waterways (for example, Swan and Canning Rivers, Peel Inlet, local lakes and wetlands, groundwater resources). While customers in drainage rated areas benefit significantly from assets designed for flooding, all residents benefit to some extent depending on the degree to which they access those areas.

Furthermore, identifying contributors to the need for drainage services is also problematic: elevation, slope, land use and surface type are all factors for consideration.

Of the alternatives to drainage charges, the Corporation's preference is for a drainage charge based on a property's land area, extended across the entire metropolitan region. A three tapered structure (for example, less than or equal to 1,000m^2, between 1,000 m^2 and 10,000 m^2 and greater than 10,000 m^2) appears appropriate.

In examining alternatives to drainage charges, the ERA may wish to consider the relative proportion of charges between residential and non-residential charges. The

Issues Paper raises this question for water and wastewater charges however the highest degree of cross subsidisation between customer groups is in the drainage charges. As detailed above (for water and wastewater) – in dealing with this issue, the Corporation's notes that the effectiveness of a price signal and initial discounts to the RAV need to be considered.

As the ERA notes in the issues paper, the Department of Water is undertaking a review of the drainage governance and institutional arrangement as well as the roles of service providers and service standards. Ideally, the Corporation would prefer to wait until its position is known (within the context of the State's drainage services) prior to initiating any changes to charges. However, the timing of the changes (if any) is difficult to predict and may not occur for many years.

- Should customers in country towns pay for drainage services provided by the Water Corporation?

  The Corporation is compensated by the State Government via a Community Service Obligation payment for the cost of country drainage services. Any decision to reduce or remove the current subsidy is a decision for the Government.

Demand Management

- Should demand restrictions and other demand management measures continue in the metropolitan area given the construction of the second desalination plant?

  The current water efficiency measures are justifiable:

  - *As a necessary response to climate change and have been pivotal in preventing the need for severe restrictions experienced in the Eastern States;*
  - *To instil customer's behavioural changes for the efficient use of water.*

  The Corporation is committed to the sustainable management of water services. Embodied in this philosophy is the recognition that providing water is not just about meeting customer demands regardless of whether they are wasteful, it is also about ensuring customers understand the importance of using water wisely and encouraging the adoption of water efficient practices.

  Market research conducted in 2007/08 established that 93% of Perth scheme users support the current sprinkler roster, with similarly high figures for regional and Perth bore users.

The second desalination plant is an essential part of the Corporation's "Security Through Diversity" approach to meeting the State's future water needs. It is required to not only meet the demands of a growing State, but its timing is fundamental to ensuring the Corporation is in a position to reduce its draw on the Gnangara Mound aquifer and 'pay back' the overdraw that has been necessary in the past few years.

The Southern Seawater Desalination Plant should not be seen as a means to replace efficient demand management measures, but rather to complement them and strengthen the Corporation's diversified approach to water management.

The State Government may wish to consider revising its position on water efficiency and other demand management initiatives following completion of the second desalination plant once licensed groundwater abstraction from the Gnangara Mound is known. While the Corporation maintains that the two day per week sprinkler roster is an efficient and effective approach to watering, it would consider its support for relaxing them at some point in the future provided:

- *The current stress on groundwater resources has been relieved, with the overdraw in the last few years paid back to the environment;*
- *The sources (including dam levels) are sufficient to accommodate the additional demand without compromising supply security;*
- *The water efficient behaviours have been instilled in the community as a matter of habit; and*
- *There is community support to modify the sprinkler roster.*

- Should demand restrictions be determined on a scheme-by-scheme basis as opposed to North and South of the State?

The sprinkler roster is currently justified in country towns not only because they instil appropriate behavioural practices for efficient water use, but also because a large number of country schemes are under supply stress with restrictions required in the absence of supply alternatives.

The sprinkler rostering regime, which is applied on a North and South of the State basis, was developed in consultation with a garden industry reference group. The group determined the optimum number of watering days for each zone, above which additional watering would be unnecessary and therefore, wasted. Under the Department of Water's licensing arrangements, Water Corporation is required to improve water use efficiency wherever it is possible and cost-effective to do so.

The implementation of a scheme-by-scheme regime would be complex and costly to develop and administer. It would need to take into account the unique characteristics of individual schemes, and likely seasonal and other changes, as well as need to be administered and enforced at a local level.

Capital & Operating Expenditure

- Should efficiency targets distinguish between 'catch-up' efficiency gains and 'continuing' efficiency gains?

  Yes – developing targets with 'continuing' efficiency targets encourage an organisation to continue to deliver its services at least cost to customers in line with industry standards. This is different from 'catch-up' efficiency which essentially recognises the extent to which an organisation is not currently operating in an efficient manner.

  Setting an appropriate efficiency target requires a balancing act of encouraging the low cost provision of service without requiring an organisation to compromise its service standards. An efficiency target set too high produces a short sighted response, potentially reducing service levels and creating long term inefficient outcomes such as lower maintenance and reducing organisation capacity to develop further efficiencies.

- Should the development of incentives incorporate both carrot and stick incentives?

  This approach is problematic for a corporatised entity where there is no share price and there are both financial and service level objectives.

  The need for "stick" incentives is essentially a reference to the need for efficiency targets which (as discussed above) are necessary although care should be taken in determining the exact size of the stick.

  As a State owned utility there is neither real benefit nor need for 'carrot' incentives. The Corporation's preference is for any cost savings to be returned to its customer base directly in the form of lower prices or increased services. In saying this, it is acknowledged that there may be no difference as to whether cost savings are passed onto the State Government (as the utility's shareholder) or the Corporation's general customer base provided one assumes that funds returned to the Government are applied back into the community.

- Should efficiency targets apply to total operating expenditure or to a measure that excludes changes in operating expenditure due to improvements in service levels?

  Changes in regulation, service guidelines, operating licence requirements and customer expectations typically result in increasing standards of service that place considerable pressure on the Corporation's resource requirements including operating expenditure.

  For pricing purposes, the ERA permits price increases for service level adjustments. There should be an incentive for the Corporation to deliver these improved services efficiently. Accordingly, the efficiency target could apply to the expenditure on service level improvements in years following their introduction. However, the efficiency target should depend on the degree to which an organisation is able to influence the cost of the service level adjustment.

- In reviewing each water utility's processes for undertaking capital expenditure, are there any particular matters the Authority should consider?

  As a capital intensive business, a significant part of the Corporation is dedicated to the efficient delivery of capital works. A reference to capital efficiency encompasses the entire spectrum of the capital delivery process, being the initial project identification and planning, capital prioritisation process, project delivery (acquisition) and subsequent asset management.

  Key messages / principles that the Corporation encourages the ERA to consider when conducting its review include:

  (i) Determining the efficiency of a capital program is best appreciated by understanding the efficiency of the capital delivery process. Economic regulators recognise that applying capital efficiency is not simply about taking x% of a utility's capital program, but rather about understanding the efficiency of the capital delivery process. Gaining comfort in the efficiency of a capital budget is achieved by ensuring the process that determines and delivers that budget is itself efficient. In doing this, appreciating that the overall goal is one of an efficient asset management process, with the total approach encompassing a combination of capital and non-capital solutions.

  (ii) An appreciation and evaluation of risk is a key factor underlying the Corporation's capital delivery program. The Corporate Risk Matrix, System Capability Matrix and capital prioritisation processes are all based on the risk to the Corporation, and aim to identify areas of the business where resources are required and how projects are prioritised.

(iii) The Corporation's total capital budget is determined by the Government which balances the needs of the water industry with the overall needs of the State. Constraining the capital program typically results in the deferral of capital projects, increasing the interim risk of system capability failure or reducing the level of service provided. Capital solutions therefore, are optimised to the extent that constraints in funding permit.

Capital constrained businesses have every incentive to deliver projects as efficiently as possible to allow them to maximise its service delivered, without the opportunities for rent seeking (of which regulated monopolies are often wrongly accused). Further cuts to capital will impact on service delivery rather than improve efficiency. A productive review process would seek to identify possible process improvements.

(iv) The efficiency of the Corporation's capital program needs to be considered in the context of the overall needs of the State, with the Corporation being just one of many organisations delivering services to the community.

(v) The Corporation is under continuing pressure from external forces to deliver increasing levels of service. These pressures include those from external regulators, government agencies, industry guidelines and the general customer base. Externally imposed costs are an issue for the State (rather than the Corporation specifically) with the need for robust cost / benefit justification prior to requiring the Corporation to deliver changes to service standards.

Technical Issues

- The Authority invites the water utilities and others to consider appropriate parameters for determining the rates of return.

The Corporation supports the current approach adopted by the ERA for determining the cost of capital and hence, the required rate of return.
Since the WACC was originally set in 2005, there have been a number of parameter changes to the calculation inputs, largely driven by changes in global financial markets with increased margins for those wishing to secure debt or equity financing.

The return on assets represents a very significant proportion of the Corporation's revenue requirements. Clearly, changes to the WACC of the magnitude indicated in the Table on the following page would result in significant increases in prices.

	Current	*Low*	*Medium / Low*	*Medium*
WACC	*5.63%*	*6.87%*	*7.63%*	*8.05%*
Addtn'l Revenue Req'd	*-*	*$180m*	*$250m*	*$290m*
Price Impact of Change	*-*	*10%*	*16%*	*20%*

While the Corporation has presented what it considers to be a reasonable range for the WACC, it has stopped short of concluding with a preferred return. This is a technical pricing issue for the ERA and one which has the greatest impact on the Corporation's shareholder (the State Government). The Government will need to balance the impact of higher prices on customers, against the State's financial position if the increased cost of capital was not recognised. Furthermore, this decision must recognise the potential effect of discouraging competition if the higher cost of capital is not reflected in higher prices.

- What is the appropriate inflation measure to apply to the escalation of tariffs on an annual basis?

  With regard to forecasting the capital and operating requirements for service delivery, costs should be increased using indices that reflect the operating and construction environments specific to the individual utility. The Corporation has developed its own Capital Cost Index (CCI) and an Operating Cost Index (OCI) for this purpose. Both the CCI and OCI are determined using a combination of indices supplied by the Australian Bureau of Statistics.

  For pricing purposes however, once the actual expenditure to be incurred has been estimated, real price escalations should be calculated using the "Australian 8 city average Consumer Price Index". This includes the escalation of the existing capital base justified on the basis that (theoretical) investors seeking a real rate of return are not limited to investing their capital solely in Western Australia.

  In applying this approach, it is recognised that using a different CCI and OCI for budgeting purposes compared to the CPI for prices purposes, will result in real price changes where there are differences between the indices. These real price movements are necessary to fund the construction and operation of services facing specific terms of trade cost pressures.

- What is the appropriate treatment of infrastructure network assets for the purpose of determining the revenue requirement for a water utility?

  The Corporation is satisfied with the ERA's current treatment of costing for underground network assets and while the alternative treatment has some merit, there is no compelling reason to justify a change.

- How should the Authority treat developer contributions in its financial modelling of water utilities?

  The Corporation's strong preference is to change the current approach by either:

  - *Excluding developer's asset contributions from the asset base and accordingly, not recognising them as upfront revenue in the year received. Similarly, cash contributions would be netted-off against the asset base and not recognised as revenue; or*

  - *Including asset contributions in the asset base and recognising the revenue equivalent to the cost of the assets over their life. Cash contributions should be spread over the average life of the Corporation's conveyance assets (at least 50 years).*

  Both approaches result in spreading the benefit provided by the contribution over the life of the asset.

  While it is acknowledged that all alternatives discussed by the ERA deliver the same amount of revenue over time, the Corporation's preference is based on minimising pricing volatility and on intergenerational equity. Assets constructed by the Corporation and those gifted to it from land developers typically have very long lifecycles. Where developers have contributed to the cost of initial construction, it is only appropriate that adjustments are made to the price for all customers (that is, current and future customers all using the same assets). Under the ERA's current approach, customers using assets now receive the revenue benefit of the contribution, at the expense of those in the future.

  Furthermore, while the ERA may remove some of the lumpiness by smoothing the financial flows over 10 years, the Corporation notes that its alternative removes all of lumpiness, smoothing the flows over the life of the assets (usually +50 years). This is of particular significance in smaller country schemes, which may only receive contributions from occasional development activity.

  The Corporation notes instances in country towns with very peculiar pricing outcomes when applying the ERA's current approach. For example, schemes taken over by the Corporation where the existing assets are handed over to the Corporation. Under the current approach, the financial modelling suggests that the Corporation should initially pay the households an income for using the service, but at some point in the future (+10 years) charge all future customers for the assets. This is despite the fact that the assets are handed to the Corporation without charge.

Other

- Are current CSOs consistent with the objectives sought by government?

  The objective of the CSO arrangements is to compensate the Corporation for undertaking non-commercial activities. There is an approval process in place to ensure that the Minister or Cabinet approves any new CSO or significant project for an existing CSO service.

  A significant advantage of the CSO arrangement is that it adds transparency to the actual cost of the service provided (including increased levels of service) in circumstances where the cost is not recovered from customers. This transparency helps the Government to assess if the payment justifies, and is consistent with, its objectives.

  Additionally, the CSO payment initiative unwound the cross-subsidy from metropolitan business customers that had funded the ongoing country losses being incurred by the former Water Authority.

- Are current CSOs value for money or should they be modified in some way?

  As noted above, given the advantage of adding transparency to Government decisions, the 'value for money' of the CSO payment is directly linked to the costs and benefits of the Government's decision. Assessing this, however, is problematic – it is often difficult to quantify the social and/or environmental benefits central to many of the Government's CSO related decisions.

- Should tariffs be adjusted to take into account any environmental externalities, and if so, how?

  In theory, the Corporation supports the notion of tariffs being adjusted to take into account the externalities associated with providing water services. That it, providing customers make a level-of-use decision in using the service and hence, respond to price signals. In these instances, prices that include externalities help to signal the full impact of the customer's decision.

  However, identifying and valuing the externalities is problematic. Not only is the impact often either uncertain or subjective, but also, the tools used to quantify them are often of questionable accuracy. Furthermore, externalities are both positive and negative creating difficulties in determining which one to include and what is the net impact.

Due to the difficulties associated with pricing for externalities, the ability to actual introduce them into tariffs is limited.

Furthermore, the Corporation notes that social and environmental regulators typically mandate that any significant externalities are either avoided, minimised, mitigated or offset. Because of this, many of the externalities (and certainly those of greatest significance) are already factored into the prices to the extent that the Corporation incurs costs in addressing them.

- Are there any issues specific to each utility that warrant particular attention?

The Corporation would like to consider the option of fixing a real price path for three years. Obviously, such a decision is for the Government to make as it would need to commit to a pricing decision for a number of years.

However, the Corporation would like the ERA to consider the merits of such an approach and include the mechanics of how the arrangement might work. A three year fixed price path would need to ensure that the price impact of any difference between forecast and actual expenditure during the three year period is subsequently adjusted for, provided the expenditure is demonstrated as being efficient.