DEPARTMENT OF TREASURY AND FINANCE

Inquiry on Urban Water and Wastewater Pricing

RESPONSE TO THE ECONOMIC REGULATION AUTHORITY

May 2005

The views expressed herein represent those of the Department of Treasury and Finance only.

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ABBREVIATIONS

Aqwest	Bunbury Water Board (Aqwest)
Busselton Water	Busselton Water Board
CSO	community service obligation
COAG	Council of Australian Governments
DoE	Department of the Environment
DTF	Department of Treasury and Finance
DORC	depreciated optimised replacement cost
ERA	Economic Regulation Authority
GPI	general price increase
GL	gigalitre (one million kilolitres – 1×10^9)
GBE	government business enterprise
GRV	gross rental value
IPART	Independent Pricing and Regulatory Tribunal
IWSS	integrated water supply scheme
kL	kilolitre (one thousand litres – 1×10^3)
LRMC	long run marginal cost
MRP	market risk premium
NCC	National Competition Council
NCP	National Competition Policy
Ofwat	Office of Water Services, United Kingdom

EXECUTIVE SUMMARY

The Department of Treasury and Finance (DTF) strongly supports the bulk of the findings and recommendations made by the ERA in its draft report.

In particular, it is agreed that there is not a water scarcity problem in Western Australia, as much as there is an allocation problem. It is also agreed that, in general, additional new sources for Perth will be more expensive than traditional supplies, but may never need to be more expensive than desalination (given the availability and proximity of seawater). The allocation problem can be solved through the implementation of an effective trading regime coupled with cost reflective pricing for all users across the State.

An effective water trading market would ensure water is allocated to its highest value use, and provide irrigators with the right incentives to invest in on-farm water saving technologies. Water would only be traded by choice, and at an agreed market price, and any water traded to the Water Corporation could be used to possibly defer the development of more expensive water sources.

It is hoped that the recommendations of this Inquiry, and the upcoming recommendations from the review of the irrigation industry, will pave the way for much of this necessary reform.

It is also strongly agreed that long run marginal cost pricing is the most efficient way to price water, as such pricing would provide sufficient revenue to cover costs and clearly signal to consumers the full cost of additional supplies. In so doing, pricing at the long run marginal cost can also help ensure new sources are only developed when consumers decide, through necessary consumption at such prices, that the value of the additional water source exceeds the cost.

The DTF supports in principle the proposed two step, two part tariff with the fixed charge being reduced and the per unit consumption charges being related to the long run marginal cost. In determining the appropriate level of prices, the ERA should conduct further work to ensure its recommended prices achieve all the following objectives:

- send appropriate signals (i.e. long run marginal cost) to consumers so they chose the efficient level of demand (an important aspect in a drying climate like Western Australia);

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

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

- recover costs of managing the water resource to ensure its sustainability.

The proposed two part tariff structure, set at the appropriate level, achieves these objectives, particularly in terms of demand management. Consumers are given the choice of how much water they wish to consume at the price reflecting the cost of additional supply. This is superior to subsidising the cost of high water usage through the payment of an unavoidable, higher fixed charge. More efficient pricing signals, and better information for consumers and producers, will lead to a better operating market for potable water.

The DTF is strongly supportive of the introduction of resource management costs to cover the cost to government of sustainably managing the water resource. In the past these costs have been met by taxpayers and have not been recovered through charging water consumers. However, this is obviously a cost which results from water use and increases with increased water use. An appropriate charge could promote a greater awareness of environmental issues in the community and an awareness of how water supply services can impact on the environment. It would also seem fairer that payment of the charge to licence holders increases with increased water consumption. The passing on of those charges to retail customers, is a decision for the Government.

There is also a strong case for improved transparency in the setting of health and environmental service standards and the undertaking of an appropriate benefit cost analysis for improvements to these standards.

In addition to the draft findings that are generally supported, there are a number of issues that could require further clarification and that the DTF considers should be covered in the final report. These include:

- a specific recommendation on the most appropriate charging structures and recommended tariff levels for the Water Corporation's and the Bunbury and Busselton Water Board's urban potable water supply services (residential and non residential);

- a specific recommendation on the most appropriate charging structure and recommended tariff level for the Water Corporation's urban residential wastewater services;

- the most appropriate implementation for all recommended pricing reforms;

- the most appropriate way to charge for the Water Corporation's desalination plant and its inclusion in the proposed pricing reforms;

- the impact of its pricing recommendations on pensioners and non-metropolitan customers, through the uniform tariff policy, and more generally on the Water Corporation's community service obligation (CSO) payments;

- a recommended operating efficiency target for the Water Corporation (and Aqwest and Busselton Water), to apply from 2006/07;

- a judgement on the appropriateness of the level and cost of the service standards currently required of the service providers.

SERVICE STANDARDS

Issues to be addressed:

- Whether there should be an assessment of the willingness of each service provider's customers to pay for improvements to service standards.
- The recent decline in Aqwest's customers' satisfaction with its non-health related drinking water standards.
- The recommended expenditure requirements of Aqwest and Busselton Water, associated with meeting existing or new service standards, such as the 1996 Australian Drinking Water Guidelines.

The benefits of improving the understanding of issues such as customer preferences and willingness to pay for service standards and improvements to those standards are agreed. However, the cost of obtaining that information, and the risk of its reliability (whether consumers are informed enough to make a proper judgement, and the cost of a substantial sample size), should be considered. Another risk is that improvements in unregulated service standards such as drinking water taste and wastewater treatment plant odours are difficult to quantify given their intangible nature. In any event, the ERA should at least make a judgement on what it considers to be the most appropriate level of service standards and how that impacts on the service provider's regulatory asset values. Preferably it should estimate the benefits and costs of different levels of service standards where consumers cannot readily assess the benefits.

A gauge of customer willingness to pay for water taste improvements may be found in the uptake of individual water filtration systems and home delivery of bottled water. This may provide the ERA with a low cost benchmark of whether people are satisfied with the more non-tangible aspects of water quality and used as a proxy for willingness to pay for non-regulated service improvements by the service provider.

Unfortunately, it is more difficult to find such a proxy for wastewater treatment plant odour reductions. However, variations in land values around treatment plants may provide some indication of the monetary benefit of odour reduction.

In any event, the main issue concerning service standards is the benefit-cost analysis of those standards and ensuring that the social and economic costs and benefits of those standards are considered in the setting of the levels imposed on the service providers.

In terms of the expenditure requirements of the Bunbury (Aqwest) and Busselton Water Boards, it is difficult for the DTF to comment on these matters without further information on the issue. However, it would seem inappropriate for the Water Boards to be collecting revenue in excess of its requirements, but to still be failing to meet the 1996 Australian Drinking Water Guidelines, unless there is rigorous benefit cost analysis (accounting for health impacts and consumer willingness to pay) demonstrating the guidelines are inappropriate.

DEMAND PROJECTIONS

Issues to be addressed:

- Whether the Water Corporation's target of restraining demand to 155kL per capita by 2012 is overly optimistic.

The determination of an appropriate consumption level is beyond the scope of expertise in the Department of Treasury and Finance. It is considered that the Water Corporation, in conjunction with the Department of the Environment (DoE), is in a better place to make such determinations with the assistance of its models of water consumption and supply.

It is noted though, that the current target of 155kL per capita level was derived through a number of consultative meetings that lead to the development of the State Water Strategy and therefore represents, to some extent, the views of the community. This target consumption level is consistent with current usage under sprinkler restrictions.

Sprinkler restrictions are supported as a complementary aspect of demand management. The primary goal of any demand management regime should be to develop a culture of water conservation amongst the community. It may however be worthwhile to conduct further consumer surveys during this Inquiry on consumer's preferences for sprinkler restrictions. Consumers could be given the choice of either the current two day per week restrictions versus a more relaxed alternative, once they were properly informed of the respective consequences of their choice. This would provide the ERA with a helpful insight into the appropriateness of ongoing sprinkler restrictions.

In any event, pricing signals are considered to be the primary method of demand management and pricing using the long run marginal cost of supply will allow the natural equilibrium of demand and supply to be found. Using such a method will allow customers to determine what level of demand they are willing to pay for.

The recommended alternative to the current two day per week restrictions, is to couple appropriate water pricing (such as the two part tariff recommendation made by the ERA in its draft report) with permanent, but more relaxed, water restrictions and ongoing and high levels of community education. Such a regime of demand management that provides the community with flexibility that is absent from the current two day per week regime, could attract a renewed level of community acceptance and enthusiasm while still allowing the mechanisms of price to work in an effective manner.

WATER AVAILABILITY AND USE

Issues to be addressed:

- In addressing Perth's supply-demand imbalance, there may be more scope for purchasing additional water from other sectors of the industry such as the irrigation sector and other service providers, namely Aqwest and the Busselton Water Board.
- Whether more effort should be devoted to establishing an effective trading framework whereby non-urban water users would be given the opportunity to sell or lease water entitlements to the Water Corporation at a market price.
- If trading were not feasible, a second-best solution would be to ensure that rural water is priced appropriately (through regulatory means) to reflect its scarcity value.

The concept of trading water to the Water Corporation for use in the Perth Integrated Water Supply Scheme (IWSS) is strongly supported.

While there are no legislative barriers to trade between service providers and individuals, there are currently considerable dis-incentives to the establishment of an effective water trading regime that should first be addressed.

Even without an effective trading regime, the Water Corporation and the South West Irrigation Management Cooperative (trading as Harvey Water) are already trading small amounts of water. A further trading arrangement is also being negotiated between the two parties whereby the Government (through the Water Corporation) pays Harvey Water to pipe its open channels in return for access to the water saved from reductions in channel leakage and evaporation. This arrangement benefits both Harvey Water irrigators and Perth water consumers. An improved trading regime could facilitate further trading between these parties and others around the State, on an ongoing basis.

While not finalised at the time of this submission, it is expected that the upcoming State Water Strategy Irrigation Review will present a number of recommendations for the facilitation of an effective trading regime that the ERA is encouraged to consider in its deliberations.

The most significant issues in the establishment of an effective trading market are the differences in water value between users and the transport costs of

shifting the water from where it is available to where it can be put to the highest value use.

In Perth there are water users who theoretically will be paying $1.00 / kL for their water, whilst some irrigation farmers in the South West are paying only $0.02 / kL and some horticulturalists to the north of the metropolitan area who pay nothing for their water, (not even monitoring its use).

If the pricing of water was set appropriately and the trading regime worked efficiently, it would be in the financial interest of irrigators in the South West, and horticulturalists to the north, to trade water to the Water Corporation for use in the IWSS.

Irrigation farmers can vary enormously in terms of the value of water to them. Using an example of a premium wine grower, such a consumer might be willing to pay more for water than the Water Corporation because of its ability to be utilised in such a high value use. A beef or dairy farmer on a poor soil type, on the other hand, would likely want to sell their water entitlements if an effective trading regime were in place. If this water were sold to Perth for less than the avoidable cost of the next water source, then both the buyer (the Water Corporation) and the seller (the irrigator) would benefit.

SOURCE DEVELOPMENT PLANS

Issues to be addressed:

- Whether the Water Corporation's objective of maintaining a capacity buffer to limit the risk of a total sprinkler ban to a 1 in 200 year event is too conservative.

- Further research is required to estimate water demand functions that would provide information about customer's willingness to pay for water of a particular reliability. This would assist the Water Corporation to make efficient decisions about demand management versus source development options.

Setting the security buffer chosen by the Water Corporation to limit the risk of a total sprinkler ban is beyond the scope of the DTF's expertise. While it may seem overly conservative compared to other jurisdictions, there is at least some sentiment in the community to avoid total sprinkler bans.

To promote informed discussion, the ERA should consider conducting its own sensitivity analysis, using the Water Corporation's financial information it already has, to determine what the total costs would be if it targeted a one in 100 year or a one in 50 year security buffer. Using that as a base, it could calculate the impact on household prices and inform the community on exactly what the security buffer is costing per household.

Information on the cost per consumer of a one in 200 year, versus a one in 100 year, sprinkler ban could then be presented to focus groups, or even the public workshops to be held as part of this Inquiry process, to gauge what level of community support there is for a lower security buffer on total sprinkler bans. Information on the likely cost (not only financial but the impact on the living environment and quality of life) of a total sprinkler ban, would also need to be presented.

DEMAND MANAGEMENT PROGRAM

Issues to be addressed:

- The ERA considers that water restrictions are a useful fallback tool for addressing critical shortages when an immediate and certain reduction in demand is required. However, restrictions impose costs on customers and are inefficient compared to pricing.

It is agreed that pricing signals should be used as the primary method of demand management and pricing using the long run marginal cost of supply will allow the natural equilibrium of demand and supply to be found. Using such a method will allow customers to determine what level of demand they are willing to pay for.

Some level of restrictions on outdoor, discretionary use (for example sprinkler restrictions), is appropriate given the general climatic conditions of Western Australia and the widespread view that high levels of outdoor water use are unnecessary and inefficient.

The most appropriate long term demand management strategy could be to impose some level of restrictions on discretionary outdoor water use, coupled with appropriate pricing signals which allow consumers more control over their water bills (through the proposed reductions in fixed charges, offset by increases in volumetric charges). Higher volumetric charges can be used to restrict excessive, discretionary demand but at the same time, allow consumers to find their own balance of demand and price. However, there does seem to be some community acceptance of restrictions and, as previously suggested, research into consumer preferences for more expensive water supplies versus restrictions could be undertaken.

Issues to be addressed:

- A close examination of the Waterwise Rebate Program would appear warranted, particularly the rebates offered for the installation of rainwater tanks and private bores.

The Waterwise Rebate Scheme has been extended until 30 June 2007. As part of that extension, the scheme will continue to be evaluated as to its ongoing effectiveness and efficiency as a water saving measure. Such evaluation will include a comprehensive review of the appropriateness and efficiency of the scheme in reducing water demand and in educating the community.

The important aspects to be considered during the review will be estimating how many of the additional sales of water efficient appliances is attributable to the scheme (as opposed to purchases that would have occurred in any case) and determining the avoidable costs of potable water supply (as a comparative benchmark for the individual costs of the rebate on each appliance). With any rebate scheme such as the Waterwise scheme, inevitably it will compensate customers for purchases they would have normally made. Inclusion of these customers who would have otherwise purchased the water efficient appliances will lead to an over-estimation of the effectiveness of the program.

Also, the additional private costs incurred in implementing new water efficient appliances (for example, the private cost of a bore or water recycling device) is relevant to understand the total cost of the water saved, rather than just the cost of the scheme to government. To measure the efficiency of the rebate scheme it is important that this cost is compared to the costs of other demand management programs and benchmarked against avoidable costs of other supply options.

It is thought that the analysis used by the ERA that led to the indication that rainwater tanks and private bores are the least efficient appliances under the rebate scheme, did not take into account these issues.

Issues to be addressed:

- Indications are that residential demand for water is relatively insensitive to price, implying that minor changes in price would not bring about significant reductions in water consumption. Further research is required to determine the demand elasticity of Perth households and commercial users.

Whilst the demand of indoor consumption of water is not generally very price responsive, given the essential nature of this use of water, outdoor use has significant price responsiveness because of the more discretionary nature of this demand. There is also evidence that the responsiveness of outdoor demand to price changes is higher for high volume water consumers.

The proposal by the ERA to conduct investigations into the demand functions and price elasticities of the Water Corporation's customers is strongly supported.

As indicated in our initial submission to this Inquiry, the price elasticities of indoor and outdoor water consumption was determined for Perth by J.F. Thomas and G.J. Syme in 1981 via a survey based upon household responses to hypothetical questions regarding price changes. It found a relatively significant difference in the (long term) price elasticities of these two water uses.

Determining the price elasticity of water assists in determining the effectiveness of a price rise in restricting demand.

Possible equity aspects of using price to manage demand, especially high levels of demand, are discussed elsewhere in this response.

REVENUE REQUIREMENTS

Issues to be addressed:

- The recommended operating efficiency target of the Water Corporation.
- The proposed reduction in staffing numbers.
- The ERA's proposal to increase outsourcing of activities.

The Water Corporation is effectively a monopoly and is not subject to the competitive pressures that require most businesses to reduce their costs (or go out of business). When determining an appropriate regulated price path for a monopoly utility it is expected that an operating efficiency factor will be incorporated into the operating expenditure forecasts. The operating efficiency target is set to approximate an efficiency gain that would be achieved in a competitive environment to recognise the economies of scale through growth that competitive businesses achieve to ensure their continued operations.

There are some concerns about the ability of the Water Corporation to achieve the operating efficiencies identified in the ERA's draft report from the process improvement initiatives. It is important when measuring likely operating efficiency gains that any forward looking targets are based on what is achievable into the future and takes as a base, those improvements that have already been realised. In terms of the final report, the Government is expecting to make a decision on the most appropriate operating efficiency target for the Water Corporation from 2006/07.

Furthermore, the claim by the ERA that there may be capacity for the Water Corporation to reduce its staffing numbers based on a benchmarking exercise with South Australia is incorrect. Discussions with the ERA on this matter since the release of the draft report have acknowledged this fact.

It is understood that the analysis in the draft report did not take into account the higher level of outsourcing in South Australia than in the Water Corporation. In its final report the ERA is expected to re-assess these findings and come up with a more appropriate way to optimise the Water Corporation's operating expenditure.

Issues to be addressed:

- Historically, the Water Corporation has delivered projects in a relatively traditional manner, using internal project managers. Evidence from other utilities suggests that greater use of project partnering and alliances with the private sector are likely to deliver cost savings over the current approaches (in the order of 10 to 15%).

The DTF supports investigation of partnering and alliances with the private sector to see whether it can achieve cost savings over the current approach, and/or achieve a reduction in risk exposure which would make private sector partnering or alliances worthwhile. Furthermore, a competitive bidding process for partnership contracts should result in the bidder setting fees and prices at their minimum average cost.

Issues to be addressed:

- The regulatory asset value proposed by the Corporation of $9,100 million at 2006/07 is consistent with a value that preserves the revenue and average prices currently forecast for the period 2004/05 to 2008/09.

The regulation of prices in the water industry relies heavily on the "bottom up" building block approach, whereby the components of total costs of providing the service are assessed to determine the revenue requirement of the service provider for a predetermined period. Prices are then derived that, on the basis of forecasts, will deliver this revenue.

Total Revenue = *Required Rate of Return* x *Asset Value*
+ *Depreciation of Assets*
+ *Forecast Operating and Maintenance* Costs

The approach employed by the Water Corporation is however more of a "top down" approach where, rather than calculating the asset value according to an approved methodology it is derived according to the current revenue forecasts (pre-tax profit to the year 2008/09), which in turn are based on assumed price paths.

As noted in the ERA's report the asset value determined under this approach is that which, if implemented in a framework of cost based regulation of prices, would return a set of regulated prices and a value of expected revenue equal to current prices and expected revenue. Essentially the asset base is set in order to maintain the status quo.

The Water Corporation acknowledges that there is a degree of circularity in its method for setting the initial regulatory asset value, as this value is based on expected revenue, whilst the revenue for the determination period is based on the asset value. However, this method of determining the initial asset value is employed in order to maintain the Water Corporation's forecast prices and revenues, and by implication the value of the Water Corporation's business. Thus avoids the adverse impact of any regulatory shock, were government to introduce cost-based regulation.

The ERA accepts this method of initial asset value determination, as the $9,100 million regulatory asset value proposed by the Water Corporation is within the feasible range of the scrap value of the assets and a depreciated optimised replacement cost (DORC).

In its initial submission to the ERA, the DTF suggested that the DORC method of asset valuation should be applied to determine the Water Corporation's revenue requirements. This is the method that has been employed by the New South Wales Independent Pricing and Regulatory Tribunal (IPART) and is commonly applied in the electricity and gas industries. The DORC methodology is also consistent with the COAG water pricing principles.

Although no DORC assessment of the Water Corporation's asset value has been undertaken, the Water Corporation has indicated that the written down replacement value of assets at 20 June 2004 was $11,048 million. Consequently it can be assumed that a calculated DORC value would be significantly higher than the regulated asset value proposed by the Water Corporation (which corresponds to a value of about $8,000 million at 30 June 2004).

On the basis that the ERA has accepted the proposed regulatory value as being within the feasible range, and that the DORC determination of the initial asset value would result in a substantial increase in the Water Corporation's revenue requirement (potentially resulting in a regulatory price shock if cost-based regulation were introduced), the DTF accepts the $9,100 million regulatory asset value proposed by the Water Corporation.

Issues to be addressed:

- The Authority does not consider that the revenue requirements of the Corporation should be reduced to reflect a lower regulatory asset value.

The DTF supports the ERA's proposal that the Water Corporation should seek efficiencies through reducing its operating expenditure rather than reducing its regulatory asset value and concomitant revenue requirement to fund water sourcing projects.

Issues to be addressed:

- With its current financial structure and absence of obligation to make dividend payments, Aqwest's and Busselton Water's initial regulatory asset values could be set at zero in 2003/04, with a concomitant reduction in customer charges (by 21% and 7% respectively, in 2006/07) without compromising the viability of the business and without requiring the business to take on debt.

- Alternatively, if Aqwest were to be treated as a typical commercial entity (by assuming a financial structure of 40 per cent debt to total assets, a reduction in cash reserves to some minimal amount and the payment of cash surpluses out as dividends), the lower bound of a regulatory asset value consistent with maintaining the financial viability of the business would be in the order of $10 million. Under this scenario, customer revenue would be 7% lower in 2006/07 than proposed by Aqwest.

- If Busselton Water were treated as a commercial entity (under the same conditions as above), the lower bound of a regulatory asset value consistent with maintaining the financial viability of the business could still be set to zero without compromising the viability of the business and without requiring the business to take on debt.

As with the Water Corporation, Aqwest and Busselton Water should seek efficiencies through reducing its operating expenditure and passing on this gain to consumers, rather than reducing its regulatory asset value and concomitant revenue requirement. On this point, the ERA could also comment on whether in its opinion, Aqwest and the Busselton Water Board should also have an operating efficiency target, given they essentially hold a monopoly position in their respective operating areas.

The information provided in the draft report, does however provide useful information on the operating position of the water boards and the expected efficiency gains that could be realised once the reforms to the *Water Boards Act 1904* are drafted and approved.

PRICE PATH

Issues to be addressed:

- The Authority favours a pricing structure that allows maximum flexibility to the water businesses whilst still promoting outcomes that are in the public interest. While there are merits in exploring the tariff basket approach further, individual price caps would provide greater certainty in achieving specific government objectives where large customer groups are involved.

- The Authority favours a pricing structure that allows maximum flexibility to the water businesses whilst still promoting outcomes that are in the public interest. While there are merits in exploring the tariff basket approach further, individual price caps would provide greater certainty in achieving specific government objectives where large customer groups are involved.

DTF supports the CPI-X / individual price cap approach to price regulation as it is consistent with the pricing principles set out in the COAG water reform agreement and provides service providers with incentive for efficiency gains. Individual price caps also provide price certainty for the water business and are currently used by IPART to regulate water providers in NSW.

It is important to note that when determining price caps there are a range of regulatory models suitable for the water industry and the different models are usually not mutually exclusive. In practice different regulatory tools tend to be complementary with combinations of regulation becoming more frequently used.

For example, yardstick regulation applies the results of performance benchmarking to price setting. Yardstick regulation can provide an alternative to the usual building block (cost-based) approach for setting CPI-X, with the X factor set by reference to external measures of industry or economy wide productivity provided by the performance benchmarking. In doing so it overcomes the significant information asymmetry problems that exist with setting regulated prices through an assessment of cost factors.

Issues to be addressed:

- The Authority's preliminary recommendation is for an initial price period of three years for the Water Corporation, given the uncertainty associated with climate and its source development plan.
- The Authority's preliminary recommendation is for an initial price period of five years for Aqwest and Busselton Water, on the assumption that any change to the water boards' governing legislation will be made by 2006/07.

Under a CPI-X approach a price path is set for the service provider, which provides incentives for the service provider to 'beat' the efficiency targets implicit in the X factor. Therefore the regulatory period needs to be long enough to enable the service provider to realise any efficiency gains beyond those set by the price path. However, the uncertainty associated with realised efficiency and changing costs over time also need to be recognised.

DTF supports the proposed price path periods of three years for Water Corporation (given the greater level of uncertainty regarding the climate conditions), and five years for AQWEST and Busselton Water (assuming changes to the water boards' governing legislation are made by 2006/07).

SETTING PRICES TO MANAGE DEMAND

Issues to be addressed:

- One of the possible trade-offs of tariff rebalancing (moving to a lower fixed charge component and higher volumetric charges) is greater revenue instability for the service provider.
- One of the disadvantages of inclining block tariffs is the penalty it imposes on large families with high non-discretionary requirements.
- Quarterly consumption charging.

As noted earlier, water prices should be set so they achieve the following objectives:

- send appropriate signals to consumers about the efficient level of demand (an important aspect in a drying climate like Western Australia);
- promote efficient investment decisions (incorrect levels and timing of investments can lead to significant costs borne by the community);
- recover sufficient revenue for the service provider, to ensure financial viability; and
- recover costs of managing the water resource.

As revenue stability is a basic requirement of any appropriate pricing structure, the ERA should conduct some sensitivity analysis around the potential impacts of the preferred two part pricing option, on varying levels of customer demand. Such scenarios would include the Water Corporation's expected levels of demand and alternatives including higher and lower than expected levels of demand.

Such analysis would enable the ERA to determine how sensitive the Water Corporation's revenue is to a one or two part tariff and therefore provide the Government with sufficient information to be able to identify the financial risks from such reforms.

The view of the ERA that every unit of water consumed contributes to the long run marginal cost of supply, and should therefore be recovered at that level, is strongly supported. If the Government did decide to address the equity impacts on large households, the best way may be through the subsidisation of water saving products for pre-determined eligible households. As outlined in the ERA

draft report, the installation of these water saving appliances would enable households to reduce their bill substantially by using water more efficiently.

In regards to quarterly consumption charging, there are both pros and cons to the issue. On the positive side there are the benefits of keeping consumers informed about their ongoing water consumption and enabling them to adjust their behavior accordingly. On the negative side, there would be a significant increase in the each service provider's operational costs.

On balance, it is likely that the social benefits of increased education about their ongoing consumption levels (which should therefore lead to lower water consumption), would allow consumers to adjust their consumptive behavior and would outweigh the increased costs (passed on to consumers).

SOCIAL OBJECTIVES

Issues to be addressed:

- Funding of the uniform tariff policy by a direct government payment CSO payment) or a reduction in the Water Corporation's dividend requirements.

It is considered appropriate, for the purposes of transparency and public scrutiny, to continue to meet the costs of the Water Corporation's CSO program (for the application of the Statewide residential uniform tariff) through direct funding from the consolidated fund rather than through a reduction in dividend payments. This allows a comparison of the cost effectiveness of CSO programs to non-CSO (i.e. commercial) programs.

Furthermore, a commercialised entity such as the Water Corporation (and later the Water Boards following the necessary reforms) should be funded by government to undertake these non-commercial activities.

It could be argued that the Water Corporation's legislation, the *Water Corporation Act 1995*, requires it to be paid the subsidies to undertake these non-commercial, non-profitable activities. Namely, the objectives of the Water Corporation contained in its legislation require it to operate according to prudent commercial principles and endeavouring to make a profit. It would be presumably difficult to justify how undertaking these non-commercial activities without a CSO would be consistent with the intention of the legislation.

ADJUSTING FOR EXTERNALITIES

Issues to be addressed:

- The recovery of resource management costs from customers that are directly attributable to current consumption activities.
- Whether the recovery of resource management costs should be via a fixed charge rather than a volumetric charge.

The provision of more water, by water service providers imposes costs on the environment and specifically the water resource, which in turn increases resource management costs. It is considered appropriate that users who consume more water, and who contribute to the water resource management costs should therefore pay more and should also be made aware of the total cost of their water consumption. This would be in accordance with COAG pricing principles.

The most appropriate way to do that may be through the service providers charging regime so consumers can identify the direct link between their water consumption and the cost that has on managing the environment.

To ensure an appropriate recovery of costs under the proposed impactor approach, the resource management cost to each service provider could be levied as a charge related to the volume of its licence and passed through to individual consumers as a separate fixed charge line item on their water bill. The structure of the charge passed on to consumers should be determined by government at the appropriate time.

One issue the ERA has not commented on is that with the passing on of resource management costs in Western Australia, there is a potential conflict of interest in the provision of water resource management services. The concern lies with the environmental regulator, the DoE, setting the service standards, providing the service and potentially setting the levels of cost recovery.

Although this issue may be slightly beyond the scope of its terms of reference, it would be interesting to consider the regulator's position on this matter.

WATER CORPORATION'S WASTEWATER PRICING

Issues to be addressed:

- Whether the Water Corporation's residential wastewater charges should be de-coupled from property values (gross rental values (GRV) and how the distributional issues of such reforms could be addressed.

As the ERA points out, wastewater services are not normal economic goods and price signals are generally ineffective. This is because a decision to use the 'service' is based on health and social needs and is not price responsive (known as inelastic demand).

The present method of GRV charging is in place only because of the consideration that it provides a proxy of a customer's ability to pay for the service. However, as the investigations of the Joint Working Group convened by the previous Minister for Government Enterprises in 2002, found 25% of low-income families live in above average GRV properties and 11% of high-income families live in below average GRV properties, so that GRV is not an ideal proxy for ability to pay.

The main barrier to the implementation of the proposed fixed charge is the redistributional impacts, but it should be noted that the maximum increase from the ERA's proposed charges (from a bill of about $200 to a fixed charge of about $450) would be for less than the 5% of customers.

The most appropriate way to implement these reforms could be to limit the increase in charges to the Water Corporation's general price increase (GPI) plus 10%. This form of phase in has been used in the past by the Water Corporation and is accepted by the community as an appropriate method of implementing pricing reforms.

The analysis by the Joint Working Party concluded that more than half of customers in low GRV properties (less than $6,448 GRV) would be shielded from increases as they are either tenants (36%) or receiving concessions (20%). The ERA should re-calculate these figures for 2005 and confirm these findings. It should also be noted that the Water Corporation provides up to 50% discount to pensioners and Commonwealth Seniors and 25% to State Seniors on their wastewater bill.

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

Melbourne retail water companies and Hunter Water have adopted a two part tariff comprising a service charge and a usage charge, based on estimated discharge.

Whilst all other states historically had property based charges they have converted to an alternative consistent with COAG pricing principles. The Victorian retailers and Hunter Water have adopted an access / usage based charge, although there are slight variations in how discharge factors are calculated. Sydney Water, ACTEW Corporation and Brisbane Water have all adopted a fixed service charge. In 2002, IPART found that a two part tariff was not warranted for cost reflective reasons due to the high proportion of fixed costs and inelastic internal demand. The South Australian Water Corporation adopt a minimum charge, together with a rate based on property value, where the unimproved value exceeds a certain minimum limit.

The following is an evaluation undertaken by the Joint Working Party on the alternatives for residential wastewater pricing:

1. Pay-For-Use (discharge factor) option

Usage based options include a fixed charge and a usage charge. Measuring "usage" is a practical barrier as discharge from a residential property is not metered and therefore requires a proxy measure for discharge.

Methods for estimating usage include:

- standard discharge factor for summer and winter consumption;
- individual discharge assessment based on actual winter consumption;
- individual discharge assessment based on household size; and
- number of major fixtures eg toilets / showers.

It is difficult to generalise about discharge factors in Perth given the high variation in dwelling type, property size, garden type and climate conditions. External usage can be highly variable, whilst internal usage tends to remain stable and relatively consistent between households.

The Domestic Water Use Study found that household size is the biggest driver of internal water usage. A volume charge would therefore result in higher charges for large families. Monitoring household size is not administratively practical and can be highly variable.

The Domestic Water Use Study found a very poor correlation between the number of major fixtures and usage for households. Most residential properties have one or two toilets and would essentially result in a fixed service charge. An incentive to reduce toilets would not be appropriate for residential households.

Consumption based options rely on more frequent and concentrated meter reading at the beginning and end of winter. Additional meter reads and consumption bills were estimated in 2002 to cost the Water Corporation an additional $6 million per annum. A reduction in household discharge is unlikely to result in a significant offset in costs, for existing properties, due to the high proportion of fixed costs in the sewerage system.

As indicated above, IPART assessed the merits of volumetric sewerage and concluded that measuring discharge is problematic and not effective in sending a price signal to residential customers.

2. Fixed charge option

A standard charge or fixed charge is the most common form of sewerage charge in Australian water utilities. It is simple to administer and recognises that residential customers receive a standard service. A revenue neutral standard charge should be based on the average Statewide cost of the service per household. A Statewide wastewater charge is also consistent with the uniform pricing policy for residential water charges (up to 350kL) across the State.

A flat charge will eliminate a lot of customer confusion relating to the calculation of GRV and dramatic changes in sewerage charges following revaluation periods.

A standard charge will also result in reduced processing costs internally as well as reduced Valuer General charges for the Water Corporation, estimated by the ERA at $2.4 million per annum. It should be noted that the Valuer General's costs would not reduce proportionately.

Based on this analysis, the abolition of GRV based wastewater charges and replacement with a Statewide average fixed charge is supported on the grounds that it is the most economically efficient form of charging and all social efficiency concerns can be addressed through a substantial phasing in period. The ERA as the regulator for the industry should recommend in its final report the most appropriate way to implement this reform measure.

PRICING REFORMS

Issues to be addressed:

- The rebalancing of water tariffs so that usage charges reflect the long run marginal cost of supply.
- The number of tariff steps in each of the service provider's tariff structure be reduced in order to simplify the price signals to customers and to bring the tariff structure into line with those in other States.
- What is the preferred pricing reform option, either a flat rate usage charge or a two block inclining tariff.
- The choice between a flat rate or two step charge essentially hinges on whether a desired role for the tariff structure is to reduce demand. On balance, the Authority considers that a two-step inclining tariff does have a beneficial role to play in managing demand.
- The compensation of households with large families that may be adversely impacted by either pricing reform.

In the water industry, marginal costs are the costs incurred by a service provider as a result of the last, marginal, unit of consumption. Economic theory suggests that pricing, in the short term, using marginal costs results in allocative efficiency because each customer is paying the price of its consumption. However, as pointed out in a report produced by London Economics for the Office of Water Services (Ofwat), the definition of marginal cost has to encompass the time scale over which these marginal costs are assessed.

In the short run, an additional unit of water can be supplied by meeting operating costs (pumping and treating) assuming a security buffer (if there is no supply buffer opportunity cost would need to be accounted for). However in the longer term, because capital costs are not accounted for, pricing at the short run marginal cost does not meet the revenue and price signalling objectives of charging.

The use of long run marginal cost pricing is recommended for water pricing because it stabilises water charges over time and makes provisions for all present and future costs required to meet future demand. Given the long term nature of most investment in the water industry, pricing using the long run marginal cost approach would ensure that customers pay the full costs imposed by their demand, where the costs measured would encompass all investment

consequences of increased demand as well as the short term operating cost effects.

As a result, the proposal by the ERA to set the volumetric charge for water at the long run marginal cost is strongly supported. However, the modelling undertaken by the ERA on the proposed impacts to households is understood not to include the Water Corporation's desalination plant, the Premier announced would be constructed by October 2006.

Given the long term nature of long run marginal cost pricing and that it includes all present and future costs of meeting future demand, it would seem peculiar for the base capital on which the marginal cost pricing is calculated, not to include the desalination plant. This is particularly the case since the desalination plant will be commissioned well within the ERA's proposed three year price path, which the long run marginal cost should account for as a minium.

For the ERA's first pricing option of a single pricing tariff, the estimated fixed charge of $40.55 per annum would actually be $43 higher, namely $83.55 per annum, in its first year of introduction (2006/07) because the desalination plant was not included in the calculations. Under the second option of a two step pricing tariff, the proposed fixed charge of $35.15 would end up being $78.15 in the same year of its introduction once the desalination plant was included.

It would seem inappropriate not to include the desalination plant in the Water Corporation's base capital for the long run marginal cost pricing over the three year price path since by the time the Inquiry's recommendations are implemented, the desalination plant will be only a number of months off being commissioned. One of the key principles behind long run marginal cost pricing is to avoid unnecessary price shocks, but the model proposed by the ERA would in fact attract a price shock within its first year of introduction.

It would also have been helpful if the ERA included more scenario analysis behind its two preferred pricing options using the long run marginal cost approach. While it has outlined the impacts on the average household, it would also be helpful to understand the proposed impacts on a range of household types (including rentals and tenants), the uniform pricing policy, welfare concessions and the net impact on the Water Corporation's CSOs and dividends. Other helpful information would include the relationship between water consumption, household size and household income. Such information will be imperative for the Government to make a well informed decision on the final report.

The alternate option, of a one step tariff proposed by the ERA, set at the long run marginal cost (including desalination). While this may be appropriate from a

pure economic point of view where everyone receives the same service (potable water on demand) so they should pay the same price, it fails on the principles of demand management and in sending a message to consumers that water is a scarce resource and must be used sustainably.

The two step tariff structure is preferred because of its benefits of promoting demand management while still allowing high end users to reduce their demand in return for a reduction in the cost of water. The first step is based on the long run marginal cost (which should include desalination), while the second step estimated by the ERA is a 50% increase on the long run marginal cost.

The expected benefits of a two step tariff structure are that it will reduce the discretionary outdoor water consumption whilst ensuring water for discretionary indoor use is still affordable through the reduced fixed charge.

The ERA should consider in the development of its final recommendation for pricing reform, the opportunities for minimising the impacts on the average household. Furthermore, it would be helpful if the ERA were to estimate the possible reductions in water consumption by the average household once volumetric water charges are increased to fully recover the long run marginal cost of supply.

Using the principles of demand elasticity, especially for discretionary outdoor use, it is expected that there would be some change in average household consumption as a result of any proposed pricing reforms. The impact of these changes should be modelled, and presented, in the final report to provide government with all the information necessary to make an informed judgement on the ERA's final recommendations.

The impact on large households is also recognised and therefore the proposed water savings packages suggested by the ERA are supported in-principle, as a way of reducing the burden of higher water charges from households with otherwise little means of reducing their total water consumption.