Department of Water
Government of Western Australia

Economic Regulation Authority inquiry into pricing of recycled water in Western Australia

Submission on Issues Paper

September 2008

About the Department of Water

The Department of Water is the lead agency in the Government of Western Australia for the management of the state's water resources and lead adviser to the Minister for Water Resources on water policy and governance. These responsibilities include:

- water resource management and planning
- water source protection
- water governance
- water services policy
- water reform, including the National Water Initiative, State Water Strategy and State Water Plan
- Indigenous water services.

The department operates throughout Western Australia with offices in 8 regional areas.

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Disclaimer

The views expressed in this submission are those of the Department of Water and should not be taken to reflect the views of the Minister for Water Resources or the Government of Western Australia.

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1 Introduction

The Department of Water supports the inquiry and notes that review of recycled water pricing policy is an action arising from the *State water recycling strategy*.

Water recycling offers a number of potential benefits. It may provide:

- environmental benefits through reduced use of natural water sources and reduced discharge of effluent to waterways and ocean
- lower cost water sources or wastewater disposal
- an alternative and/or additional climate independent water source, increasing security
- a consumer benefit, satisfying a preference.

A sound economic framework for the pricing and adoption of recycled water and alternative supplies can provide consumers and potential suppliers with appropriate information and signals, and encourage uptake and investment wherever it is cost effective.

Terminology

In this document, a wastewater customer is a customer that pays for a service that transports away and disposes of wastewater that they produce. A purchaser of recycled water is referred to as a recycled-water customer.

2. Scope of recycling and alternative water supply projects and initiatives

In general, the examples cited by the issues paper effectively illustrate the scope of recycling and alternative supplies and the known potential volumes available for further reuse.

The Department of Water also draws the ERA's attention to three other types of water recycling projects:

Reuse from coastal drainage

- In parts of the South West and South Coast regions of Western Australia, constructed drains convey water from farms, thus permitting agriculture by minimising inundation and water logging. For example, a turf farm on Dirk Brook benefits from storing first flush water offline and then uses it for irrigation. There may be scope for additional reuse.

Major private on-site reuse

- The Water Reclamation and Management Scheme of Sydney Olympic Park is an example of on-site reuse.

Sewer mining

- The Council House 2 building in the Melbourne central business district takes water directly from a nearby sewer and treats it for non-potable use within the building.

3. Should recycled water prices be regulated?

There are strong arguments both in favour of and against regulation of recycled water pricing. The Department of Water encourages examination of the need for regulation.

The arguments in favour of recycled-water providers being permitted to negotiate a price include:

- Some consumers may be willing to pay a premium for recycled water. This could make recycling more competitive and encourage service providers to further develop recycling. The ability for a seller to negotiate a higher price helps reveal this premium.
- Wastewater is not unlimited in supply and is increasingly being seen as a valuable resource. Users who value the resource more should be able to pay more than other users in order to secure longer term, preferential access. An obligation to sell to the first offer of avoided-cost price may not maximise the benefits of recycling.
- Wastewater service providers effectively own the wastewater that they collect and treat, so they should be allowed to capture at least part of any scarcity value (on top of cost). This also provides a financial incentive for them to develop recycling.
- If the willingness to pay for recycled water was sufficiently high to allow a contribution towards costs of collection and treatment, this may still be efficient as long as each wastewater-service customer paid at least the marginal cost of their wastewater service.
- Regulation of the prices of a wide range of water quality levels and scheme costs could be administratively inefficient and burdensome.

There are also significant arguments that suggest that negotiated contracts may be inappropriate, or that regulation may be required:

- Scheme supply is sometimes the only alternative to recycled water. Wastewater utilities are often the only significant source of treated wastewater water for recycling so they can be expected to have market power.
- Where a monopoly wastewater utility is also the provider of scheme water, their recycled-water sales can reduce their potable-water sales, so they have an incentive to increase their recycled water price.

- While the regulated price of scheme water may effectively limit the price at which recycled water can be sold, this is not necessarily an appropriate benchmark price for recycled water that is of a significantly lower quality than scheme water. A seller with market power may be able to extract a substantial margin, particularly if they artificially restrict supply.
- Monopoly providers can have an interest in protecting their sunk-cost investments in both traditional and alternative supplies against innovative competing alternatives.

4. Options for regulation

If regulation is necessary, this could take a range of forms. The simplest option is minimal regulation: to allow utilities to sell recycled water by commercial contract with a negotiated price that reflects supply and demand, and the availability of alternative sources of water at competitive prices.

Under a commercial contract price regulation can be light handed if there is no indication of market failure caused by misuse of market power. If there is indication or evidence that market failure is hindering the development of recycled water, then further regulation may be warranted.

Alternatively, recycled water tariffs could be set individually using a building block approach (operating cost plus fixed return on investment). However this could be administratively burdensome and inefficient, especially for smaller recycling schemes.

In between these two options, the Department of Water sees a number of potential measures that could be examined:

- public reporting of costs and prices to allow scrutiny
- establishment of principles for pricing of recycled water
- dispute resolution or appeal mechanisms
- regulated methodology for the calculation of charges (as opposed to the setting of specific charges)
- regulation of designated high value or high demand schemes.

These measures could be applied individually or in combination.

5 Pricing principles

The establishment of a set of principles for recycled water pricing could form the basis of a regulatory framework for recycled water pricing. Even if it is found that minimal regulation is required, agreed principles would assist development of Government policy for recycled water pricing and as a benchmark for monitoring the ongoing performance for recycled water pricing.

Pages 21–22 of the issues paper presents the pricing principles adopted for recycled water by the NSW Independent Pricing and Regulatory Tribunal, the Victorian Essential Services Commission and the Water Services Association of Australia.

The Department of Water sees some common elements to these principles that would have merit in guiding the pricing of recycled water:

- Prices should cover the direct costs associated with implementing a scheme.
- If water utilities are compelled by government to implement recycling schemes below cost, this should be treated as a community service obligation.
- Flexibility is required to allow for the variety of possible schemes in terms of water quality and service. Setting the price for each new scheme is likely to be unduly complex. Standardised prices are likely to be inefficient, and in some cases could discourage adoption of recycling by wastewater utilities.

The Victorian Essential Services Commission principle that prices must include a variable component to provide appropriate signals for resource management would also be of relevance to most schemes.

In addition to the four matters above drawn from the principles presented in the issues paper, the Department of Water sees some other matters that also should be considered as part of the design of pricing principles.

If utilities are to be permitted to capture the scarcity value associated with a limited supply of recycled water where demand is high, the Department of Water believes that this entitlement should be explicitly reflected in the principles and made transparent to potential customers and interested parties.

This should be limited to situations of genuine scarcity. A utility should not artificially restrict access to recycled water in the medium to long term in order to transfer monopoly rent from recycling customers to its broader customer base.

The Water Services Association of Australia principles suggest that willingness to pay should be the ceiling for prices, and that commercial judgement should determine whether prices should be set towards the ceiling.

The Department of Water queries whether commercial judgement is an appropriate means of determining a price ceiling in a sub-competitive environment. Where available recycled water is not scarce, but there is a large gap between the cost of supply and the price of alternatives, willingness to pay may not be an appropriate cap.

6 Distributional issues and social objectives

The Department of Water notes that where a wastewater scheme is a source of recycled water, it may be feasible for a utility with market power to charge broader wastewater collection scheme costs to recycled water customers, rather than to wastewater customers. This may be inefficient.

The Department of Water seeks the Economic Regulation Authority's view on whether it is possible for circumstances to exist where the above scenario could actually be efficient, for example if demand for recycled water were high and retail competition existed for wastewater service customers.

The issues paper confirms that where recycled water revenue exceeds the cost of supply, any additional revenue would be subtracted from Water Corporation's regulated revenue, and thus benefit regulated customers.

This saving could be spread across the entire customer base, or it could be refunded to the wastewater customers of the scheme supplying the recycled water. In an environment of competition through third party access, the latter may be required in order to allow an incumbent to compete for wastewater customers on an equal footing with a new entrant.

The Department of Water notes that the *Uniform tariff policy* may not be of relevance to the regulation or calculation of recycled-water prices. However, the Economic Regulation Authority may wish to comment on any potential impact of the policy on the adoption of recycled water and alternative water supplies.

7 Scheme water and wastewater charges

Ensuring that the substitutes for recycled water are correctly priced is an important part of ensuring efficient adoption of water recycling. The inquiry into tariffs of the Water Corporation, Aqwest and Busselton Water will examine tariffs for water and wastewater.

The Department of Water would also encourage some general discussion of the role of appropriate water and wastewater tariffs as part of the inquiry into recycled-water pricing. This would help reinforce the understanding that efficient price signals are an essential part of sound resource management. It would also help provide a framework for the consideration of externalities related to recycled water.

Water charges

Higher volumetric prices to better reflect long run marginal cost are being phased in by 2013–14 for all Perth scheme water customers.

The *State water recycling strategy* recommends a faster phase-in of volumetric tariffs for major industry, which could increase demand for recycled water. The recycled water pricing issues paper says that the issue for the

inquiry is whether major industry should be treated differently to other commercial customers.

The Department of Water supports consideration of this issue, but notes that faster phase-in of cost reflective prices more generally may also be worthy of examination in the context of its possible impact on recycled water pricing.

Wastewater charges

On-site reuse can reduce the load on wastewater collection, treatment and disposal. It is partially a substitute for a wastewater service.

For most wastewater service customers, wastewater charges are fixed and unavoidable irrespective of the customer's load upon the system. The Economic Regulation Authority may be able to advise on possible measures that could allow better cost reflectiveness.

The Melbourne retail water and wastewater providers apply volumetric charges for wastewater. These are estimated as a percentage of metered water use. If practicable and efficient, this could offer the potential to recognise the reduced wastewater loads that result from on-site reuse, to improve the efficiency of wastewater prices and to reinforce existing volumetric price signals.

It may also be possible to show that there is an efficient level of reduced charges or rebates where approved greywater reuse systems are installed.

8 Externalities

Potential environmental benefits from reduced water abstraction or pollution

Where less water can be taken from the environment, this may result in environmental benefits. If recycled water is substituted for supplies form groundwater or surface water, this may reduce the negative externalities of water abstraction.

Where water abstraction is within sustainable yields, it can be argued that there may be no significant environmental benefit associated with reducing water consumption.

Likewise, under a sound pollution licensing regime, it can be argued that there are unlikely to be substantial environmental benefits associated with further reductions in discharge volumes from wastewater treatment plants.

In the above cases, it could be said that all significant externalities associated with recycling have been internalised.

In practice, the environmental impacts of resource use are more complex. Sustainable levels of use are based on judgements of best available information. Evidence to support specific sustainable levels of resource use

can be imprecise or conflicting, and can change as more information becomes available over time.

Even where resource use is at sustainable levels, that does not necessarily mean that further reductions in use will yield no further benefit. For example, even groundwater allocated for use may provide environmental benefit up until the time that it is abstracted. Thus determining the magnitude of environmental impacts associated with recycling is complex.

Furthermore, determining the magnitude of environmental externalities requires not only for the magnitude of impacts to be quantified, but for a value to be assigned to these impacts. Work exists that determines a value of some environmental impacts[1] of water use, but substantial further work would be required to provide a sufficiently precise picture to allow prices to meaningfully reflect impacts.

Role of water recycling targets

Clear and achievable targets are an effective way of focusing effort on performance improvement. The Department of Water believes that the *State water recycling strategy* target to recycle 30 per cent of wastewater by 2030 is achievable.

Water recycling targets in Western Australia are not associated with any penalties for non-compliance. There is no downside risk of targets causing perverse incentives to invest in recycling that does not have net benefits.

Rebates

The Department of water supports the use of rebates for household products that promote water use efficiency and recycling, such as those provided through the Waterwise Rebates program. Rebates may potentially address market failures related to:

- a lack of price signals for wastewater discharge and drainage
- weak price signals for water pricing, including during extended phase-in periods for price increases
- environmental externalities.

[1] For example, Tapsuwan, S., Ingram, G. and Brennan, D., 2007. *Valuing Urban Wetlands of the Gnangara Mound: A Hedonic Property Price Approach in Western Australia*. CSIRO: Water for a Healthy Country National Research Flagship Canberra. This paper estimated impacts of wetland proximity on property prices, which is an indication of one of the amenity values that people attach to environment.

The Department of Water supports investigation of the cost-effectiveness of rebates.

The uptake of rebates is voluntary, and some consumers may be willing to pay a premium for alternative water sources or water efficiency measures that have a higher unit cost than scheme water. Thus while the paper suggests that cost-effectiveness be assessed by comparing the unit cost of the alternative water source with scheme water, it may be more appropriate to compare the cost of a rebate itself with all benefits that accrue to the party funding the rebate.

The benefits that accrue to water service providers from rebates may include reduced costs in water and wastewater service provision. Rainwater tanks may also reduce costs of drainage. There may also be public benefits associated with rebates through improved environmental outcomes.

Reservation of water from wastewater treatment plants

The *State water recycling strategy* notes that water from the Beenyup Wastewater Treatment Plant will be reserved for potential groundwater replenishment for future drinking water.

Groundwater replenishment is a potentially large and valuable future use. Reservation is intended to ensure that the potential for groundwater replenishment is not lost during the period of the trial. This could happen if water were gradually sold off to other uses in a way that could stop the water being used for a future groundwater replenishment project if its value is demonstrated.

Reservation does not necessarily preclude the Water Corporation using or selling recycled water temporarily, or from other more valuable recycling innovations being considered if these were identified.

Mandatory standards

Mandatory standards such as the water efficiency measures referred to in the issues paper are intended to ensure that cost-effective water-sensitive urban design measures are installed in buildings and developments at the time of construction, when the cost of installation is minimised.

The issues paper (page 28) states that “the risk… is that the water savings may not be cost effective in comparison with other source options.”

In considering the benefit of water sensitive urban design measures, any relevant savings in avoided wastewater augmentation or drainage costs should also be considered as well as any improved environmental outcomes.

Third party access

The Department of Water supports the establishment of a third party access regime in Western Australia.

If the transaction costs associated with third party access are not prohibitive, it may offer a means of facilitating the adoption of recycled water through the entry of new utilities or retail service providers.

There has been an increasing focus in recent years on water recycling as a means of delivering increased water security. In this sense, water recycling is still in its development phase. There is arguably scope for innovation and for a diversity of possible options to evolve as alternatives to traditional “one size fits all” water and wastewater supply systems.

However there are also risks associated with investment in new recycling projects, including limited experience with many types of recycling, the high cost of some existing technologies, and uncertain market potential.

The scope for innovation and its associated risks may provide market niches for smaller entrants based on third party access.

Conversely, publicly owned suppliers of water and wastewater services in Australia are expected to meet increasing demands to deliver timely large-scale expansion to essential services in an environment of capacity and capital constraints. Innovative and experimental niche projects may not always fit with their core business.