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

Submission on draft report

Looking after all our water needs

Department of Water

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1 Introduction

Future population growth and economic expansion in Western Australia will result in increasing urban residential development, more intensive industrial and mining activity, and changes in agricultural production. These will increase demand for water, and in some cases will increase the volume of water available for recycling.

At the same time, in many parts of the state, lower rainfall and increased water use have led to a widespread decline in stream flows and groundwater levels. Climate change is expected to result in further reductions in rainfall and in groundwater and surface water availability.

Consequently, the importance of climate-independent and innovative water sources such as recycled water can only increase. Traditional “one-size-fits-all” water and wastewater supply systems will no longer be adequate for all circumstances. It is imperative that all barriers to the adoption of recycling are reviewed, to allow the greatest possible diversity of alternative water sources to flourish.

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.

Water recycling offers a number of potential benefits including:

- 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
- consumer benefit by satisfying a preference.

The Department of Water supports the investigation and development of water recycling as a means of providing fit-for-purpose water, wherever environmental and social values can be protected or enhanced. This is in recognition that recycled water schemes must be implemented alongside broader conservation measures to ensure water-use efficiency; effective pricing is one component of ensuring efficient use of water resources.

The *State water plan* 2007 set ‘use and recycle water wisely’ as the central objective in the policy framework, noting that demand for water will increasingly be met through conservation, efficiency and recycling.

The draft report of the *ERA’s inquiry into recycled water pricing in Western Australia* is a welcome investigation of the pricing reforms needed to support efficient water recycling. The Department of Water is supportive of most of the recommendations of

the report, including recycling targets and commercial charges where applicable. The following comments relate to selected matters raised by the report.

2 Pricing principles for recycled water from wastewater treatment plants

The department supports the ERA's proposed pricing principles for recycled water from wastewater treatment plants. Under the proposed principles, such supply would be effectively priced at its net direct costs, plus a premium for scarcity.

The department views the proposed principles as consistent with an 'impactor pays' approach. The costs are allocated to the customers that cause those costs to be incurred. Wastewater treatment plants and sewer networks were constructed to provide a service to wastewater customers.

On the other hand, the Water Services Association of Australia (WSAA) principles for recycled water pricing suggest that 'willingness to pay' should be the ceiling for prices, and that 'commercial judgement' should determine whether prices are set towards the ceiling. This is the approach currently utilised by the Water Corporation and it allows part of the sunk costs of wastewater collection and treatment to be allocated to recycled water customers.

The Department of Water does not support this approach on the basis of efficiency, equity and transparency, as will be discussed below.

The department notes that until the long run marginal costs of scheme water are implemented, cost-effective wastewater recycling initiatives may not be considered financially viable due to competition with under-priced scheme water.

A brief discussion on the presence of externalities in the water industry is presented in section seven. The intention of the Department of Water is to raise the issue of unquantified positive externalities associated with the re-use of treated wastewater. The positive externalities related to water recycling are not incorporated into current pricing practices. However, if these positive externalities were internalised it is possible that the price of recycled water would be reduced. The purpose of presenting this discussion on externalities is to reinforce the department's view that recycled water should be priced to encourage its use, rather than introduce a price reduction to wastewater collection customers.

Efficiency

It is not possible to gain an efficiency benefit by charging a premium on recycled water to recover broader wastewater scheme costs from recycled water customers. A price signal that is inflated to include costs not caused by the potential investor's decision will distort their decision. This approach could artificially limit the uptake of cost-effective recycling innovations and create a bias towards the use of surface and groundwater.

Attempting to recover broader scheme costs should not be an objective of pricing practices for wastewater sold from pre-existing treatment plants and wastewater networks.

Equity

Apart from economic efficiency, the other possible justification for requiring a contribution to broader scheme costs is equity. However, there is no equity improvement that results from requiring recycled water customers to contribute towards the cost of a scheme already established for other customers, in the absence of scarcity.

It could be argued on a ‘beneficiary pays’ approach which says that a cross-payment to the broader scheme is appropriate because the recycled water customers receive a benefit. However, the department views the ‘impactor pays’ approach of the ERA’s proposed principles as more appropriate because it is aligned with the broader objective of increasing the use of recycled water.

There is no overriding principle to guide the choice between ‘beneficiary pays’ and ‘impactor pays’ approaches. Government natural resources charges (such as pollution charges, water resource charges) are often based on an ‘impactor pays’ approach because this provides signals to encourage positive behaviour. However, the choice between ‘impactor pays’ and ‘beneficiary pays’ should be based on achieving the best overall policy outcome, in accordance with the concepts of economic efficiency and equity.

Water recycling has strong popular support in the community and many people would see the use of market power to extract scheme costs that have already been paid for as inequitable. Some people would probably even believe that recycled water users should be subsidised by other users. Furthermore, using ‘willingness to pay’ (i.e. the maximum that the utility can negotiate) in the absence of competition offers a utility substantial discretionary power and could be considered unfair. There is no reason why extracting broader scheme costs should be considered more equitable than the draft report's pricing principles.

Even if a ‘beneficiary pays’ approach were adopted, the use of ‘willingness to pay’ to define the share of ‘benefit’ that recycled water customers should pay for would be biased against these customers. The benefit that retail sewerage customers receive from their service and their ‘willingness to pay’ are likely to be substantially more than their regulated charges. Defining the benefit share of one group of users according to ‘willingness to pay’ and the other's share according to regulated charges is not an equitable ‘beneficiary pays’ approach.

There is also unlikely to be any social equity achieved from shifting costs between retail waste water customers and recycled water customers.

The department views the ERA's proposed principles as aligned with community values and the policy objective of encouraging the appropriate use of recycled water.

Transparency

An additional attraction of the draft report's proposed approach is that the recovery of direct costs is likely to align with typical public expectations. The ERA's approach transparently separates the scarcity premium price into an additional component.

The recovery of broader scheme costs from customers purchasing treated wastewater from existing treatment plants represents a shifting of costs to these customers. In effect, this can be regarded as a hidden cross-subsidy with no clear policy objective.

The department believes that charges should be transparent to existing and potential customers. These charges should also be publicly available where possible to improve awareness of the costs and savings associated with recycling.

Method of capturing current or future scarcity

Where wastewater available for recycling is scarce (that is, demand is greater than supply), it may be efficient for a scarcity value to be captured and passed to retail wastewater customers. The ERA has recommended that this be through a neutral auction process.

A neutral auction process should consider these factors:

- Competition between bidders at the time of neutral release may not reflect future demand, and the potential scarcity value of the resource may not be captured. In this instance the department notes the existence of an incentive to withhold supply.
- The sunk cost investments made by early users could create a path dependency that prevents secondary markets from reallocating water to a use that would have otherwise had a higher value use, producing a dynamically inefficient outcome.

In assessing whether a neutral auction process or a commercial negotiation process would result in an optimal outcome, the department identifies the following issues:

- It is unclear how a commercial negotiation process limited to the parties who have approached a utility can determine the true value of current or future scarcity more effectively than a neutral auction process.
- A commercial negotiation process that is not transparent gives the wastewater utility greater knowledge of the value of the water than the current potential buyers. Such knowledge can influence the 'commercial judgement' of the utility in determining 'willingness to pay' and result in a distorted price signal which would influence future investment decisions.

The Department of Water has an interest in issues related to the efficiency of neutral release of water or alternative means of capturing scarcity because similar arguments are sometimes raised in relation to the effectiveness of groundwater trade in Australia[1].

Issues for further clarification

Current and future recycling projects can have a wide range of characteristics, and a single set of principles may be difficult to fit to all situations. Modifications to the ERA's proposed approach may be required as evidence of specific cases and experience emerges, during and after the inquiry. However, the recovery of broader scheme charges should not form part of any alternative pricing model.

[1] For example, the isolated nature of groundwater infrastructure and high costs of bore construction provide for a narrow water market. Groundwater trade involves accessing more water from a bore rather than supplying more water via a channel. In practice, the high private overhead and risk of stranded assets associated with groundwater development for irrigation have limited the practical separation of groundwater property rights and land property rights. (Turral H and Fullgar I (2007)) Institutional directions in groundwater management in Australia in *The Agricultural Groundwater Revolution: Opportunities and Threats to Development* (Giordano and Villholth eds).

3 Third pipe schemes

The draft report recommended that light-handed regulatory oversight may be required for third pipe schemes operated by a monopoly provider. The department is undecided as to whether this is appropriate.

The department asks that the final report explain why light-handed regulation may be appropriate for third-pipe schemes, while fuller regulation is required for traditional water and wastewater monopolies. While the Brighton third-pipe scheme is for garden use only, it is conceivable that future third-pipe schemes could be regarded as essential services: for example some schemes in other states are used for toilet flushing.

4 Rebates and standards

The Department of Water believes that rebates and minimum standards have an important role in improving management of water resources.

Encouraging the adoption of water efficient technologies is a key part of the urban water management approach of governments and water utilities across Australia. Rebates and mandatory standards can assist this process, and they underpin the voluntary efforts that many customers have made to conserve water. In turn, increased uptake of water efficient technology drives further innovation.

Cost-effectiveness is an important consideration in rebates and standards, as there may be cheaper, alternative ways of taking less water from the environment and providing water security, for example, desalination or recycling.

An essential component of ensuring the efficient uptake of water saving technology is to ensure that all domestic customers face water prices that accurately reflect the value of water, including environmental costs. Where some customers are insulated from these price signals, the case for rebates and standards is strengthened. A rebate of the correct value would result in net avoided costs for the utility or the government.

The case for mandatory standards is strengthened where customers may purchase or lease properties with imperfect information about the property's water efficiency.

The Department of Water supports the development of a robust methodology for calculating the value of rebates and standards to water utilities and to the government.

5 Reservation of recycled water

The *State water recycling strategy* proposed that recycled water from the Beenyup wastewater treatment plant be reserved for possible future managed aquifer recharge (MAR). In its submission to the inquiry's issues paper, the department noted that this was intended to avoid the unplanned dissipation or loss of a potentially valuable resource, rather than a permanent departure from all other options.

The trialling of neutral release mechanisms could demonstrate the potential of this approach as a measure for ensuring that the value of recycled water use is maximised and avoid second-guessing the value of water.

Given the potential for MAR at Beenyup, other recycled water sources could offer opportunities to experiment with the effective design and implementation of neutral release processes.

The Department of Water supports the continued reservation of water from the Beenyup wastewater treatment plant for potential MAR.

6 Third party access

Third party access regimes can lead to innovation by providing access to smaller proponents who may introduce technological or efficiency gains to the system. An access regime may lead to decentralised provision of treated wastewater and potentially increased the supply and distribution of recycled water.

The ERA's *Inquiry into competition in the water and wastewater services sector* proposed that the New South Wales third party access regime could be used as a basis for design of a Western Australian regime. New South Wales announced that it would implement a new licensing and access regime in May 2006. The regime was implemented in August 2008.

A comparable development timetable to New South Wales could be expected, because there are still minimum time requirements associated with drafting, consultation and parliamentary process and establishment of procedures and processes. Some savings in the time required for policy development and drafting may be possible if the government and stakeholders were committed to minimal deviation from the NSW regime.

7 Pricing for externalities

The Department of Water believes that there are positive externalities associated with the use of recycled water. It is not yet possible to assign a value to these positive externalities, but they include reduced stress on groundwater and surface water and reduced pollution to waterways and oceans.

The Department of Water notes the complexities associated with quantifying and assigning a value to externalities. However to completely exclude externalities from prices effectively deems their value to be zero. While water use and wastewater discharge are regulated, it would be optimistic to claim that regulation avoids all environmental costs.

An approach that requires less quantification was considered by the Productivity Commission in their work on irrigation externalities:

Determining the optimal rate of a tax for irrigation externalities would be difficult. In Australia there appear to be few studies that would provide policy makers with estimates of the likely marginal costs of externalities to set a tax. An ideal tax (a Pigouvian tax) would need differing rates across different locations and times, to reflect the varying costs of externalities over location and time. Such an approach would be costly to design and implement. Nonetheless, introducing a quasi Pigouvian tax set below the optimum level will likely improve efficiency, with the marginal improvements in efficiency decreasing as the tax rate approaches the optimum level. Thus, one strategy might be to implement such a tax at an approximate, but conservative, level. In the future, as information improves on the likely marginal costs of externalities, the tax rate could be revised.

However, it is also arguable that including environmental externalities in the price of recycled water would only be a substitute for more effective direct charges on effluent discharge (for example, load-based licensing) or on the use of surface water and groundwater.

The department believes that there are several artificial constraints to the uptake for recycling and efficient water use. These include:

- The price of water does not always reflect true scarcity. Markets are established in some areas of full allocation. Scarcity values greatly increase in areas of over-allocation when mechanisms to reduce allocation to a sustainable level are commenced. The department is in the process of developing the ‘pathways’ to resolve over-allocation (with Gnangara as a focus) and this may increase the scarcity value considerably.
- Charges for surface water and groundwater are currently negligible. If the cost of regulation to avoid externalities (i.e. water management) was passed on to the users, both the price of scheme water (in schemes where prices are not driven by manufactured sources) and self supply water could increase.

As decreased rainfall begins to impact on water levels and flows, there will be future reductions in allocation limits, and existing licences. Currently this is anticipated to occur in some areas, however, investigation and planning may sometimes lag behind climate change. A risk based approach to planning is being followed to ensure that priority is given to planning of sources.

In this period where water reforms are being implemented, the net externalities of water recycling are almost certainly positive, even if they cannot be readily quantified.