

**SUBMISSION TO THE  
ECONOMIC REGULATION AUTHORITY'S  
INQUIRY INTO PRICING OF RECYCLED WATER IN  
WESTERN AUSTRALIA**

**RESPONSE TO THE DRAFT REPORT**

**12 December 2008**



## INTRODUCTION

The Economic Regulation Authority's (ERA) Draft Report for their Inquiry into Pricing for Recycled Water in Western Australia proposes the adoption of a number of pricing principles which the Water Corporation believes will have a variety of unintended adverse consequences for sewerage customers and the viability of recycled water schemes.

The implementation of the proposals in the Draft Report would result in:

- inequalities in sharing the cost of providing sewerage services, with sewerage customers and the Government paying more under the proposed pricing principles than under the Corporation's current pricing principles;
- viable recycling projects not proceeding due to:
  - a reduction in the incentive for the Corporation to seek out and promote new reuse opportunities (the Corporation identifies, initiates and develops most reuse opportunities); and
  - uncertainty of the proposed price regulation and the allowable after tax returns.

Many of the comments cited in the Draft Report attribute behaviours and motivations to the Corporation that do not align with reality. The Corporation is not a "rent seeking" private monopolist using all means to protect that monopoly position. Basing pricing advice on this view will result in unnecessary and inefficient regulation, which will ultimately result in higher charges to customers or in otherwise viable recycling projects not proceeding.

Key points to recognise are:

- The Corporation's revenue is regulated so there is no opportunity for the Corporation to benefit from overcharging some customers. Revenue from recycling that contributes to shared scheme costs results in lower charges for other customers and lower subsidies from Government.
- In the absence of the Corporation taking the role, there is no other entity that is willing and able to balance the interests of all customers.
- The Corporation is financially constrained due to the State Government's budget priorities. Funding is not available to undertake all the projects required to improve services to customers and projects have to be prioritised. The Corporation would prefer that private companies undertake investments in recycling projects so that other necessary projects to improve services can proceed with the limited funding available. The Corporation encourages private participation and should not be considered a potential competitor.

- Customers who are asked to pay for something where there is no ready comparison often complain that they are paying too much. This does not make it true and is unlikely when there is no incentive for overcharging. The real issue is one of the efficiency and equity of the charges, and these outcomes that benefit customers collectively will not always be perceived as fair by individual customers.

Fundamentally, a government owned, financially regulated entity is primarily interested in:

- the efficient and sustainable use of resources, including recycled water; and
- the equitable sharing of costs between customers.

The Corporation has by far the best knowledge of the physical systems, customers and commercial requirements to optimise arrangements. It also has the greatest motivation to progress recycling opportunities. A pricing model must recognise these realities if it is going to result in the optimal development of water recycling.

The Draft Report promotes principles of equity and efficiency as desired outcomes for any pricing approach, yet the draft recommendations would not deliver these outcomes:

**Equity:** as currently drafted, the financial benefits from a recycled water project would only go to the user of that recycled water. The proposed pricing principles remove all rights of the providers of that water (that is, the households producing the wastewater) to share in any benefit. This is akin to forcing all producers to give away any bi-product resulting from the production of their primary good.

**Efficiency:** The Draft Report appears to have focused on the demand side for recycled water and dismissed the importance of the supply side. Maximising the efficient pursuit of recycled water opportunities can only be achieved if:

- all potential parties (including the providers of the wastewater) have an incentive to seek out recycled water opportunities;
- the benefits of advanced planning are realised, which includes consideration of future potential users of recycled water; and
- the project realities, including financial constraints and service provision objectives (as opposed to pure profit seeking) of participants are recognised.

The attachments to this submission provide examples of how the proposed pricing principles would work in practice and their unintended consequences. The Corporation urges the ERA to reconsider. We recommend the adoption of the pricing principles proposed by the Corporation in our original 12 September 2008 submission which are based on the Water Services Association of Australia principles, and are consistent with COAG and National Water Initiative pricing requirements.

## COMMENTS ON THE DRAFT RECOMMENDATIONS AND FINDINGS

### Recommendations and Findings not supported

#### Recommendation 1

Recycled water from wastewater treatment plants should be priced to reflect the prices that would emerge under a competitive market. These prices would have three components:

- A charge associated with the costs of delivering the recycled water to the customer, including any incremental costs that might be incurred in treating the wastewater to be fit for purpose.
- A negative adjustment in price to take into account any costs that are avoided as a result of selling the recycled water. For example, the operating costs of discharging the wastewater to the environment would be avoided.
- If the amount of wastewater available to be recycled is less than the demand for the recycled water, then an additional premium would be added to the price to reflect its relative scarcity. The premium should be determined by a neutral auctioning process.

These guiding principles would complement, and may be superseded by, pricing principles that would be established under a third party access regime.

The proposed pricing components in the Draft Report result in lower bound<sup>1</sup> prices for recycled water (and therefore higher sewerage charges) in all cases where one customer is seeking a recycled water service or there is no immediate scarcity.

In applying these principles, it is assumed that no one has any rights to the wastewater, and the Corporation simply provides a conveyance service. However, this proposal is inconsistent with the result that would occur with a competitive market under an access regime, which would include competition for sewerage customers (the resource). This would result in some of the value of the recycled water being passed on sewerage customers. A competitive market price would be between lower bound and upper bound prices, consistent with the outcome negotiated under the Corporation's pricing principles (see Attachment 1 for a more detailed analysis).

The standard inclusion of a negative adjustment to account for any costs that would be avoided as a result of selling recycled water would not be practical. It would result in:

- sewerage customers paying higher charges and the Government paying greater subsidies than under the Corporation's current pricing principles;

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<sup>1</sup> Lower bound pricing is the minimum charge possible without incurring a subsidy from other customers or taxpayers, upper bound prices are the highest prices that could be charged before the customer would by-pass using the service.

- the removal of the financial incentive for the Corporation to seek alternative reused options in place of standard effluent disposal methods, eliminating one of the motivations to undertake reuse schemes;
- depending how the term “avoidable costs” is interpreted, it could lead to the Corporation being forced to undertake unnecessary non-core activities in competition with local organisations.

Furthermore, scarcity of recycled water should not change the principles behind how prices are determined. Under the proposal in the Draft Report, scarcity triggers the need to charge a premium. Under an access regime, a premium is always possible. Scarcity does not change this principle, but simply increases the value of that premium with the increased competition for customers.

#### **Recommendations 4 and 5**

- 4) In the case of third pipe schemes, where services are provided by a monopoly provider and customers do not have an alternative supply option, some form of light-handed regulatory oversight may be required to check that the rate of return is not unreasonably high.
- 5) Analysis of the Water Corporation’s non-potable supply charges to residents of Brighton Estate indicates that the rate of return appears very high relative to the risks of the project.

These recommendations suggest regulation of the rate of return on commercially negotiated contracts that do not arise from any monopoly power. The provision of third pipe schemes is negotiated with developers on a commercial basis. The service provider, whether it is the Corporation or a private company, is a voluntary participant and imposing an additional regulation risk on the project would either result in higher charges or the project not proceeding.

Light handed regulation should be limited to ensuring the utility does not change the terms of the agreement to exploit a monopoly position once the developer is no longer present. An alternative would be for the proponents to seek the ERA’s endorsement of the terms of the agreements before they decided whether to proceed with a project.

It should be noted that:

- Companies are motivated to achieve after tax returns and any assessment of these agreements should be on an after tax basis. Presenting before tax returns for individual projects involving developer contributions can grossly distort the actual returns achieved (see Attachment 2 for details). Regulating prices and returns on a before tax basis would mean that some viable projects would not be undertaken, either by the Corporation or by private companies.

As an example, the Corporation’s charges for Brighton Estate are as low as possible to recover costs, including our minimum after tax return target. These

prices were negotiated to facilitate a demonstration project that both parties wanted to proceed. To suggest that the rate of return appears very high is a reflection of the distortion created by focussing on before tax returns. Any lower price would mean that the project could not proceed.

- Making participation in a third-pipe scheme (and payment of charges) optional would result in the need for a higher return on investment to compensate for the additional risk, increasing the overall revenue requirement. As a result, charges for customers using the service would have to be more than proportionally higher than simply paying for the costs of the non-participants and project viability would be harder to achieve.

#### **Recommendation 10**

The reservation of water supplies for specific purposes involves second-guessing the value of water to users. Whenever wastewater is a scarce resource, it should be allocated using a neutral auctioning process.

Allocation of resources using an auctioning process can be inefficient. It is a misplaced faith to believe in the efficiency of market mechanisms where all the potential customers cannot be present for the initial auction and secondary markets are likely to be inefficient.

The nature of water is that it is a relatively low cost input that supports significant (sunk) investments, which means that secondary markets cannot be relied on to subsequently reallocate resources to higher value uses. Once committed to a low value use with significant sunk costs, the value required to cause the resource to be transferred in a secondary market has to be higher than the existing use *plus* the sunk costs.

Additionally, where the water is used by service orientated organisations (eg local authorities) rather than profit orientated organisations, even a clear financial gain may not be enough to encourage transfer to a higher value use.

In the absence of a functioning secondary market, optimising the use of recycled water can only be achieved by long-term planning. In these circumstances, planning is not a process of “second guessing” that would be better performed by a market (see Attachment 3 for details).

## **Recommendation and Findings supported**

- 2) The price of water from recycling plants that are not providing a service to regulated customers is a commercial matter between the service provider and its recycled water customers.
- 3) The Kwinana Water Reclamation Plant should be treated as a commercial venture between the Water Corporation and industrial customers, without any regulatory oversight of prices.
- 6) All metropolitan commercial customers should be treated equally and transitioned faster to cost-reflective usage charges (by 2010 rather than 2014). (The Authority is considering the issues of usage charges for commercial customers in its inquiry into the tariffs of the Water Corporation, Aqwest and Busselton Water.)
- 7) In the absence of a competitive market in the provision of recycled water projects, recycling targets can provide an incentive for service providers to seek out and invest in cost effective recycling options.
- 8) The cost effectiveness of rebates will depend on the cost per kilolitre saved, where the cost is the cost of the rebate plus the additional installation costs to the customer. The Authority will be investigating this further.
- 9) As with rebates, the cost effectiveness of mandatory standards will depend on the cost per kilolitre of water saved. The Authority will be investigating this further.
- 11) A State-based third party access regime should be introduced. This would allow third parties access to the wastewater network for the purpose of providing recycled water.

## ATTACHMENT 1

### Prices in a competitive market

Recommendation 1 of the Draft Report states “*recycled water from wastewater treatment plants should be priced to reflect the prices that would emerge under a competitive market*” and “*the guiding principles would complement, and may be superseded by, pricing principles that would be established under a third part access regime.*”

The three pricing components proposed in the recommendation do not reflect these objectives. Page 24 of the Draft Report states:

*“where there is no scarcity, prices should not be set above incremental costs and recycled water customers should not make any contribution towards joint costs.*

- *Pricing above incremental cost where there is no scarcity could result in recycling projects not proceeding, even though they could lower the overall costs of water and wastewater provision.*
- *The joint costs associated with providing the wastewater network are not costs that have been caused by the recycled water customer, and are therefore not appropriately recovered from those customers. Rather, recycled water customers can reduce costs to users of the network. For example, removal of wastewater by recycling customers can free up capacity on the wastewater network and can delay the need to increase the capacity of the wastewater system.”*

Recycled water customers value the product and will proceed with projects at prices above the incremental cost. Where prices are negotiated on a project by project basis, pricing recycled water above incremental cost based on a customer’s willingness to pay will not result in “*recycling project not proceeding*”. Prices would be negotiated down to as low as the avoidable cost if this was all the customer was willing to pay and therefore all viable projects would proceed and all potential cost savings would be realised.

Recycled water is a joint product of a sewerage scheme. The idea that recycled water customers should not make a contribution to joint costs is not supported by what would happen in a competitive market.

In the theoretical world of a perfectly competitive market, producers have to maximise their revenue from one joint product to remain competitive in the market for the other joint product. For example, a company failing to maximise recycled water net revenue (revenue + avoided costs) and therefore maximising the contribution to joint costs would be uncompetitive in the provision of their sewerage services.

Recommendation 1 states “*The guiding principles would complement, and may be superseded by, pricing principles that would be established under a third party access regime*”.



The proposed guiding principles appear incomplete against this criterion as they leave out the possibility of the retail competition required to obtain access to the resource. If an alternative sewerage retailer could access the monopoly transport and treatment services, they would be able to offer lower sewerage rates by selling recycled water for a price that contributed to joint costs. Under a competitive third part access regime, it could therefore be expected that recycled water prices would be negotiated to a point somewhere between lower bound and upper bound prices, which is consistent with the Corporation's pricing principles.

### **What are the avoided costs?**

Recommendation 1 states *"A negative adjustment in price to take into account any costs that are avoided as a result of selling the recycled water. For example, the operating costs of discharging the wastewater to the environment would be avoided."*

From discussion with the ERA it would appear that the interpretation of the meaning "avoided cost" is ambiguous.

A simple reading would suggest that if, for example, in the absence of recycling, a treatment plant would have to be augmented, then the avoided cost to be included in the price calculation would be the cost saved by not augmenting the treatment plant.

A more sophisticated view could be that if reuse is the most efficient disposal method, then the regulator should only recognise efficient costs, so that the avoided cost would not include the cost of avoiding augmenting the treatment plant.

Unfortunately, the more sophisticated view is not that useful in practice, as in many cases, the Corporation would have to price below this view of "avoided cost" due to the market power of the customer. For example, if the irrigation of a golf course is a disposal method that is cheaper than the alternative of augmenting or upgrading the treatment plant, this situation can require the cost of delivering the recycled water to be funded by the Corporation (and subsequently paid for by our sewerage customers). This would not be consistent with *"a charge associated with the cost of delivering the recycled water"* less the *"avoidable costs"* required by the proposed approach. It would result in a lower, negative price compared to that which would result from the proposed pricing components recommended in the Draft Report and would reflect the market power of the golf course owner.

If the golf course owner's market power is factored into the avoided costs, avoided costs are negotiable. Under this view of avoided costs, the Corporation would try to negotiate the best price possible based on the customers willingness to pay, but only if it were below the cost of pipe work to deliver the recycled water. Changing the pricing approach at this particular price point appears artificial.

If the simple view of avoided cost is taken, then the proposed pricing approach has some unintended outcomes illustrated by the following example.

### **Example 1**

A small country sewerage scheme serving 1000 properties with a sewerage disposal problem as the existing plant does not meet the environmental regulator's requirement to contain discharges to the environment. The alternatives are to upgrade the treatment plant for \$5 million or dispose of the effluent by irrigating the local golf course.

Total revenue from sewerage rates is currently \$500,000 per annum and the average bill is \$500 per annum.

The owner is very keen to have the golf course reticulated but doesn't have the financial capacity to install the \$500,000 of pipework required, but is willing to pay the ongoing operating costs.

#### **Outcome based on the Water Corporation's pricing principles:**

The Corporation installs the pipework for the golf course and enters into a recycled water supply agreement with a zero price for water. Sewerage rates are increased by \$50,000 per annum to recover the cost of the pipework and average sewerage bills go up by \$50 per annum.

#### **Outcome based on the pricing principles proposed in the Draft Report:**

The guiding principles allow for the following components to be included in the recycled water price:

- 1) A charge associated with the costs of delivering the recycled water to the customer, including any incremental costs that might be incurred in treating the wastewater to be fit for purpose.
- 2) A negative adjustment in price to take into account any costs that are avoided as a result of selling the recycled water.

#### ***Step 1***

The Corporation considers installing the pipe work for the golf course for \$500,000 and then adjusting the price for the avoided cost of \$5m saved by not augmenting the treatment plant (the negative adjustment required by the second pricing component, 2 above).

If this option were to proceed, sewerage charges would need to be increased by \$450,000 per annum or 90%, and average sewerage bills would need to go up by \$450 per annum to \$950.

The owner of the golf course makes a \$4.5 million windfall profit. Expenditure on other water service infrastructure in Western Australia would be reduced by \$4.5 million.

If the golf course was the only available alternative disposal method, the Corporation and Government may choose the greater certainty of disposal by augmenting the treatment plant, and the community may miss out on the benefit of an irrigated golf course.

If taken to the extreme, in the absence of other drivers to encourage recycling, the proposed pricing principles could result in the recycling opportunity not even being considered as there would be no advantage to the Corporation's customers and no reason for the golf course to recognise the opportunity.

### ***Step 2***

The Corporation would consider what alternative disposal options were available and would consider whether it could buy the golf course for less than \$4.5 million.

**Alternative A** – there is no other disposal method available but the Corporation can buy the golf course for (say) \$1 million (land value only, the current owner does not recognise his market power).

The pricing principles force the Corporation to enter the golf course business. The Corporation buys the golf course and spends \$500,000 installing pipes.

Sewerage charges would need to increase by \$110,000 per annum or 22%, and average sewerage bills would go up by \$110 per annum.

The ERA would struggle to recognise a golf course as part of the asset base for the sewerage scheme and the Corporation would therefore have difficulty justifying this option even though it is much cheaper than paying the existing owner a \$4.5 million windfall.

**Alternative 2** – there is another disposal option. There is a piece of land available for \$250,000 suitable for irrigating and being planted with trees.

The Corporation can buy the land, install \$500,000 of pipes and plant trees. Revenue from the trees will return the planting and maintenance costs. Revenue would need to be increased by \$65,000 or 13% under this option and average bills would increase by \$65 per annum.

The town golf course would remain unirrigated, reducing the level of amenity in the town, and average sewerage bills would be \$15 per annum higher than with the Corporation's pricing principles.

### **Summary**

The sewerage customers are worse off under all circumstances with the pricing principles proposed in the Draft Report.

The community could be worse off if the pricing principles force the Corporation to develop an alternative disposal method (a treatment plant or tree irrigation) as they will not receive the benefits of having an irrigated golf course in the town.

## **ATTACHMENT 2**

### **Pre-tax vs post tax assessment of returns**

The primary financial objective of commercial entities is to make post-tax returns for their owners. Projects that are not expected to deliver a company's risk adjusted, post tax target rate of return will not proceed.

Water regulators often express the rate of return in their pricing models in pre-tax terms. This rate is based on the post tax return required by the market, but is back calculated for an industry based financial structure, rather than the particular structure of the company being regulated. The quite correct reasoning behind this approach is that customers should not have to pay higher prices because a company has an inefficient financial structure.

A problem occurs if this thinking is applied to pricing at the project level. Project cash flows and risks are unlikely to match a water industry norm and simply applying the water industry before tax average has the potential to result in prices that would not be high enough to sustain an otherwise viable project.

This is particularly true of an arrangement where the majority of the initial assets are constructed by a third party and gifted to the Corporation (or another private organisation) resulting in a large upfront tax liability to the utility provider. Pricing principles at a project level need to recognise this liability.

### **Example 2**

- A land developer constructs a non-potable supply and hands it over to the Corporation who is responsible for operating and maintaining the assets.
- The land developer recovers the cost of the initial construction through the sale of the land, with land purchasers paying market prices (not cost plus).
- The Corporation recovers its costs through annual charges.
- For the sake of simplicity, assume the project has a 10 year life.

The Internal Rate of Return (IRR) based on the Water Corporation's cash flows is shown in Table 1 on the following page.

As noted in the table, an otherwise very high pre-tax return of 21.4% is the equivalent of a modest 4.5% post-tax return for the same revenue stream. The main difference being the recognition of a large upfront tax liability associated with handover assets.

Failure of a regulator to recognise the post tax returns required at the project level would result in either:

- 1) A lower price path to the utility, resulting in the project not proceeding as the project cash flows (which include tax) would not be a viable investment; or

- 2) The Corporation funding the construction of the assets. This requirement neglects the financial constraints placed on the Corporation as a result of the State's budget constraints. It would also result in higher overall charges to the new landowner who still pays market prices for the land and would now pay a higher annual charge; or
- 3) The Corporation recovering the tax liability from another party – presumably the land developer, potentially jeopardising their willingness to pursue the project.

Pricing at a project level needs to consider the arrangement in its entirety, not simply the annual charges to customers. These considerations should include recognition of the tax implications and the willingness or ability of each party to contract.

The Corporation acknowledges that light handed regulation may be justified in some circumstances, if for no other reason than to give customers comfort that the prices are reasonable. In saying this however, care should be taken in prescribing an approach that could jeopardise an otherwise viable commercial project, the terms of which may be acceptable to all parties.

**Table 1**

Effective Tax Rate	30%
Initial Water Corp Capex	100,000
Assets Handed Over	1,000,000
Project Life	10
Annual Opex	50,000

<b>POST TAX CALCULATION</b>	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Water Corp Capex	- 100,000	-	-	-	-	-	-	-	-	-	-
Annual Charges	-	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000
Opex & Maintenance	-	- 50,000	- 50,000	- 50,000	- 50,000	- 50,000	- 50,000	- 50,000	- 50,000	- 50,000	- 50,000
Tax Benefit / (Cost)	- 300,000	25,500	25,500	25,500	25,500	25,500	25,500	25,500	25,500	25,500	25,500
<b>Net Annual Cashflow</b>	<b>- 400,000</b>	<b>50,500</b>	<b>50,500</b>	<b>50,500</b>	<b>50,500</b>	<b>50,500</b>	<b>50,500</b>	<b>50,500</b>	<b>50,500</b>	<b>50,500</b>	<b>50,500</b>
<b>IRR</b>	<b>4.5%</b>										

<b>PRE-TAX CALCULATION</b>	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Water Corp Capex	- 100,000	-	-	-	-	-	-	-	-	-	-
Annual Charges	-	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000
Opex & Maintenance	-	- 50,000	- 50,000	- 50,000	- 50,000	- 50,000	- 50,000	- 50,000	- 50,000	- 50,000	- 50,000
<b>Net Pre-Tax Cashflow</b>	<b>- 100,000</b>	<b>25,000</b>	<b>25,000</b>	<b>25,000</b>	<b>25,000</b>	<b>25,000</b>	<b>25,000</b>	<b>25,000</b>	<b>25,000</b>	<b>25,000</b>	<b>25,000</b>
<b>IRR</b>	<b>21.4%</b>										

## **ATTACHMENT 3**

The Draft Report recommends that the allocation of recycled water should be on a first come first service basis (in the absence of scarcity) and through a neutral auctioning process when the resource is scarce. This will not lead to an optimal long-term use of resources. This policy would repeat the mistakes made with irrigation development, where a short-term, develop at all costs approach lead to water being committed to relatively low value uses, and subsequently cities around Australia having to develop expensive alternative to meet their water needs.

Secondary water trading markets cannot solve this problem. Irrigation water is not being traded to what would have been higher value uses due to a combination of the need to support sunk costs in irrigation infrastructure (e.g. the need for exit fees to avoid burdening other irrigators with the cost of maintaining under-utilised distribution systems as well as sunk on-farm investments) and resistance from rural communities to losing the industries that they support and which are the reason for their existence. These are real costs which need to be factored into any water trade, and trying to force trading by abolishing exit fees and ignoring external social costs will result in transfers of value away from rural communities, and not necessarily to a higher value use. A higher value use needs to compensate for the value that was consumed by the earlier decision to proceed with low value development of the water resources.

A longer-term planned approach gives a better outcome when all the potential customers are not in the room for an auction. The following example shows how premature allocation results in a sub-optimal outcome and provides a numeric demonstration of how the sunk cost associated with utilising recycled water would distort any future secondary market for the resource with the potential to compromise the realisation of the full value of the resource.

### **Example 3**

The Corporation has a number of recycled water supply agreements with companies that are prepared to pay between 20c/kL and 60c/kL. The Corporation is aware that the water resources near a town are almost fully allocated, and any major project that comes along after the next 5 years will have difficulty obtaining low cost water supplies.

The volume of recycled water available is 500,000kL per annum.

There are currently two potential customers, neither of which offer a particularly high value add, and this is reflected in their ability to pay:

- The local golf course would need to spend \$250,000 to utilise effluent;
- A vineyard would have to spend \$1.5 million to utilise the effluent.

**Alternative A** – the resource is auctioned under the approach proposed in the Draft Report. A 15 year supply is offered.

An auction is held and the vineyard wins when the bidding reaches 1c/kL, the value to the golf course (\$5,000 pa). The vineyard could have paid up to 10c/kL before their project would become unviable.

**Alternative B** – the Corporation negotiates with both parties.

The golf course is willing to take water for 1c/kL on the basis that if a higher value use emerges, it will be compensated for the written down value of the investment in the pipe work required to deliver the recycled water.

The grape grower is unwilling to commit to the price the Corporation expects to achieve in the long-term and withdraws.

The outcome of the negotiation is the Corporation agrees to sell the effluent to the golf course for 1c/kL, with the option to terminate in the future with compensation to be paid to the golf course. The option value is assessed to be greater than the return from committing to the grape grower.

### **Outcome**

As expected, a new customer emerges after 5 years that is willing to pay 30c/kL for a long-term recycled water supply.

- Under Alternative A, this price would not be enough for the grape grower to transfer the recycled water to the project. Having invested \$1.5 million in his business to utilise the water, the price needed to encourage the transfer of water from an activity that initially added 10c/kL in value is 43c/kL (at a 10% return on the sunk cost after 5 years). The project with the 30c/kL value does not proceed.
- Under Alternative B, the Corporation would need 5c/kL to justify terminating the agreement with the golf course and to provide \$167,000 in compensation. The recycled water can therefore be transferred, and the new higher value project can proceed.

The present value of the value added by the recycled water over the 15 year period under each alternative is \$485,000 for Alternative A and \$720,000 for Alternative B.

The example above requires a commercial judgement as to whether the prospect of a future, higher value customer in is worth foregoing for the certainty of committing to a lower value customer today. This issue would not be better resolved by auctioning the entitlement or through secondary market transfers as the prospective future customers will not be a party at the initial auction and the sunk costs associated with utilising the recycled water will distort the market for secondary water trades.