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R.Williams
9 March 2006

Recycled Water Price Review
Independent Pricing and Regulatory Tribunal
PO Box Q290
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Dear Sir

Review of Pricing Arrangements for Recycled Water and Sewer Mining for the Metropolitan Water Agencies

Please find enclosed our submission on the above review for Gosford City Council.

If you wish to discuss the submission please do not hesitate to contact the Director, Water and Sewer, Rod Williams on 4325 8980 or the Manager Regulatory Services, Steve Diffey on 4368 3363.

Yours faithfully

Peter Wilson
GENERAL MANAGER

GOSFORD CITY COUNCIL

SUBMISSION TO

INDEPENDENT PRICING AND REGULATORY TRIBUNAL

PRICING OF RECYCLED WATER FOR GOSFORD CITY COUNCIL

MARCH 2006

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1. INTRODUCTION

Gosford City Council and Wyong Shire Council jointly manage the water supply for the Central Coast. The Gosford-Wyong Councils' Water Authority has developed WaterPlan 2050 to provide a long term water supply strategy, addressing issues associated with future water supply security. A key focus of WaterPlan 2050 is to reduce reliance on surface water sources and establish a more diverse water supply. As a result GCC now wish to investigate the feasibility of reducing demand on the potable water supply through recycling wastewater and stormwater in the Gosford LGA.

The Independent Pricing and Regulatory Tribunal of NSW (IPART) is currently conducting a review of prices for recycled water services provided by the four metropolitan retail water agencies in NSW, including Gosford City Council. As part of the review IPART is also considering the pricing arrangements for sewer mining.

This submission provides an overview of Gosford Council's current and potential future water recycling initiatives and sets out Council's preferred method for pricing of recycled water, whether the source is treated wastewater, water extracted from sewer carriers or collected stormwater.

2. EXISTING RECYCLED WATER SCHEMES IN GOSFORD CITY COUNCIL

Gosford City Council currently reuses some of the treated wastewater produced at its 2 sewage treatment plants at Kincumber and Woy Woy. Approximately 180 ML per annum of treated or reclaimed water is used at Kincumber STP for purposes such as washing down and hosing of plant process and equipment, truck wash down, filling of tankers for sewer jetting and cleaning purposes, and for filling a sewer rising main surge tank adjacent Kincumber STP. Approximately 169 ML per annum is used at Woy Woy STP for internal plant processes such as wash down and hosing of equipment.

The use of reclaimed wastewater has been practiced at these plants since their commissioning and does not represent a recent replacement of potable water use. It has traditionally been seen as a useful operating efficiency to use reclaimed wastewater for purposes that do not require potable water use, but no dollar value has ever been put on the reclaimed water product.

Gosford City Council currently does not provide or sell any reclaimed or treated wastewater or recycled water in any form to any external businesses at this time. As such there has been no driver to formulate a recycled water price to this point. Therefore Gosford City Council does not currently have a set price for reclaimed wastewater or "recycled water".

3. FUTURE RECYCLED WATER PROJECTS/SCHEMES

Given the dwindling water storage levels on the Central Coast and increasing financial viability of recycled water products Gosford City Council now employs an officer (titled the New Water Projects Officer) to oversee the development of alternative sources of water that may replace or supplement current potable water use. Currently Council is in the process of constructing some small-scale recycled water schemes. These are as follows:

Recycled water tanker filling station

A tertiary filtration and disinfection package plant located at Kincumber STP will produce recycled water for filling of Council and Council contractor tankers. The recycled water will be used for dust suppression, road works and construction, roadside garden watering and landscaping work. The project is due for commissioning in August/September 2006 with an estimated demand of 36.5 ML per annum. The plant will have a maximum recycled water production capacity of 73 ML per annum.

This project will allow replacement of potable water usage. All recycled water will be used for internal Council projects and purposes e.g. roads, construction, watering of Council lawns and gardens, and as such no charge will be assigned to the product and no income will be generated by the "sale" of the recycled water.

Sewer Mining Demonstration plant

Gosford racecourse is one of the top 15 users of potable water in the Gosford City Council Local Government Area. The majority of the consumption is related to irrigation of the racecourse itself. In recent months the racecourse has been extracting groundwater via spear points in an effort to minimise potable water consumption. However, the groundwater extracted is quite brackish and extended use may adversely affect the state of the racecourse. This has lead to the opportunity of installing a sewer mining demonstration plant for irrigation purposes at the racecourse.

Gosford City Council is funding the installation of a sewer mining demonstration plant at Gosford Race Course. Sewage will be extracted from an adjacent sewer carrier and processed via a subsurface flow constructed wetland. The recycled water produced will be used for irrigation of the racecourse and nearby Adcock park playing fields. The recycled water will be a supplement and possible replacement for the groundwater (from spear points) that is currently used to irrigate these facilities. The demonstration plant is expected to have a production capacity of 75 ML per annum.

The project is expected to be commissioned in early 2007 and represents a project that will investigate the viability and practicality of sewer mining and treatment by Gosford City Council for irrigation purposes. As this is a demonstration plant the main imperative is to get the project up and running. Council intends to negotiate with the Racecourse Board to establish a fair and equitable price for the recycled water product, taking into account the cost of extraction and production, potable water saved and the fact that the racecourse already has the alternate groundwater source. This IPART Determination may therefore have an impact on the final price negotiated.

4. POTENTIAL FUTURE WATER RECYCLING INITIATIVES

Gosford City Council has commenced a project called the Water Recycling Initiatives Study and has engaged consultants Kellogg Brown and Root (KBR) to assist Council in investigating a wide range of water recycling options that could be implemented in the Gosford Local Government Area (LGA). The objective of the Study is to define a programme of specific recycling projects which can be implemented cost effectively and provide a sustainable reduction in potable water consumption and a more diverse water supply.

The wide range of options for investigation includes:

- Recycled wastewater - large and small scale dual reticulation supply from STPs, localised sewer mining and augmentation of existing schemes for non-potable use;
- Stormwater harvesting -collection and reuse for non-potable activities. This may incorporate the use of urban lakes, small dams and ponds for stormwater storage and treatment;
- Aquifer storage and recovery - stormwater (or treated effluent) injection into groundwater for subsequent use for potable or non-potable use;
- Indirect potable reuse - transfer of recycled effluent or stormwater back to either Mangrove Creek or Mooney Mooney Creek storage dams;
- Environmental flow substitution - transfer of recycled effluent, or stormwater, to below Mooney Mooney Dam for environmental flows to increase the water supply system yields.

The scope of work for the Study includes:

- A market assessment to ensure that there is an appropriate demand for the product;
- An understanding of any statutory requirements that may constrain the options identified;
- Coarse screening of the options identified in the first stage, to develop a short list of options for detailed investigation and sustainability assessment. Options that are unsuitable due to unacceptable environmental or social impacts, excessive cost, logistical difficulties, statutory barriers, difference between supply and demand and lack of stakeholder support will be eliminated;
- Development of a triple bottom line (TBL) framework for the assessment of options. Suitable environmental, social and economic criteria and indicators will be determined in consultation with key stakeholders;
- Economic and financial assessment to eliminate unaffordable options by assessing the Net Present Value over a 30 year life cycle of the project;
- Project Assessment Workshop with key stakeholders to review and finalise the TBL criteria and short list the options for consideration;
- Prioritisation of the projects using the TBL framework developed at the workshop;
- Preparation of feasibility briefs for high priority projects, detailing concept design, preliminary costing and preliminary environmental impact assessment.

A project assessment workshop was held on Tuesday 7 March 2006 with the main objective of the workshop being to provide a forum for stakeholders to review and finalise the TBL framework and reach agreement on a short list of options to which the TBL analysis will be applied. It also provided the opportunity for a full briefing of the background to the study and allowed any additional issues to be raised.

The options currently under investigation include (but are not limited to):

Option	Potential Projects	Quality*	Volume per year (ML/a)*
Dual Reticulation Options			
1	Advance treatment plant at Kincumber treatment works to supply local users in Kincumber only (open space and industrial)	Advanced Tertiary Treatment	42.6
2	Advance treatment plant at Kincumber treatment works to supply Kincumber, Gosford and West Gosford (open space only)	Tertiary Treatment	159.7
3	Advance treatment plant at Kincumber treatment works to supply Kincumber, Gosford and West Gosford (open space and industrial)	Advanced Tertiary Treatment	275.6
4	Advance treatment plant at Kincumber treatment works to supply Kincumber, Gosford and West Gosford (open space and industrial) & Gosford CBD (commercial)	Advanced Tertiary Treatment	275.6
5	Option 4 plus extension to Somersby	Advanced Tertiary Treatment	423
6	Option 5 plus extension to downstream of Mooney Mooney Dam for environmental flow substitution	Advanced Tertiary Treatment	423
7	Option 5 plus extension to Mooney Mooney Dam for indirect potable supply	Advanced Tertiary Treatment	423
8	Option 5 plus extension to Wyoming/Lisarow (in list at this stage but unlikely to be cost effective)	Advanced Tertiary Treatment	550
Sewer Mining Options			
9	Terrigal sewer mining scheme (open space and commercial ie. Crowne Plaza)	Advanced Tertiary Treatment	63 - 107
10	Lisarow sewer mining scheme (open space and industrial)	Advanced Tertiary Treatment	143 - 244
11	Somersby sewer mining scheme	Advanced	246 - 418

Option	Potential Projects	Quality*	Volume per year (ML/a)*
	(industrial)	Tertiary Treatment	
12	Davistown sewer mining scheme - from secondary effluent main (vacuum SPS supply)	Advanced Tertiary Treatment	5
13	Everglades sewer mining scheme - from secondary effluent main (open space)	Tertiary Treatment	Unknown
14	Woy Woy sewer mining scheme - from secondary effluent main (open space and industrial)	Advanced Tertiary Treatment	Unknown
15	West Gosford sewer mining scheme (open space only)	Tertiary Treatment	40 - 68
16	West Gosford sewer mining scheme (open space and industrial)	Advanced Tertiary Treatment	628 - 1068
17	Kibble Park sewer mining scheme (open space only)	Tertiary Treatment	0.06 - 0.10
18	St Huberts Island sewer mining scheme (vacuum SPS supply)	Advanced Tertiary Treatment	60 - 102
Stormwater harvesting options			
19	Siletta Road retarding basin stormwater harvesting scheme to supply local users in Lisarow	Unknown	Unknown
20	Pecan Close retarding basin stormwater harvesting scheme to supply a couple of local open space users in Wyoming	Unknown	Unknown
21	Tarragal Glen storage ponds stormwater harvesting scheme to supply Retirement Village and adjacent nurseries (4)	Unknown	Unknown
22	Oberton Street retarding basin stormwater harvesting scheme to supply local users in terrigal (although not closely situated)	Unknown	Unknown
23	Investigate the potential of the Railway Dams for stormwater harvesting scheme to supply users in West Gosford	Unknown	Unknown
Aquifer storage recovery options			
24	Investigate potential of Ag dam or Railway dams to supply stormwater for groundwater injection at Narara bore field	Unknown	Unknown
25	Advance treatment plant at Narara (off main Lisarow/Niagara Park Carrier) to supply ATE for groundwater injection at Narara bore field	Unknown	Unknown

Option	Potential Projects	Quality*	Volume per year (ML/a)*
26	Additional infiltration devices in Woy Woy to enhance groundwater infiltration in Woy Woy	Unknown	Unknown
27	Woy Woy sewer mining scheme from secondary effluent main for groundwater injection at Woy Woy bore field	Unknown	Unknown

* Some details in this table are unavailable due to the early stage of much of the investigation

As discussed in section 3 of this submission, the recycled water tanker filling station and the demonstration sewer mining plant will become operational during the next (06/07 to 08/09) IPART determination price path.

At the time of writing of this submission the outcomes from the WRI workshop had not been released so Council is not currently in a position to speculate on which of the above projects may proceed. It is therefore difficult to provide an indication of likely timing or priority of resulting projects/schemes. The extent of the list may give IPART some indication of how seriously Gosford City Council is taking the recycled water debate. Unfortunately funds are clearly far from unlimited meaning that Council must chose the most cost effective and beneficial projects to proceed with.

5. CONSIDERATION OF ISSUES RAISED IN IPART ISSUES PAPER

Many of the points raised by IPART in its Issues Paper are of interest to Gosford City Council. General discussion of these main points is set out below (referencing the relevant clause within the Issues Paper).

Clause 4.1.2 - Direct costs of supply

Council is of the view that wherever possible a full cost recovery approach should be adopted for purposes of sale of recycled water. The WRI Study currently underway will identify projects that are clearly "affordable" (from a TBL perspective). As identified by IPART, costs for different projects can vary significantly. Council believes that this situation makes it difficult or viable to set a single price for recycled water and that the final price of the recycled water product to the costumer should be determined via a framework or methodology approved by IPART, which takes into account the real cost of delivering the service. This is discussed in detail in section 6 of this submission.

Clause 4.1.3 - Joint costs

Council accepts that costs of producing recycled water can be shared with the provision of other services. Council feels however that this cost should be reflected in a notional value of the "raw" product produced in other services. Treated effluent should be given a notional value per KL to be used in the pricing methodology to determine a recycled water price. This is discussed in detail in section 6 of this submission.

Clause 4.1.4 - Avoided costs

Gosford City Council is currently in a drought situation where demand exceeds supply. Consequently additional supplies are being sourced. Water recycling may defer other contingency supplies i.e. groundwater and desalination which could be considered an avoided cost. Water recycling may provide a cheaper alternative to meeting the supply demand deficit.

Water recycling via sewer mining results in minor avoided cost such as:

- Operational (transport and treatment of sewage);
- Capital (deferred growth related upgrades).

Clause 4.1.5 - External cost and benefits

An additional external benefit associated with recycled water is the social benefits including:

- ensuring functional playing fields;
- aesthetic improvements to parks and gardens.

These benefits are of high value to the community, however are extremely difficult to attach a dollar figure to.

Clause 4.1.6 - Costs of meeting mandated targets

Gosford City Council does not have any regulated mandated targets for water recycling.

Clause 4.3.3 - Up-front capital charges

Any new developments or re-developments within the Gosford CBD are required to provide dual plumbing to enable the connection to a recycled water supply when it becomes available. Currently the CBD developer service charges have not been discounted. As the potable water supply infrastructure is already in place, the recycled water infrastructure will be additional to the existing infrastructure and will not offset any costs.

At this point in time it appears unlikely that there will be any major green field developments within the Gosford local area. Consequently, discounting developer service charges to allow for the offset in infrastructure costs as a result of dual reticulation is unlikely to occur. Again, the recycled water reticulation will be auxiliary to the existing potable water reticulation.

The provision of recycled water for small subdivisions is more likely to occur through a package treatment facility owned and operated by the subdivision body corporate.

Clause 5.3 - Agencies set prices using the Tribunal's pricing methodology

The Gosford Council preferred option is for the Tribunal to set a methodology to calculate service and usage charges. An approach which allows for the inherent variability of water recycling projects is necessary.

A framework or guidelines for negotiating recycled water prices, agreements and arrangements with customers similar to the Queensland Government EPA's "Manual for recycled water agreements in Queensland" would also be useful (web link http://www.epa.qld.gov.au/environmental_management/water/manual_for_recycled_water_agreements/). This framework should include a mechanism for collective bargaining as a negotiation option.

The pricing methodology should reflect variation in the water quality, distribution infrastructure and also the nature of the end use.

Water Quality

A common approach taken when developing water recycling projects is to produce the recycled water quality that is fit for purpose or end use. This approach generally avoids extra cost associated with treating the recycled water to a higher level than necessary, however results in a range of recycled water qualities. Each recycled water project should be considered as a different product and therefore priced differently. Recycled water is a heterogeneous product and should be priced accordingly.

Distribution Infrastructure

The distribution infrastructure for water recycling projects will also be highly variable depending on the distances and landscape from the sewage treatment plant to the end use/s.

End use

The end use will also impact on the pricing arrangement. For example, the accumulation of many small residential/commercial connections compared to one large industrial user would have a significant impact on whether the pricing structure would recover the costs through the service charges or the usage charges.

Clause 5.5 - Sewer mining

The definition of sewer mining in the issues paper is inconsistent with Gosford City Council's anticipated or intended use of these technologies. While the issues paper definition is valid and could apply to Gosford, Council would like to expand the definition to include sewer mining plants owned and operated by the water authority, in this case Gosford City Council.

Gosford City Council intends on utilising sewer mining to provide recycled water to user customers. It is envisaged that Council will own and operate the sewer mining plants and sell the recycled water to the local customers in a similar manner to a regular dual reticulation water recycling project from a sewage treatment plant.

Clause 6 - Pricing

Revenue adequacy (cost recovery)

A revenue adequacy or cost recovery approach is an ideal objective. The approach should have suitable flexibility in practice to reflect the markets "willingness to pay" and the cost of market competitors such as desalinisation, groundwater and potable water.

The pricing should include the value of recycled water as a drought contingency option. For example, in a scenario where there is a supply demand deficit the cost of providing alternative supplies such as desalinisation or groundwater become the baseline to establish if the recycled water is cost competitive. In this situation the cost to supply the recycled water may be more than the cost of potable water and therefore the recycled water price may have to be subsidised to encourage use.

In some circumstances, a recycled water project may be subsidised by the Council or via a grant such as the Australian Water Fund to provide a potable water substitution option that may not have otherwise been cost effective on a straight cost recovery basis. In this case the price should still reflect the real value of the recycled water resource. Recycled water has traditionally been priced significantly under value to encourage use. In some circumstances this has resulted in over use (wastage) of recycled water to take advantage of the lower price. Any subsidised price should reflect the true value of the recycled water and encourage its efficient and environmentally sound use.

It should be noted that Council would want a guaranteed customer base. This would be achieved by contracts with businesses over a set period e.g. for a minimum of 10 years

Other issues

A number of the projects being investigated by Council's WRI Study relate to environmental flows and aquifer storage recovery. Such projects are of significant benefit to Council and the community in that they offset or supplement potable water usage. However given that these are internal projects i.e. no defined end user or customer, pricing of such schemes appears irrelevant. A decision on whether such projects should proceed or not should be based on the extent to which other more expensive projects can be deferred e.g. desalination. As such Council makes no suggestion on the pricing of recycled water to be used for the purpose of environmental flows and aquifer recharging.

6. POSSIBLE PRICING METHODOLOGIES FOR RECYCLED WATER SCHEMES

As discussed earlier Council prefers a cost recovery methodology of pricing recycled water. If it is assumed that Council's current WRI Study produces a priority list of recycled water projects that are economically viable, then Council should be able to charge customers at unit rates that reflect the real cost of delivering the service. This gives rise to the probability that Council could have different rates for different schemes. While being slightly more administratively cumbersome, Council's Rates department confirms that there is no real impediment to having different unit charges for different schemes.

Council believes that recycled water schemes should attract a pricing structure similar in nature to that for potable water i.e. a recycled water service (or availability) charge based on meter size and a recycled water usage charge per kilolitre consumed.

Recycled water service charge

Council favours having a fixed service charge for all schemes. For consistency Council believes a similar price to Sydney Water should be set. The current recycled water service charge at both Rouse Hill and Homebush Bay starts at $25.32 per annum for a 20 mm meter. The suggested recycled water service charge for each meter sizes (consistent with SWC's charges) and accounting for CPI rises are as follows:

Meter Size	Equivalent 20mm multiplier
20mm	$25.32 per annum +$CPI_X$ *
25mm	1.5625 X 20mm charge
32mm	2.56 X 20mm charge
40mm	4.00 x 20mm charge
50mm	6.25 x 20mm charge
65mm	10.5625 x 20mm charge
80mm	16 x 20 mm charge
100mm	25 x 20m charge
150mm	56.25 x 20mm charge
200mm	100 x 20 mm charge

For meter sizes greater than 200 the suggested service charge is:

$(\text{Nominal size})^2 / 400 \times$ 20mm Service Charge

*CPI_x = CPI increase from 2005/06 financial year to the first year of service of the recycled water scheme. A CPI increase should be allowed for each year of the recycled water price path.

Recycled water usage charge

Council believes that IPART should determine a methodology for the setting of the recycled water usage charge that allows proper recovery of the real cost of delivering the recycled water product to the end user. Council suggests that the recycled water usage charge should be made up of a number of components. Those components should be a nominal charge for the "raw" product and the variable charge that reflects the real cost of producing and delivering the final product.

In Council's case there are three possible "raw" products. In the case of sewer mining the raw product is untreated sewage, and for recycled water the raw product is treated sewage. In its 2003 Determination of Sydney Water's prices for water, wastewater and stormwater services, IPART set the maximum price for the taking of raw sewage at zero. Council believes that a nominal price for raw sewage of zero is reasonable. For treated effluent from sewage treatment plants Council believes that a small nominal price on its value should be set to reflect the expenditure already outlaid to generate the product. For purposes of this Determination Council suggests a nominal price for treated effluent of $0.10 per kilolitre (to reflect some of the expenditure already outlaid). This is consistent with the nominal price adopted by Brisbane Water for their recycled water schemes. There is also a third possible raw product - stormwater. Council believes that a nominal value for stormwater of zero is appropriate: Summarising:

Raw product	Nominal price/KL
Raw sewage	zero
Treated effluent (from STP)	$0.10
Stormwater	zero

The variable component of the recycled water usage charge should be determined by taking into account the capital cost of the extraction or collection, treatment and delivery system for the product and the ongoing operating costs per annum (based on the average forecast annual demand). This could be achieved by determining the net present value (NPV) of the capital and operating costs over the NPV of the volume of recycled water delivered (less any subsidies or contributions specific to that scheme). Summarising:

Recycled water usage charge = [nominal raw product charge + variable charge (capital cost spread over life of asset + operating cost per annum)] per kilolitre.

Such a charge would inevitably vary from scheme to scheme. Council believes it is appropriate to charge different usage charges for different schemes to reflect the varying quality of the product, distribution costs and varying end use of the recycled water.

Council does not support a single "blanket" usage charge for recycled water, particularly if it was to be set at a very low rate (such as the usage charge at Rouse Hill of $0.293/KL) as this would limit Council's opportunities to properly fund and develop recycled water schemes. If there were not full cost recovery on a scheme Council would be unlikely to proceed. Council does not wish to unnecessarily limit opportunities for recycled water schemes. Council acknowledges that any scheme would have to have a product that was priced low enough to generate demand.

7. SUMMARY

Gosford City Council fully supports water recycling initiatives and is currently in the process of investigating the viability of numerous water recycling schemes across the Gosford LGA. Council sees the concept of water recycling as an integral component of a suite of solutions to the current supply/demand imbalance being experienced with water resources on the Central Coast. Council however must pursue the most cost-effective and socially and environmentally responsible options available. Council is aiming to have a prioritised list of viable water recycling projects within 2 months or so of the date of this submission. A key component of the viability of recycled water schemes is the opportunity for water agencies to recover costs, while maintaining an attractive price for potential end users.

Council recommends that:

- IPART strongly consider the approach adopted by the Queensland EPA for negotiation of recycled water agreements;
- IPART sets a pricing methodology that allows for setting of different prices for different recycled water schemes (accounting for different water qualities required for different end uses). This pricing methodology should allow water agencies to achieve full cost (capital and operating) recovery;
- IPART set a 2 part recycled water price consisting of a fixed (across all scheme users) recycled water service charge and a variable (to reflect cost of collection, treatment and delivery) recycled water usage charge;
- IPART sets a nominal price for the raw products of recycled water, being untreated sewage, treated effluent and stormwater;
- IPART sets a price path that runs in parallel to the usual cycle of price paths for water, wastewater and drainage fees and charges;
- The definition of sewer mining be extended to include sewer mining plants owned and operated by the water authority.

Council looks forward to an open and frank consultation process with IPART on the vitally important issue of setting of prices for recycled water.