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UTS CRICOS PROVIDER CODE 00099F

Dear Jean-Marc

RE: Submission to the Review of Recycled Water Prices

On behalf of the Institute for Sustainable Futures (ISF) at the University of Technology Sydney (UTS), I am pleased to submit to you these comments concerning IPART's Review of Recycled Water Prices. Our review makes the following points:

The volume and overlap of reviews from IPART in recent years is deeply problematic. As we have pointed out in other reviews, the narrow focus of multiple reviews and the lack of a systems approach has unintended consequences. There are multiple issues which we have brought up in other reviews that we again bring up here, demonstrating the cross over, inefficiency and resource intensiveness of the processes. This puts undue pressure on the industry, and skews participation in favour of large organisations with the resources to keep responding to successive reviews. In other sectors, this imbalance is managed by requiring those at an advantage to fund advocacy resources for those at a relative disadvantage. We suggest IPART consider similar mechanisms for future reviews.

Recycled water is not a 'discretionary extra' for integrated water servicing solutions and should not be treated as such. Despite the objectives of the NWI, the current policy and pricing settings do not treat potable water and recycled water equally. Instead, they substantially bias against integrated water management in terms of financial risk and administrative burden. While not all of these limitations are within the purview of IPART, and some are a result of having competition, these must be explicitly acknowledged and dealt with in any pricing approach.

The issue of financial risk and who bears the risk and when seems to be critical in recycled water investment. Alternative approaches need to be tested in authentic discussions. Such testing requires a more inclusive and responsive consultation process than an IPART review.

The process and standards for customer willingness to pay and avoided costs needs to be transparent, predictable, timely. Again, we suggest that a range of approaches need to be discussed and a standard agreed.

We are concerned with the underlying assumption that recycled water is not cost effective. Our research has demonstrated that the cost effectiveness of recycled water, like any other service, is dependent on the context of the scheme proposed (e.g., scale, timing, climate, density, etc).

We recognise that IWM introduces complexity and challenges to recycled water pricing, and that these are exacerbated by competition.

We also recognise and appreciate that IPART has delayed this review because of iNSW's review of recycled water, and that the findings of the iNSW review have not been released. There is an obvious need for consistency, so we suggest that the report submitted by Frontier to iNSW should at least be made public and considered as part of this review. We are concerned that if the findings from the two reviews are inconsistent, it would initiate another review.

I would like to acknowledge and note our appreciation for the Tribunal's decision to grant ISF an extension in making this submission.

We have focused our attention on the questions and areas of the review in which we are best qualified to comment.

We would be happy to discuss our submission in further detail, or to provide corroborating evidence, should the Tribunal wish.

Yours sincerely,



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REVIEW OF RECYCLED WATER PRICES FOR PUBLIC UTILITIES

SUBMISSION BY INSTITUTE FOR SUSTAINABLE FUTURES, UTS

There is growing recognition that infrastructure investment choices that have served us well for the last 100 years are not well suited to deal with the future challenges facing the water industry. Growth, climate change and shifting customer expectations require adaptable and resilient solutions and provide the opportunity to fundamentally shift the current water service and delivery paradigm.

Over the last decade, the NSW Water Industry has undergone substantial changes in response to environmental, technical and social challenges. In particular, the introduction of competition through the Water Industry Competition Act, has led to private sector delivery of integrated and innovative water solutions at both the site and community level. Investment in recycled water solutions continues to be problematic, however, for both public and private sector participants. The issues biasing against recycled water investment have been discussed as part of several separate reviews over the past 3 years and arise through limitations in the pricing, intuitional and regulatory settings.

We accept that not all of these issues are within the control or mandate of IPART and some of these issues have been addressed, in part, through other reviews. Some of the economic barriers for recycled water investment were highlighted in iNSW's review of recycled water and we appreciate that IPART has delayed this review in anticipation of the findings of the review. To date the findings of the iNSW review have not been released. There is an obvious need for consistency, so we suggest that the report submitted by Frontier to iNSW should at least be made public and considered as part of this review.

The problems encountered in trying to establish a framework where innovative and adaptive water infrastructure is undoubtedly complex. Systems thinking is not only helpful but also necessary when a situation is complex and has many moving parts that interact in unpredictable ways. While we appreciate IPART's substantial efforts to address underlying issues within their control, the mismatch between the characteristics of this situation and well-intentioned attempts to intervene is the reason why successive pricing and regulatory reviews have failed to deliver improvements. Systems theory makes clear that simple, single lever responses will likely make a complex situation worse, which is arguably the case here. We suggest that a different approach is required, one that recognizes and engages with the complexity.

In the absence of the findings from a broader review our submission addresses the following key issues:

- Onerous burden of engagement in multiple reviews is limiting the considered input of parties who may lack the resources of larger public organizations.
- The current policy and pricing settings do not treat potable water and recycled water equally, particularly in relation to financial risk and administrative burden and as such bias against efficient recycled water investment.
- Recycled water schemes can be implemented cost effectively at scales well below the existing centralized system. Perception of cost ineffectiveness are borne from biases in the pricing and planning framework. The frameworks fail to adequately account for the benefits of integrated and cumulative small-scale investment and at the same time do little to dis-incentivize large scale water and wastewater augmentations that can be well under capacity for most of their operational lifetime.

The submission also addresses a subset of the questions raised by IPART.

Burden of engagement

The formal response process as outlined in the IPART Act requires substantial investment by participants in the process. The level of resources required to adequately consider the practical implementation impacts of what are often quite technical economic issues is great. This is particularly pertinent given the volume of consecutive and concurrent reviews¹ in recent time affecting the entire industry and the scale and resources available to some of the participants in relation to the larger utilities and government organizations. In other sectors, provisions are made whereby there is an obligation on the incumbent/proponent to fund representatives for industry and/or community to adequately engage in the process. ISF recommends that IPART consider how to initiate and implement a similar resourcing mechanism in the water sector and including other more inclusive engagement processes.

Recycled water is not a 'discretionary extra' for integrated water servicing solutions and should not be treated as such.

Despite the objectives of the NWI, the current policy and pricing settings do not treat potable water and recycled water equally. Instead, they substantially bias against integrated water management in terms of financial risk and administrative burden.

The differential regulatory treatment of recycled water leads to significant financial risks for public service providers and does not reflect the integral part recycled water provides in an integrated water servicing model. Public utilities are not investing in recycled water because this risk misdirects investment: it biases public investment towards the apparently lower financial risk associated with conventional servicing approaches, even where that is less cost-effective than integrated approaches, and biases private investment towards uneconomic systems (high cost systems in areas that are otherwise low cost to service).

These financial risks arise from the regulatory 'ring-fencing' of recycled water investments. Recycled water services are required to be locally cost-reflective, as opposed to conventional services, which are currently not cost-reflective at either local scale or across the whole area of operations. Because revenue is only recoverable from customers of the recycled water system, this rule increases revenue risk by maintaining complete dependence on the development uptake rate and local fluctuations in demand. As a result, the total cost of water servicing for the region increases, while increasing the uncertainty as to what constitutes an efficient recycled water investment. Building schemes that appear "uneconomic" due to ring-fencing, undermines perceptions of the potential economic efficiency of recycled water.

These rules were developed to assist with customer choice and to facilitate private competition. However, in practice it means in addition to challenges competing with conventional services due to cost and price issues, recycled water services are required to be locally cost reflective as opposed to conventional services which are currently not cost reflective at either the local scale or across the whole area of operations.

This revenue risk is exacerbated by the discretionary nature of connection to a recycled water system, even when it is the best overall water servicing option. In contrast, utilities in Victoria have the ability to mandate connection to a recycled water scheme.

There is existing precedent in Sydney for providing different services to similar customers to ensure efficient servicing and promoting downward pressure on prices. For example, low pressure sewer systems (LPSS) have different operational procedures (impacts for putting the wrong thing down the toilet) and energy costs to run the macerator and pump. If recycled water is part of the most efficient servicing solution for an area, customers should not be able

¹ The list in the last few years includes the following, many with multiple rounds of submissions e.g., Developer Charges and Backlog sewer; Central Coast water/ wastewater prices; Sydney Desalination prices; Wholesale pricing; Sydney Water water/ wastewater prices; Hoxton Park developer charge; Methodology for ELWC Sydney Water; Hunter Water water/ wastewater prices; Discharge factors for non-residential customers; WICA Act review and regulation drafting; NSW Recycled Water review; Cost allocation manual; Draft WIC Act Audit guideline; Performance indicator review

to opt out of recycled water as a particular product, just as someone could not choose to have gravity sewer instead of LPSS.

Recycled water schemes can and are operated at much smaller scales than existing centralised options efficiently.

IPART suggest that it is difficult for recycled water to be cost effective due to its limited end uses and reduced scale compared to wastewater treatment². Our research, and that of others has demonstrated that the cost effectiveness of recycled water, like any other service, is dependent on the context of the scheme proposed (e.g., scale, timing, climate, density, etc). Since the inception of the WIC Act, private utilities have developed numerous community based integrated water management solutions, despite the multiple barriers in the pricing and regulatory settings that bias against such options. These examples have demonstrated the potential to deliver cost-effective recycled water schemes in new development both land release and urban infill at a scale much smaller than the current centralised options.

Existing centralised options in Sydney have been expanded well beyond the range needed to reach economies of scale. Continuing to maintain and expand ageing networks is financially, technically and logistically challenging, with projections into the future of billions of dollars. Studies have shown that the economies of scale for treatment are cancelled out with diseconomies of scale for transport at a point between 500-10,000 connections (Clark 1997; Fane, Ashbolt and White 2002). Mitchell (2004) found economies of scale for IUWM at around 1000-10000 connections. Sydney Water's website³ suggest schemes as small as 0.5ML/day are promising and schemes from 0.1-0.5ML/day are possible. It is only schemes that are less than 0.1ML/day that are unlikely to be viable.

The scale difference between a local recycled water system and more conventional centralised solutions exacerbates perceptions of cost effectiveness. Often, impacts will only be realised when a certain critical number of local recycled water schemes are implemented in a particular area. By investing in small units continually, rather than single large supply options to avoid critical failure, economic benefits such as reduced capital outlay, reduced idle capacity, reduced borrowing costs, reduced lead time and reduced risk of overbuild can be realised (Pinkham et al. 2004; WERF 2006b).

The efficiency benefits of flexible, small unit investments, has been demonstrated at not just a single site level, but also at a broader precinct and city level. For example, as was demonstrated in Melbourne (Mukheibir and Mitchell, 2014), many of the benefits that local recycled water systems can provide for extending the capacity and resilience of the centralised systems rely on cumulative impacts of many different schemes. Similarly, Ganzalez-Vlar et. al (2016) demonstrated the value of a decentralised sewer mining policy capitalising on recycled water demand opportunities as they arose over large scale wastewater treatment augmentations.

Centralised systems are more vulnerable to shocks. In the USA, when Super Storm Sandy hit, a private sector utility operating 45 small-scale urban sewerage and recycling systems in the north-east recorded zero environmental obligation violations. In comparison, centralised systems lost power and failed, with some out of operation for weeks.

In summary, the perceptions of cost of recycled water schemes are often overstated due to limitations in the pricing and planning framework that fail to account for the benefits of integrated and cumulative small-scale investment and at the same time do little to disincentivize large scale water and wastewater augmentations that can be well under capacity for most of their operational lifetime.

² pp13-14 Issues paper

³ https://www.sydneywater.com.au/web/groups/publicwebcontent/documents/document/zgrf/mdu3/~edisp/dd_057020.pdf

Specific issues raised by IPART

Form of regulation and cost recovery framework

For voluntary recycled water schemes (where customers have effective choice), sewer mining and stormwater harvesting services, is our proposed approach of allowing unregulated pricing agreements and only setting prices when we receive a request for a scheme-specific review appropriate?

1 Is an approach similar to the scheme-specific review process used in wholesale pricing appropriate?

We are concerned with the move from arbitration of sewer mining agreements to scheme specific reviews. Arbitration between two parties or a full scheme specific price review vary substantially in process and resources required. As was discussed during the wholesale pricing review, scheme specific reviews are highly resource intensive and potentially lengthy. Delaying decisions due to a lengthy and uncertain process may result in potentially viable investment opportunities being foregone.

We understand that the change from arbitration of sewer mining agreements to a scheme specific review on prices is due to legal advice. This seems to be in conflict with Section 46 of the WIC Act, which clearly establishes IPART as the arbiter of disputes of terms of sewer mining agreements. The role of arbitration of disputes on not just price but terms (which can influence price) is a critical one. We believe the change in approach should be more clearly justified. If IPART is not the appropriate body, an alternative body needs to be established.

2 Do we need to establish pricing principles for these services? If so, what should these be?

We are concerned that pricing principles as applied do not encourage re-use where cost effective and are not congruent with pricing policies for potable water. Despite the objectives of the NWI, the current policy and pricing settings do not treat potable water and recycled water equally. Instead, they substantially bias against integrated water management in terms of financial risk and administrative burden. As outlined above, current pricing practices such as ring fencing, the lack of developer charges for water and wastewater services, the process for avoided cost recovery and variations in who bears the financial burden and when, treat recycled water as a discretionary good even when it is part of a least cost servicing strategy. While not all of these limitations are within the purview of IPART, and some are a result of having competition, these must be explicitly acknowledged and dealt with in any pricing approach.

3 Do you agree with our classification of recycled water scheme costs? If not, why and what changes are required?

In context of utilities doing their own recycled water schemes it is unclear what facilitation costs may entail, as opposed to cost off sets and direct costs of the scheme? Some examples would help with the rationale for the inclusion of this category of costs.

6 Should the definition of mandatory recycled water schemes be refined to refer to a customer's level of effective choice (ie, ability to opt-in to recycled water)? If not, how should we amend our definition of mandatory recycled water schemes (if at all)?

While we agree in principle with the definition and pricing approach for mandatory schemes, the practical barriers to opting out totally is not as great as suggested. Opting out of servicing one particular fixture (ie not connecting to washing machine, or toilet) is more difficult.

Pricing arrangements for mandatory recycle water schemes

9 Do ‘top-up’ pricing thresholds remain appropriate for mandatory schemes where demand for recycled water exceeds supply? If so, what should the thresholds be amended to (if kept at all)?

While we agree in principle with different price thresholds for mandatory schemes with ‘top-up’ we are less clear on the rationale in setting the particular thresholds. If potable top up is less than 10%, what is the recycled water usage charge?

The thresholds and their applicability to schemes should be in the outcome of customer research and engagement. We believe the interplay between service standards, costs and potable top up should be further explored. Potable top up to meet peak demands can be the driver of substantial infrastructure investment, that counteracts benefits that should be realized from recycled water schemes. For example, studies have shown reuse and efficiency measures can reduce peak daily demands, reducing infrastructure costs (([Gurung et al. 2014](#); [Willis et al. 2011](#))). However, the design for the Hoxton Park recycled water scheme required additional water capital expenditure in the order of \$6 million (over and above a scheme that was serviced only by potable water) to provide potable water top up to meet anticipated peak recycled water demands.

Recycled water developer charges methodology

14 Should we update the annual consumption for an equivalent tenement to be equal to the average consumption values that would be established at each water utility’s prevailing periodic retail price determinations?

We would urge caution in relation to the hard coding of consumption values. IPART suggests that the hard-coded parameter is a potential source of cost under recovery. In the wholesale pricing determination, the hard coding of wastewater discharge volume was also a point of concern. Wherever possible we suggest leaving the parameter a variable and allow scheme specific justification of the value used.

19 Does the developer charges methodology create any undue barriers to the uptake of recycled water?

Developer charges are levied for recycled water, but conventional water and sewerage services, developer charges are set to zero⁴. Developers are therefore financially penalised for pursuing recycled water in their developments. In addition, the zero setting for water and wastewater means that developers have no incentive to minimise the size of connections for conventional water and sewage main connections. While the abolition or reinstating of developer charges is beyond the scope of this review, it must be noted that the charge itself creates a barrier for recycled water uptake.

21-32 Cost offsets

Cost offsets, including avoided and deferred costs are a critical but poorly understood factor in determining the value of recycled water schemes. We propose that alternative engagement processes would be better suited to facilitating the type of conversation that is required to reach an accepted, if not agreed position in this regard.

As part of the wholesale pricing review IPART’s consultants identified several areas where average minus costs could be used, in lieu of location specific information being available. While we recognise the challenges in setting system-wide minus components in the current regulatory environment, we believe that simple minimum proxies that could be used that

⁴ Water and wastewater developer charges were abolished (For Sydney and Hunter) on 17 December 2008 to facilitate housing affordability (Premier Nathan Rees 2008)

would promote efficient investment. We are concerned that in lieu of a flexible and simple mechanism to acknowledge a wider range of cost off-sets future opportunities will be forever foregone. A clear process and timeframe for developing broader and more robust cost offset components should be included as part of the determination. As a minimum the process for calculating the cost offsets should be transparent, administratively simple, predictable and timely.

We suggest that guidance material is developed that sets out the evidence required to demonstrate willingness to pay for broader benefits. For example, independent research and extensive stakeholder consultation has verified the preference of Sydney Water customers for solutions that protect and enhance the environment and that they are willing to pay for it even if they do not receive the recycled water themselves, and even if there is a delay in delivering the recycled water (Marsden Jacobs 2013; Metropolitan Water Directorate 2014.) Would these studies be accepted as evidence demonstrating willingness to pay? If not, why and what else would be required?

In addition, guidance material that sets out the requirements to demonstrate a scheme is designed to meet government policy. For example, would investment be allowed if it demonstrated alignment with the policy for the greening of western Sydney, or meeting Sydney Water's legal obligations under s27(1) of the Sydney Water Act⁵.

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⁵ s27(1) of the Sydney Water Act requires Sydney Water "to adopt as an ultimate aim prevention of all dry weather discharges of sewerage to waters".)

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