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IPART
Level 15, 2-4 Rawson Place
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Dear IPART,

RE: Prices for wholesale water and sewerage services – supplementary draft report

The Institute for Sustainable Futures (ISF) at the University of Technology Sydney appreciates the opportunity to comment on the 'Prices for wholesale water and sewerage services – Supplementary Determination March 2017'.

ISF has provided expert advice on integrated water planning and management nationally and internationally for 20 years. Our research, and that of others, has demonstrated the broad value of recycled water including: reducing peak and average system demands allowing for increased growth capacity in existing systems; providing an economically efficient supply augmentation method that also delivers more resilient and robust water supply; and as an important component to green liveable cities and supporting urban cooling. Our input into this review is focused on facilitating an investment environment that supports the long-term sustainable delivery of integrated water infrastructure.

The challenges in creating an efficient and equitable wholesale pricing model in an imperfect regulatory environment are clearly evident in the substantial changes throughout this review period. Given the uncertainty surrounding an efficient and equitable model for wholesale pricing we call for a simple interim price mechanism that reflects changes in system demand.

We are concerned that the changes proposed in the current determination are being driven by the need to address limitations in the broader pricing and urban water regulatory framework, rather than seeking to improve those fundamentals. Some of these broader limitations have been highlighted by IPART and are scheduled for review in the next 12 months. The wholesale water market is small and distributed. The resources to respond to multiple, separate and complex reviews are limited. Conducting multiple, separate, lengthy strains the capacity of industry participants to respond. More importantly though, it fails to consider the issues wholistically, leading to further confusion and uncertainty, which drive investment down. It is for these reasons we provide comment on the Supplementary Draft report.

In general terms our submission asserts the following:

- The proposed method does not reflect efficient cost principles and is inequitable as it assumes customers are homogenous residential customers. Under this determination the substantial deviations in both potable and wastewater demand of wholesale customers as compared with a standard residential customer, are essentially overlooked, with the only route for consideration being the costly and unlikely site specific review for facilitation costs.
- Competition for water and wastewater services under the WIC Act should not be viewed as simple 'on-selling'.

- The proposed method is likely to be inefficient and cumbersome to implement.
- Further consideration should be given to the short and long-term impact this determination will have on the emerging WIC market, particularly in light of existing barriers to a ‘level playing field’.
- Other minor matters

Research has demonstrated the broad social and economic benefits of local recycled water. In addition there is clear direction from the NSW Government to encourage and foster private participation in the market. Since the enactment of WICA pockets of private integrated water supply have emerged, but represent an insignificant portion of the incumbent utility’s existing customer base. The practical implications of this determination need to be reviewed to ensure that the emerging WIC market survives and continues to grow.

While ISF recognises IPART must operate under the current regulatory framework we continue to call, like the 2017 Metro Water Plan, for a broad review of the NSW water sector, to ensure that the public benefits of recycled water are recognised and fairly accounted for.

Regards,

Professor Cynthia Mitchell
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ISF submission to wholesale water and sewerage prices

Since the NSW Government established the *Water Industry Competition (WIC) Act* a globally leading water recycling market has emerged. The benefits gained through this market, including increased liveability, system modularity and resilience, and dynamic efficiency, align with international best practice[1] and national and State Government objectives. Research conducted by the Institute for Sustainable Futures (ISF), has demonstrated modular recycled water provides an efficient supply augmentation method (Mukheibir et al. 2014) whilst improving robustness and resilience of supply. Further research demonstrates recycled water reduces peak and average system demands allowing for increased growth capacity in existing systems and reduced long-term operation and augmentation costs (Gurung et al. 2014; Willis et al. 2011). In addition, in Sydney at least, independent research has verified a clear willingness to pay for recycled water (MJA, 2014), even when the recycled water is used by others.

The challenges in creating an efficient and equitable pricing arrangement for wholesale pricing are not insignificant. This is perhaps best reflected in the diverse positions of different stakeholders and the substantial shifts of the models proposed by IPART over what has now been a lengthy review period. Given the uncertainty surrounding an efficient and equitable pricing model for wholesale pricing, and noting the limited resources available to the wholesale water market to respond to changes of this magnitude on an ongoing basis, we call for a simple price mechanism that reflects changes in system demand. The relative ease of implementing such a mechanism would minimise the cost for all involved, consistent with the small scale of the market.

Discussions with operators in the market have suggested the proposed retail minus tariff will make the cost of accessing Sydney Water and Hunter Water infrastructure commercially prohibitive. ISF is concerned that if the IPART determination proceeds in its current form, the recycled water market in urban areas will collapse. It is for this reason we provide comment on the Supplementary Draft Report.

This submission addresses:

- The proposed method does not reflect efficient cost principles and is inequitable as it assumes customers are homogenous residential customers. Under this determination the substantial deviations in both potable and wastewater demand of wholesale customers as compared with a standard residential customer, are only considered via a site specific review for facilitation costs
- Competition for water and wastewater services under the WIC Act should not be viewed as simple ‘on-selling’
- Further consideration should be given to the short and long-term impact this determination will have on the emerging WIC market, particularly in light of existing barriers to a ‘level playing field’.

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[1] IWA Principles for Water Wise Cities 2016 http://www.iwa-network.org/wp-content/uploads/2016/08/IWA_Principles_Water_Wise_Cities.pdf

[2] https://www.ipart.nsw.gov.au/files/64d29422-9807-4942-a6bc-cafb569e70e5/Consumer_Fact_Sheet_-_Sydney_Water_price_review_-_7_September_2015.pdf

- Other minor matters

A flexible and efficient price model

As outlined in our October 2015 and May 2016 submissions, ISF's preferred model for wholesale pricing was retaining a non-residential price structure. We supported non-residential pricing on the basis it is predictable, simple to administer, contains mechanisms to reflect changes in demand on the system (both up and down), preserves postage stamp pricing and has proven to foster private recycled water investment. While not a perfect solution we believe its benefits outweigh its limitations, particularly given the infancy of the industry and the costs of other proposed mechanisms.

The current model proposed by IPART for both water and wastewater is 'Retail minus reasonably efficient competitor costs'. The minus calculation only applies to retail and reticulation components. We do not believe this model is the most effective or efficient, in the short term, particularly given the current economic inefficiencies, the widespread call for a broader review and the limited penetration of the market. However, if IPART adopts this model we believe that it is flawed in requiring a scheme specific review to account for any benefits except for retail and reticulation costs. Two key changes should be included in the formula:

- *A variable, not fixed volumetric parameter for wastewater. This will provide both an efficient price signal and be equitable with other mechanisms implemented by IPART where volumetric load was not homogeneous within a customer type.*
- *Broader minus components*

Variable parameter for volume

In general WIC Act schemes use less water and discharge significantly less wastewater (volume and strength) than customers using conventional services. This applies to averages and peak periods (Gurung et al. 2014; Willis et al. 2011). IPART has previously made allowances for stormwater customers that have taken measures to reduce their stormwater impact, introducing a low impact customer class. We propose that the substantially lower impact of WIC customers should be taken into account in the starting retail price, and this must include a variable factor for both water and wastewater.

The 2016-2020 price review for Sydney and Hunter water prices considered variable wastewater charges for residential customers. The main argument against moving to variable charges was the lack of metering. In the case of WIC customers incorporating recycled water treatment this argument does not apply: discharge from the recycled water plant is metered and could therefore be used as a measure of discharge from customers.

It is both inequitable and inefficient to hard-code an assumed wastewater discharge per customer into the pricing methodology when there is clear evidence that the discharge is not homogeneous. The inequities and administrative barriers to adjusting hard-coded values have been made clear in the application of the recycled water developer charge. To avoid creating similar issues with the wholesale price, the discharge must be a variable factor. The current residential wastewater service charge hard-codes an assumed wastewater discharge of 150 kL/yr to calculate the service charge[2]. If

[2] https://www.ipart.nsw.gov.au/files/64d29422-9807-4942-a6bc-cafb569e70e5/Consumer_Fact_Sheet_-_Sydney_Water_price_review_-_7_September_2015.pdf

IPART was to proceed with its current model of retail minus, it must ensure that the discharge value in the formula is a variable.

Broader minus components

We appreciate IPART's explicit recognition of the current lack of a level playing field, particularly in relation to asset write-downs. We agree that the reasonably efficient competitor taking into account full costs of assets goes some way to addressing this issue.

However, we do not agree that the only minus components considered should be retail and reticulation, as this not only ignores the key benefits of recycled water systems, but also moves those key benefits from incentives to being disincentives. IPART's consultants for this review, Oakley Greenwood, identified several areas (see dot points below) where average minus costs could be used, in lieu of location specific information being available. IPART has not adopted these recommendations. 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 would promote efficient investment, increase the predictability of the wholesale price and reduce the need for uncertain, costly and time consuming scheme specific reviews. We believe scheme specific costs should only be triggered when there are localised avoided costs from delays of infrastructure augmentation, or there are substantial deviations from the simple proxy minus components. We are concerned that in lieu of a flexible and simple mechanism to acknowledge a wider range of benefits (minus components) the inroads that have been made will be eroded and future opportunities will be forever foregone.

A clear process and timeframe for developing broader and more robust minus components should be included as part of the determination. Component pricing (or costing), while not currently used, would be useful in establishing broader minus components. IPART has suggested component pricing for Sydney Water and Hunter Water may be considered in future determinations (pg 27), and we would support this initiative. In the interim, a range of average cost savings identified in the Oakley Greenwood report commissioned by IPART for this review and other average minus components could be used including:

- Water security – LRMC[3] or a time specific value calculated through Economic Level of Water Conservation
- Water transport – in the short term $0.04/kL as calculated by Oakley Greenwood (pg 8). As Sydney Water has modelling capability to calculate energy required to supply each reticulation area, this could converted to a $/kL to be used as more location specific proxy.
- Water treatment and residuals handling– $0.02/kL + $0.01 as calculated by Oakley Greenwood (pg 8)
- Wastewater transport[4] - $0.07/kL as identified by Oakley Greenwood (pg 28). As for water, Sydney Water has modelling capability to calculate energy to pump wastewater across its area of operations. This could converted to a $/kL to be used as a more location specific proxy.
- Wastewater treatment[4] – costs for tertiary treatment in the range of $0.17-$0.28/kL as calculated by Oakley Greenwood (p. 33)(see discussion below)

[3] Appendix e1.3 of supplementary report – p139 states LRMC is driven by supply augmentation, filtration augmentation & operation, other operational costs driven by usage including pumping. However, in the report commissioned by IPART by Oakley Greenwood pg 8 – they state that LRMC should be used as a proxy for upstream augmentation savings. 'LRMC is an estimate of the additional cost of a permanent unit of demand, and suggest LRMC could be used for this value.

[4] We note that if wastewater charging is changed to reflect the reduced volumetric load of wholesale customers as compared to conventional residential customers there may be some double counting with the wastewater minus components, which would need to be resolved.

In addition, there is current, clear, and strong evidence in Sydney for willingness to pay between $2.65 and $48.38 per year for an additional 10 - 40GL per year of recycled water by 2030 (MJA 2013) to provide broader social, environment and liveability benefits. We suggest that future reviews should consider how to best incorporate this customer-willingness into transfer payments.

Wastewater treatment

There are significant differences in treatment levels and associated costs between coastal and inland. However, the very low level of treatment in Sydney Water's major coastal plants is a historical legacy rather than best practice. The most recent sewage treatment plants built by Sydney Water on the coast have a much higher treatment standard than the three large coastal treatment plants: Cronulla is tertiary, Wollongong is tertiary, Gerringong Gerroa is advanced tertiary, Warriewood is secondary. There has also been progressive closure of smaller plants on the south coast– so while nutrient removal may be less in coastal areas than inland, the acceptable level of treatment even on coastal waters seems to be much higher than Sydney Water's current level of treatment at its largest coastal STPs. This makes evident that the appropriate minus component for treatment is tertiary costs. This approach is also in keeping with Sydney Water's legal obligations: 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".

Wholesale pricing should not be used as a proxy to address inefficiencies and deficiencies in current retail price structures.

The total suite of price mechanisms should treat all customers equitably. The choice of starting retail price (residential or non-residential) should not be material in the final price outcome. Given IPART's efforts to remove cross-subsidies and ensure cost reflective pricing, there should be no difference in the end bill for two customers who use the same amount of water and discharge the same amount of water, regardless of who they are. However, during the course of this wholesale pricing review, the substantial bill discrepancies (pg 49 Supplementary draft report) between a group of residential customers and a single non-residential customer using exactly the same amount of water and discharging the same amount of wastewater have been used to discredit the non-residential price as a mechanism for wholesale pricing. We do not believe a wholesale price determination is an appropriate or equitable mechanism to address discrepancies in price outcomes for residential and non-residential customers using the centralised water and wastewater services in similar ways.

We suggest that a review and analysis of the driver of this discrepancy and a method to address any inequities should be included in the next price review.

Wholesaling under WICA is not on-selling

We do not believe that private utilities are engaged in direct 'on-selling' of the public utility water and wastewater services. Private sector investments to date demonstrate that concern regarding the theoretical opportunity for arbitrage is not reflected in practice. Current entry provided by private utilities has been in the form of dynamic competition. Private utilities are providing integrated and innovative services that are a substantial transformation of conventional water and wastewater services provided by the utilities. We believe that what is being suggested is a rather blunt approach

given its potential to entirely undermine the emerging sector in integrated water cycle service provision.

Under current regulations, a WICA licence would not be granted for simple retail competition. As IPART stated, the context of the review must be considered within the existing policy and legal framework. Under section 10(4)(d) of the WIC Act, a licensee who is authorised to supply water must supply sufficient quantities other than from a public utility. To our knowledge, this has meant every scheme licenced to date under the WIC Act (except the desalination plant) involves the treatment and reuse of sewage, industrial water or groundwater. By supplying the alternative water source, the demand for potable water from customers of WIC licensees is generally lower than public water utility customers serviced by conventional water and wastewater services. The lower demands and reduced peak flows means that, even with respect to drinking water, the service WIC licensees provide cannot properly or reasonably be characterised as on-selling. While we recognise section 10(4)(d) is not retained in the yet to commence WIC Amendment (Review) Act 2014, the framework still precludes the conventional on-selling to small retail customers as under the changes, retail services may only be provided in connection with a scheme authorised under the Act. This reflects the Government's decision not to implement a fully contestable market model.

A broader industry review is required

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. We recognise that the regulatory and policy framework in this area can be complex and currently lacks clarity and certainty for both the public utilities and the private entrants. We acknowledge, therefore, the role IPART has played in identifying and initiating a process to provide clarity and certainty.

While we agree that wholesale pricing should provide certainty and facilitate efficient entry into the water market within the existing policy and legal framework, our view is that by addressing only some of the available levers in this complex situation, and doing so separately, the proposed wholesale pricing structures have the potential to create significant deleterious changes to the emerging water market in Sydney. A broader review of the provision of integrated water, wastewater and stormwater services and outcomes is warranted, and would avoid the dangers of single lever responses. It is clear that the WIC Act has led to increased diversity in the urban water sector – a broader review could include revisiting the manner in which servicing plans are developed to ensure that process is appropriately inclusive and delivers least cost outcomes. While we recognise that IPART cannot initiate this review, we draw attention to the fact virtually all stakeholders and participants in this process have called for a broader industry review.

Minor matters

The justification to move away from non-residential prices for discharges from recycled water plants was in part based on Sydney Water's submission that "even if the volume of flow that is discharged is reduced, the volume of solids or pollutants discharged from the recycling scheme is not materially different from untreated sewerage" and "while actual discharges may vary, it must maintain capacity to deal with the maximum potential volume or discharge from a recycled water scheme" (p. 51 Supplementary Determination).

It is a scientific fact that recycled water systems that use biological processes significantly reduce the volume of pollutants discharged – that is, after all, the point of treatment. An MBR treatment process greatly reduces the volume and concentration of BOD, with the bulk of the carbon going to carbon dioxide, and some production of cellular material. The suspended solids load is also greatly reduced. We note that the greatly reduced water discharge volumes lead to an increase in concentration of suspended solids (in comparison with a system with no recycled water system connection). Management techniques (such as restricting the time of discharge to higher flow periods, or dilution of waste discharge with clean recycled water) and flexible trade waste agreements have proven an effective way of minimising impacts to the receiving sewers. Plants also remove grit and screenings from the inflow before treatment and they are usually disposed straight to landfill. This upstream removal of solids benefits the nearby sewers. The report by Oakley Greenwood confirmed the reduction in organic and nitrogen load (pg13). Research by WSAA (2007) into the cost drivers for wastewater found treatment and disposal costs were 22%-37% of total costs and are driven by volumes, BOD and SS. We would be concerned if the incorrect perception that volumes of pollutants were not reduced was material in the decision making process to change the pricing method for discharge from recycled water plants.

With relation to retaining capacity for maximum potential volume, this question was posed at the public hearing and it was not confirmed that public utilities had to maintain capacity. Rather, it was a matter of negotiation. In addition, the report by Oakley Greenwood stated the need to provide backup at the centralised utility's wastewater treatment facility would only be an issue if recycled water accounted for more than 20-30% of the flow (pg21). Currently, and in the medium term, flows are around 100 times less than this. It would appear to be very inefficient to build a recycled water system and then build a water and wastewater network as though that system did not exist. This is a further example of how the current planning mindset biases against modular integrated alternatives.

Double counting

While wholesale water prices are set based on the end number of residential customers, despite the proven deviation in demand on the centralised system associated with customers using integrated water supplies, the non-residential service charge for top-up to the recycled water plant would appear to be double charging. Implied in the retail service charge for residential customers is an allowance for peak demand. The service charge for top-up supplied to the recycled water system is a charge for demand that has already been included in the residential service charge. A similar observation applies for discharge from a recycled water plant that is already paid for through the full retail residential wastewater charge. Although these are only minor components in the overall cost, it reflects the multiple inequities and inherent biases against local recycled water systems that exist in the current regulatory and institutional frameworks.

Conclusion

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. We recognise that the regulatory and policy framework in this area can be complex and currently lacks clarity and certainty for both the public utilities and the private entrants. While we agree that wholesale pricing should provide certainty and facilitate efficient entry into the water market within the existing policy and legal framework (IPART pg 25), our view is that the proposed models meet neither the certainty nor

efficient entry criteria. As a minimum the wastewater price must account for flow differences between WIC customers and traditional residential customers, and a broader range of minus components should be included. These changes would strengthen efficient investment signals, and increase clarity, certainty, and cost by reducing the need for individual reviews.

However, we reiterate our position put forward in last year's review of Sydney Water's prices 2016-2020 – that by addressing only some of the available levers in this complex situation, the proposed wholesale pricing structures have the potential to create serious deleterious changes to the emerging water market in Sydney. A broader review of the provision of integrated water, wastewater and stormwater services and outcomes is warranted, and would avoid the dangers of single lever responses. It is clear that the WIC Act has led to increased diversity in the urban water sector – a broader review could include revisiting the manner in which servicing plans are developed to ensure that process is appropriately inclusive and delivers least cost outcomes.

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