

Institute for Sustainable Futures UTS Submission to IPART on the 2016-2020 Prices Proposal for Sydney Water

02 October 2015

Dear IPART

The Institute for Sustainable Futures at the University of Technology Sydney appreciates the opportunity to comment on the Review of Prices for Sydney Water Corporation from 1 July 2016. The water industry is in a period of challenge and change.

Continuing to maintain and expand the capacity of existing centralised systems to manage and respond to ageing infrastructure as well as shifts in the type and scale of demand, while managing shifting expectations in terms of sustainability, liveability, resilience and security, is complex, expensive and technically challenging. The combination of these drivers plus the opportunities that come with technological change, government incentives and new markets, in conjunction with the development of the WIC Act, provide the opportunity to fundamentally shift the current water service and delivery paradigm. In Sydney this has resulted in an emerging private sector market where integrated and innovative total water solutions have been delivered at the site and community level.

By addressing only some of the available levers in this complex situation, we believe that the path of the current review has the potential to create some significant and deleterious changes to the emerging water market in Sydney. However, the review also presents an unparalleled opportunity to leverage off the pivotal role that water pricing and water price structures have on the future direction of the water industry. Our submission addresses these two key areas.

Sincerely



Cynthia Mitchell FTSE FIEAust
Deputy Director and Professor of Sustainability

On behalf of the Institute for Sustainable Futures at the University of Technology Sydney

1 Submission summary and outline

This submission covers two key areas:

A. Funding liveability objectives

The term ‘liveability’ and its associated objectives, although central to Sydney Water Corporation’s current mission and outward facing communications, are completely absent from both its pricing submission and IPART’s issues paper. ISF is of the view that this is both an unfortunate inconsistency, and an enormous missed opportunity, since the pricing determination provides a pivotal opportunity to fund liveability objectives. This submission therefore considers long term objectives for the NSW water industry and how the price determination can either facilitate or limit the achievement of these objectives, including: funding liveability objectives, the role of the potable water usage charge, the role of local recycled water systems in contributing to liveability outcomes, and the unintentional impacts of single lever decisions to integrated water service delivery.

B. A fair regime for private sector participation

In its 2014 Annual Report, Sydney Water Corporation stated its commitment to supporting innovative servicing arrangements and that its arrangement with the water system operators at Central Park would provide the model for all inter-utility service agreements (see Section 3 for full quote from Annual Report). Whilst we are not privy to the details of that commercial-in-confidence arrangement, it is our understanding that the path proposed in this pricing submission represents a significant shift in that agreement, and has the potential to, at the very least, significantly undermine this emerging market. In the period of this pricing submission, this market will at most constitute less than 1% of Sydney Water’s customer base, and a revenue reduction of 0.3% under the arrangement we propose. Hence, this submission considers the role of the private sector in the delivery of water services (particularly integrated water services and local recycled water) and proposes alternatives for the determination of a fair and cost effective charging regime for interconnections to the Sydney Water system, whilst retaining postage stamp pricing.

Table 1 maps where specific issues identified by IPART are discussed in this paper.

Table 1 Mapping Specific Issues Identified by IPART to Sections of this Submission

IPART issue reference	ISF submission reference	Comments
No reference	Section 2.2	Liveability objectives are central, but are currently unfunded, and are absent from the pricing discussion.
No reference	Section 2.4	There are severe negative unintended consequences of the proposed price structure on long-term objectives
No reference	Section 2.5	Assessing and accessing avoided costs has proved very difficult in practice, which holds back innovative servicing by both Sydney Water and private providers
No reference	Section 2.6	The lack of a level playing field further exacerbates the negative impacts of ‘single lever’ approaches to a complex situation.
1 What should be the length of this determination period	Section 2.1, 2.4, 2.5	A 4-year period seems appropriate – however our collaborative research with water utilities in Melbourne

		and elsewhere has shown long term economic benefits from opportunistic investment in demand management and local water solutions which seems to be in direct conflict with the current “just in time” “once in a generation” large scale augmentation encouraged by the current form of regulation.
<p>10 Is Sydney Water’s forecast capital expenditure program over the 2016 determination period efficient, taking into account expenditure drivers, scope for efficiency gains, and proposed water management outcomes?</p> <p>13 Is Sydney Water’s proposed capital expenditure on projects relating to its Environment Protection Licences, including wet weather overflow abatement, efficient?</p>	Section 2.1	ISF questions whether there is an opportunity for other approaches to meeting supply-demand and environmental imperatives besides pre-forecast large capital expenditure, including alternatives that leverage private funds, i.e. to move away from ‘just in time’, ‘once in a generation’ bulky infrastructure investment to a more flexible and innovative planning and investment model
Weighted Average Price Cap	Section 3.6	The WAPC is potentially an effective and efficient mechanism to allow for different service levels and different impacts on the system. It would be one way of transitioning from postage stamp prices if that was the approach the government wished to pursue. Without details it is difficult to assess the proposal further; however we support flexible pricing that leads to more efficient infrastructure outcomes. We suggest that this issue should be considered in more holistic context with wider stakeholder consultation.
40 What is the most appropriate name for the current fixed ‘service charge’		ISF supports the term ‘availability charge’
41, 42, 43 Magnitude and role of the water usage charge	Section 2.3	ISF is concerned the proposed lower prices for water (which are temporary because they are primarily due to historically low interest rates) firstly will undermine the previous efforts of the sector in raising community awareness of the importance of water conservation, and secondly, that it misses a unique opportunity to keep prices stable, while directing surplus revenue to projects that support long term, previously unfunded objectives of liveability – objectives for which the community have clearly stated a willingness to pay.
46 Should residential customers pay a wastewater usage charge		We support the proposition that residential customers should transition to a wastewater usage charge.
58,59,60,61 Wholesale prices	Section 3	While changes to WICA have increase the potential for arbitrage, forcing all private providers to an access regime will have a potentially crippling impact on the emerging market. We believe that the broader benefits from the current private providers, who also provide an additional water source, well outweigh the minimal lost revenue from these schemes. We consider a re- definition of customer types, and a continuation of billing based on the non-residential price structure for providers of additional services.

2 The role of the economic regulation in facilitating long term, broad objectives of the water industry

2.1 Short (4-year) determination periods may mitigate against innovative options that deliver long term efficiency and value

The current economic regulatory process focuses on four year efficiencies, and least cost ‘just in time’ delivery of significant infrastructure. Recent work we undertook that underpinned the Water Supply and Demand Strategy for Melbourneⁱ enabled utility staff to show that there are significant opportunities for large (of the order of billions of dollars) long term (30-50 year) efficiencies through ongoing investment in demand management and integrated water solutions when the opportunity arises, as opposed to demand-triggered investment in the next tranche of desalination (Institute for Sustainable Futures 2011). These considerations do not seem to be supported within the current short determination periods.

The submissions by Sydney Water and WaterNSW have identified substantial cost projectionsⁱⁱ in both this and future regulatory periods. Rather than relying on large “once in a generation” infrastructure augmentations “just in time”, there is an opportunity to encourage opportunistic private investment to achieve the same (or greater) outcomes leveraging both public and private funds. The question is how might the regulatory process be constructed to facilitate such outcomes?

2.2 Funding liveability objectives

Liveability is now a fundamental objective of water service provision globally and locally. The Metropolitan Water Plan, developed by the NSW Government, ‘aims to support liveable and resilient urban communities and helps protect the health of rivers impacted by water supply dams’ (Metropolitan Water Directorate 2015). The desire for liveable resilient urban communities and the important role water plays in delivering these communities is echoed by industry bodies such as WSAA and in Sydney Water’s own corporate statements (Sydney Water 2014).

However, the term ‘liveability’ occurs just onceⁱⁱⁱ of the 364-page Sydney Water Price Plan, with reference to the provision of clean water and sanitation since 1888. It does not appear at all in the IPART issues paper. Members of the Water Services Association of Australia, including Sydney Water, prepared an Occasional Paper on Liveability last year (Water Services Association of Australia 2014). It defines liveability as follows:

‘A liveable city or region meets the basic social, environmental and economic needs of its people. It also addresses community values and preferences for amenity, wellbeing and a sense of place.

To be long lasting and resilient a liveable city or region must consider the needs of future generations and use systems thinking to understand and respond to shocks and long-term change.’

This kind of thinking requires integrated water cycle management, and is in keeping with s27(1) of the Sydney Water Act (Adopt as ultimate aim prevention of all dry weather discharges to sewer).

In contrast, the proposed pricing path misses a key opportunity to open discussion for funding these wider objectives. The Sydney Water submission and the IPART issues paper reinforces the focus on planning, pricing and regulating least cost single product solutions. Coupled with the lack of simple and flexible mechanisms to include the value of broader social and environmental objectives this can result in perverse outcomes. For example, the recycled water supply in Hoxton Park that appears to have been mothballed, and renegotiation of wet weather overflow abatement and the deferral of investment on the Vaucluse Diamond Bay system (where raw sewage is discharged daily) [see endnote^{iv} for details].

This approach to pricing also fails to reflect customer consultation and independent research that has verified the preference of Sydney Water customers for solutions that protect and enhance the environment (Metropolitan Water Directorate 2014) and that they are willing to pay for it (Marsden Jacobs 2013; Metropolitan Water Directorate 2014). The combination of current willingness to pay data and a temporary cost reduction due to historically low interest rates provides a unique opportunity to trial innovative mechanisms that promote the wider (currently unfunded) goals of the water industry. The research conducted by Marsden Jacobs quantifies Sydney Water customers “willingness to pay” for recycled water options, even if they are not the direct beneficiary:

- “Sydney households are on average willing to pay between \$2.65 and \$48.38 per year for an additional 10-40GL per year of recycled water by 2030,” and
- “Sydney households are willing to pay for these recycled water outcomes starting now, even though they were told that changes would occur between now and 2030, and will take time to happen. They are willing to pay extra in addition to existing charges and fees they already pay.”

2.3 Considering the role of the potable water usage charge

Firstly, Sydney Water should consider using the current savings to invest in new ways of doing business. Sydney Water has proposed to significantly lower water prices due to lower costs, where a substantial portion of the savings is of a temporary nature due to the current historically low interest rate environment.

Local liveability projects represent a new way of providing services, either by Sydney Water or by other service providers. For Sydney Water, this approach incurs an innovation cost because Sydney Water does not have the business processes in place to plan for and deliver such approaches. Thus, when these new methods are proposed internally, they fail to get approval because they are expected to deliver at a cost which is no higher than business-as-usual.

Rather than passing on these temporary savings, ISF recommends taking up this unique opportunity to keep prices stable, while directing surplus revenue to projects that help Sydney Water develop internally, and support long term, previously unfunded objectives of liveability – objectives for which the community have clearly stated a willingness to pay.

Secondly, whilst ISF agrees that the water usage charge should recover the additional costs of desalination when it is activated, we note that local recycled water systems also provide broader climate-independent water security and reduce fluctuations in demand due to changing weather patterns. These systems also contribute to resilient cities more broadly in supporting urban greening and cooling. However, these systems do not have access to the same cost sharing arrangements as

desalination. This further supports our argument to direct surplus revenue gained from keeping the potable water usage charge stable in real terms towards local liveability projects.

Thirdly, ISF is concerned that the proposed lower prices for water will undermine efforts to raise community awareness of the importance of water conservation.

2.4 Unintended negative consequences of changes to price structure on long term objectives

Under current determinations and pricing principles, recycled water has different revenue recovery and funding rules to conventional water and wastewater services. The rules for revenue recovery discriminate in several ways between conventional water/ wastewater services and recycled water, all of which increase the revenue risk for recycled water. Currently, there is a 'postage stamp' (common) price for basic water and wastewater services, while recycled water costs must be recovered directly from only the users following established pricing principles. There are no developer charges levied for water and wastewater but there are developer charges for recycled water services. Recycled water services are required to be locally cost reflective whereas conventional services are neither cost reflective at the local scale or across the whole area of operations. Whilst these rules were established to encourage competition in the sector and limit the ability of utilities to use monopoly power to dominate the recycled water market (NSW Independent Pricing and Regulatory Tribunal 2006), in practice, they significantly hamper the public sector's capacity to invest in distributed recycled water.

The most significant impact of these rules is that they magnify the financial (revenue) risk for the utility. This is because the revenue for conventional water and wastewater services is fully recovered from the whole customer base (over 1.7 million households and businesses) whereas for recycled water service provision, the revenue is recovered from a very small customer base (Sydney Water 2012b) with a very high demand risk. Two factors contribute to this risk: firstly, uptake – water use and therefore billing and revenue is entirely contingent on sales and occupancy in new developments and re-developments, entirely beyond Sydney Water's control. However, this risk is materially enlarged by the current policy whereby connection to a recycled water system is discretionary, making the demand risk subject to connection uncertainty in addition to the already significant demand risks noted above. The ability to pick and choose between single products undermines the principles that underpin least cost integrated planning – that is providing a total water service rather than separate individual products.

These distinctions exacerbate the difference between prices and the revenue risk profiles for general water and wastewater services and those for recycled water within the one utility. This pricing determination provides an opportunity to review whether the outcomes of these revenue recovery and funding rules are in line with the original intentions, and if not, as we suggest, then to propose other arrangements that unlock investment in recycled water, and therefore enable integrated water cycle approaches and long term objectives.

2.5 Risks and challenges in assessing and accessing avoided costs

There are several other ways in which utility water and wastewater pricing policies directly and negatively impact on the financial viability of distributed recycled water systems. The ability to assess and access avoided costs is a significant case in point. Avoided costs are defined as costs in

the centralised water and wastewater system that are avoided by recycling. Even though IPART has developed a framework for calculating and recovering avoided costs associated with recycled water projects (Independent Pricing and Regulatory Tribunal 2011), in practice these avoided costs are difficult to identify and collect, because calculating avoided costs is generally not well understood, and the lack of experience and publically available system cost data makes outcomes uncertain.

There is uncertainty in the outcome of the IPART formula application. This is perhaps best highlighted through the decision on avoided costs for Sydney's Rouse Hill recycled water system. Sydney Water had applied the formula outlined by IPART and liaised with IPART during the calculation process. Yet, in their draft determination IPART rejected the estimates, leaving Sydney Water 'with no confidence in IPART's regulatory framework for recycled water avoided costs' (Sydney Water 2012). It is significant to point out here that this situation occurred despite Sydney Water obviously having access to all the available data about system cost.

In comparison, it is difficult if not impossible for private developers and service providers to estimate avoided costs because currently^v there is essentially no publically available information on the costs within different water and wastewater systems. Hence, their risk in assessing and accessing avoided costs is even greater than Sydney Water's.

Even when distributed systems manage to generate avoided costs they still may not be able to claim the full amount. The current method for calculating the appropriate level of avoided costs claimable is the avoided costs generated by the scheme reduced by the recycled water users' willingness to pay (NSW Independent Pricing and Regulatory Tribunal 2006).

Considering distributed infrastructure investments on an individual, rather than aggregate basis, further compounds access to avoided costs. Long term planning assessments in Melbourne demonstrated the aggregate value of distributed non-potable supply on water and wastewater systems (see Section 2.1). However, the nature of the existing assets and system design requirements in Sydney limits the impact an individual small recycled water system can make. It is difficult to calculate the value of avoided costs for small increments of demand in relation to infrastructure with very large capacity. This is particularly true for water as:

- once a lumpy investment has been made it is usually viewed as a 'sunk' or unavoidable cost in the context of cost-benefit analysis (Commonwealth of Australia 2006). This means once a decision to augment infrastructure is made there is little opportunity over the short to medium term for decentralised investments to 'avoid' costs.
- networks can account for up to 80 percent of total system capital costs, and wastewater capital costs are often based on factors that are unlikely to be reduced with individual distributed schemes (Water Services Association of Australia 2007).

2.6 There is not a level playing field

The unit price of water across Australia remains low despite the substantial progress utilities have made towards cost reflective pricing.

There are several compounding contributing factors that make simple price comparisons for private alternative water sources in the Sydney area non-reflective of actual costs. Historically we have harnessed cheap surface water supplies, and water is generally priced to the long run marginal cost.

Changes in capital funding arrangements and cost recovery mechanisms for water infrastructure mean many pre-price-regulation assets were substantially written down, so prices do not reflect the full value of even these cheap sources. For example in 2000, with the start of price regulation, IPART drew a 'line in the sand' and wrote down asset values by over half (regulatory asset base is about \$13 billion, the depreciated replacement cost is over \$30 billion)(Sydney Water 2010). The long run marginal cost reflects a suite of measures, some much cheaper (usually water conservation measures), and some much more expensive (such as climate-independent water sources) (NSW Independent Pricing and Regulatory Tribunal 2006).

Even when a distributed recycled water scheme makes up part of an efficient suite of measures to meet the supply demand balance, unless it costs less than the average long run marginal cost, it will be difficult for it to be competitively priced by a private supplier. It is difficult, if not impossible, for an individual climate-independent source to compete against the average of the full suite of supply demand measures.

This lack of a level playing field is a further reason to consider the equity of blunt mechanisms, such as the "retail minus" proposal for private suppliers access to the Sydney Water network. While competition should not be supported for competitions sake, nor if it is inefficient, the arbitrarily historically low price of water makes it hard for small private recycled water schemes to compete on unit price alone.

2.7 Siloed planning and regulation of services

The discussion throughout Sydney Water's submission and IPART's issues paper highlights the continued separate and siloed planning and regulation of water, wastewater and stormwater services. This hampers the ability to promote integrated solutions that also address a wider liveability agenda and meet multiple objectives at once. This submission suggests some innovative measures that could be adopted to at least test market capacity and trial customer willingness to pay without putting undue upward price pressures on existing Sydney Water customers in the short term.

Although the issue of liveability and willingness to pay for added benefits of water services was not directly addressed by either Sydney Water or IPART, it is noted that several issues raised in the paper could pave the way to testing the response of the market to innovative measures without unduly affecting the prices experienced by Sydney Water customers in the short term.

3 Determining appropriate charges for local water systems connection to Sydney Water's infrastructure.

3.1 Pricing for wholesale customers

We recognise that Sydney Water has a legal obligation to charge customers as set out in the Price Determination and agree that providing clarity around the appropriate mechanism to charge for the interconnection between a local recycled water system and the Sydney Water system would help provide certainty for both Sydney Water and for the private industry providers. However, the way local recycled water providers are charged for access to the Sydney Water monopoly network is fundamental to the development of a viable competitive market. There are several issues raised in this paper that will influence the financial viability of existing, developing and proposed schemes.

For example, Sydney Water and IPART have raised the concept of wholesale price setting. The method suggested for a wholesale price (Retail minus avoided/avoidable costs) is likely to severely hamper the short and medium term evolution of a competitive water market in Sydney.

Sydney Water and IPART have also raised the notion of a Weighted Average Price Cap. Some of the options for differential pricing under a WAPC have the potential to provide an environment that provides the flexibility to recognise the very different impost of local recycled water systems on the Sydney Water network. The impact of these options are discussed below.

We note that both of these changes seem to be at odds with a statement in Sydney Water's 2013-2014 Annual Report, making clear that the arrangement in place at the time was to be a template for all future arrangements:

P16 Sydney Water 2013-2014 Annual Report 'We are supporting innovative servicing arrangements at Central Park, the 5 Green Star sustainable housing development in Sydney's CBD, by providing access to back-up drinking water and sewer mining services for its recycled water system. We are also providing drinking water supply and wastewater collection services at the development boundary. The agreement with Flow Systems Pty Ltd to support Central Park will be the template for all future inter-utility service agreements.'

In its submission Sydney Water states that all secondary water utilities should be viewed as an access seeker paying retail-minus-avoided costs. This approach could have significant negative impacts on the emerging water market. There are several alternative approaches that are consistent with postage stamp pricing, and could provide a more effective mechanism to both minimise the potential lost revenue to Sydney Water and ensure private providers pay an appropriate contribution to use Sydney Water's services.

3.2 Pricing and access mechanisms should meet the needs of the situation

ISF understands that there is an opportunity for some arbitrage to occur, and accepts that as a trigger for Sydney Water to suggest changes. However, we believe what is being suggested is a rather blunt and quite aggressive tool given its potential to completely undermine the emerging sector in integrated water cycle service provision. The difference between schemes that provide no further treatment or water source and the schemes that have the potential for arbitrage is significant, and therefore they should be treated differently. Here, we explain our understanding of the situation in detail.

In its submission Sydney Water indicates their preference for treating all water industry entrants as access seekers, arguably to preserve postage stamp pricing and to avoid arbitrage. Sydney Water suggests “An arbitrage opportunity would allow wholesale customers to enter the market without providing any additional services or improving overall system efficiency. The margin created by this arbitrage opportunity would ultimately need to be recovered from Sydney Water’s wider customer base, which would increase prices to all remaining direct customers of Sydney Water”. Whilst this situation is technically possible, it does not reflect existing investments by the private sector. In addition, the Water Industry Competition Amendment (Review) Act 2014 makes this unlikely because it requires that retailers provide services only in connection with a scheme approved under the Act. This means retailers will not be allowed simply to cherry-pick small retail customers from existing utilities, or provide retail services if there has not been an investment in physical infrastructure. The purpose of this provision was to avoid the adverse implications that can arise where markets introduce "full retail contestability" (Second reading speech).

There is an inadvertent arbitrage opportunity of potential concern where only network services are provided. The provision above is a change from the original s10(4)(d) where new entrants were required to obtain sufficient water other than from a public water utility. This change was made to create a more level playing field with public utilities which are not required to obtain water from a particular source (WIC amendment act second reading speech). However, in a greenfield development, the developer usually installs water and wastewater reticulation infrastructure as part of the development conditions and hands those assets over to Sydney Water “free of charge”. If the developer was to keep the assets and become a network supplier and retailer through WICA, there is a potential for arbitrage by applying for a wholesale water price at the supply point into the development and a wholesale wastewater price at the discharge point from the development. The method for calculating the wholesale price would determine whether and to what extent third parties could make profits on assets they would otherwise freely hand over to Sydney Water.

While treating private providers who deliver no additional water source or provide no additional treatment for wastewater as access seekers may be appropriate, this method has the potential to stifle the emerging market for private recycled water and integrated water services, if applied in the manner suggested by Sydney Water. A more nuanced approach that distinguishes between those who provide no other services, and those who do, is necessary. The impacts of the proposed approach and alternatives are discussed below.

3.3 What is the appropriate customer definition should access prices (or another form of wholesale price structure) be implemented

The current price determination recognises two general classes of customers: residential and non-residential. Residential customers pay a wastewater service charge, a water service charge and a water usage charge. Non-residential customers pay the same water usage charge as residential customers. The water and wastewater service charges for non-residential customers are based on the size of their meter, reflecting that a larger meter means larger use and therefore a larger impact on the system. Large non-residential customers also pay a wastewater usage charge. Historically, the threshold was water use over 300kL/yr. IPART have indicated their preference for reducing this to 150kL/yr (Independent Pricing and Regulatory Tribunal 2012, p. 103). Some non-residential customers also pay trade waste charges. There has been substantial restructuring in these price

regimes over the last few determinations to better reflect their impact on the system and reduce cross subsidies.

When local recycled water systems service a residential development (such as the system at Central Park Sydney) they place a very different load on the existing water and wastewater networks to conventional residential services. Independent studies have shown that local recycled water systems reduce the average and peak demands on water and wastewater networks (Gurung et al. 2014; Willis et al. 2011), which in turn can positively influence network capacity, long term infrastructure augmentations and pumping costs. Local recycled water systems also have the capacity to reduce the nutrient, BOD and suspended solids loads, compared to standard residential wastewater discharge, which can reduce networks and wastewater treatment costs.

Therefore, to suggest that these privately operated systems place the same impost on the Sydney Water systems as an aggregate of average residential customers would appear to be questionable at the very least. This is significant because it is inconsistent with IPART pricing principles^{vi}.

The choice of customer class has a significant influence on the costs to the customer, Sydney Water's revenue, and the financial viability of providing the services, as the table below shows. This example considers a residential development encompassing 70 apartments, and is based on publically available 2014/2015 prices. Three scenarios are considered: a conventional servicing arrangement, with Sydney Water as provider and no recycled water; a local integrated situation where recycled water is provided and the secondary utility is treated as a commercial customer; and no recycled water with the secondary utility treated as a commercial customer. This kind of regime recognises the main charge is for potable water; responds to changes in water and sewer usage, including if decentralised treatment is turned off or breaks down; could require flows to be pumped to sewer; could recognise that local recycled water systems minimise wet weather discharges.

What Table 2 makes clear is that the impact on Sydney Water in the foreseeable future is immaterial, whilst the impact on secondary utilities is profound. Under an arrangement where a secondary utility is providing qualitatively different services, Sydney Water's revenue is reduced by less than \$800 per apartment per annum. Sydney Water recognises that the WIC Act has "provided for very limited new entry by smaller providers on the competitive fringe, with only about a dozen separate schemes..". Over the next pricing period, the number of dwellings served by secondary utilities is likely to be about 5,000, and no more than 10,000. This represents a drop in revenue of \$4-8M, at worst. Last year, Sydney Water's total income was \$2,615M, so this loss represents, at most, 0.3%. There are other methods for charging for connection to Sydney Water services that have more reasonable and equitable outcomes in the short to medium term besides that proposed.

Table 2: Estimated annual revenue (2014/2015) under different customer classes for a new development of 70 units

	<i>Scenario 1: Conventional servicing arrangement</i>	<i>Scenario 2: Secondary utility supplying integrated water cycle services, including recycled water</i>	<i>Scenario 3: Secondary utility providing conventional servicing</i>
<i>Potable water use</i>	197 kL/apartment	118 kL/apartment	197 kL/apartment
<i>Water service charge</i>	\$91.72/apartment 70 apartments = \$6,420.40	50mm meter = \$835.36	50mm meter = \$835.36
<i>Water use charge</i>	197 kL/apartment 70 apartments \$2.232/kL = \$30,779.28	118 kL/apartment 70 apartments \$2.232/kL = \$18,436.32	197 kL/apartment 70 apartments \$2.232/kL = \$30,779.28

<i>Discharge factor</i>	NA	15%	100%
<i>Sewer service charge</i>	\$592.40/apartment 70 apartments = \$41,468	\$5,538.44 / 50mm meter Discharge factor 15% = \$830.766	\$5,538.44 / 50mm meter Discharge factor 100% = \$5538.44
<i>Sewer use charge</i>	NA	118 kL / apartment 70 apartments Discharge factor 15% \$1.20/kL = \$1,486.80	197 kL / apartment 70 apartments Discharge factor 100% \$1.20/kL = \$16,548
<i>Trade waste charge</i>	NA	Assume \$2,000	Assume \$2,000
<i>Total cost to Sydney Water customers</i>	\$78,667.68	\$23,589.13	\$55,700.96
<i>Difference</i>		\$55,078.55	\$17,381.56

Right now, Sydney Water is developing a methodology for determining the economic level of water conservation (ELWC) where conservation includes anything that reduces potable demand, namely demand management, leakage reduction, and water recycling. This methodology will come into play during this pricing determination period, and has the potential to have profound influence over how investment in water recycling occurs in Sydney, and therefore over forthcoming pricing determinations, and over how the market for integrated water cycle services matures.

One prudent course of action would seem, therefore, to be to foreshadow that arrangements may change at the next pricing determination in 2020, but to leave conducive arrangements in place until then. This is because the proposed arrangements are highly likely to shut down the emerging private sector market for integrated water cycle service provision in Sydney. The proposed path would appear to be anti-competitive, and is difficult to fathom when the market size in the short term is less than tiny, and at the same time, that market is the only place where investment in liveability is occurring. In other words, there may be things to be learned from this market for how to embark on liveability investments more broadly.

Another simple method to remedy the difficulty shown in Table 2 may be to create another customer type, or to specifically define customer types based on the type of impact they place on the system. That would provide the opportunity to deal with the arbitrage situation shown in Scenario 3 in Table 2, but to still encourage the delivery of integrated water cycle services. These methods would be consistent with other policy decisions, such as the current cross-subsidy by all Sydney Water customers to fund new developments.

3.4 Avoided vs avoidable costs

Without any indication of what avoidable costs would be it is difficult to comment on whether a 'retail minus avoidable costs' approach could provide an efficient means of charging small systems for the load they place on the Sydney Water network. The complexity and difficulty of the current calculations of avoided costs is discussed in detail in section 2.5. Avoidable costs extend beyond avoided costs, so that difficulty and complexity only increases. It is likely the risks and unpredictability around these costs has contributed to the lack of private providers requesting an access arrangement.

There also seems to be material confusion around the appropriate definition of the cost reduction. The definition in this issues paper is different to the one by used by the ACCC in footnote, and different again from the Sydney Water submission which uses avoided costs. Is it costs actually avoided, costs that could be avoided in the long run, or costs that could be avoided if the service ceased to be provided?

3.5 Private recycled water systems can provide broader benefits that could justify subsidies from the wider customer base

Sydney Water suggests that the additional services provided by private providers are of private benefit only. This is in contrast to their position that Sydney Water's stormwater improvements benefit the community as a whole. There is a wide body of research from Australia and around the world that supports the broader community and environmental value associated with local recycled water systems, including urban cooling, urban greening, education, water security and resilience to name a few (Chen & Wang 2009; Ferguson et al. 2013; Lazarova et al. 2001; Liang 2010; Lundie, Peters & Beavis 2004; Marsden Jacobs 2014b; Marsden Jacobs & Brisbane City Council 2011; Mukheibir, Boyle & Mitchell 2013; Schwecke, Simmons & Maheshwari 2007; Sharma et al. 2009; Yamagata et al. 2003). It is also in contrast to other independent studies that show the community values recycled water services regardless of whether they are the end beneficiary (Marsden Jacobs 2014a). It is evident that local recycled water schemes provide both public and private benefits. The evidence of these benefits further supports the argument that the broader contribution these systems make should be acknowledge and considered when deciding how to charge for connections to the Sydney Water system.

3.6 Weighted Average Price Cap

In its submission Sydney Water suggested that the current regulatory regime is outdated and there are more appropriate and flexible ways of setting tariffs. They propose a weighted average price cap (WAPC) that would allow Sydney Water to "charge different customers different prices" and perhaps be "a way of transitioning away from postage stamp pricing".

The WAPC is potentially an effective and efficient mechanism to allow for different service levels and different impacts on the system. It would be one way of transitioning from postage stamp prices if that was the approach the government wished to pursue. Without details it is difficult to assess the proposal further; however we support flexible pricing that leads to more efficient infrastructure outcomes. We suggest that this issue should be considered in more holistic context with wider stakeholder consultation.

4 References and Endnotes

- Chen, R. & Wang, X.C. 2009, 'Cost-benefit evaluation of a decentralized water system for wastewater reuse and environmental protection', *Water Science & Technology*, vol. 59, pp. 1515-22.
- Ferguson, B.C., Brown, R.R., Frantzeskaki, N., de Haan, F.J. & Deletic, A. 2013, 'The enabling institutional context for integrated water management: Lessons from Melbourne', *Water Research*, vol. 47, no. 20, pp. 7300-14.
- Gurung, T.R., Stewart, R.A., Beal, C.D. & Sharma, A.K. 2014, 'Smart meter enabled water end-use demand data: platform for the enhanced infrastructure planning of contemporary urban water supply networks', *Journal of Cleaner Production*, no. 0.
- Independent Pricing and Regulatory Tribunal 2011, *Assessment Process for Recycled Water Scheme Avoided Costs - Water Guideline*, Sydney.
- Independent Pricing and Regulatory Tribunal 2012, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services from 1 July 2012 to 30 June 2016 - Final Report*.
- Institute for Sustainable Futures 2011, *Planning for resilient water systems - a water supply and demand investment options assessment framework, [prepared for the Smart Water Fund]*, Institute for Sustainable Futures, University of Technology, Sydney.
- Lazarova, V., Levine, B., Sack, J., Cirelli, G., Jeffrey, P., Muntau, H., Salgot, M. & Brissaud, F. 2001, 'Role of water reuse for enhancing integrated water management in Europe and Mediterranean countries', *Water Science & Technology*, vol. 43, no. 10, pp. 25-34
- Liang, X.a.P.v.D., Meine 2010, 'Financial and economic feasibility of decentralized wastewater reuse systems in Beijing', *Water Science & Technology*, vol. Vol 61, no. No 8, pp. pp 1965-73.
- Lundie, S., Peters, G.M. & Beavis, P.C. 2004, 'Life Cycle Assessment for Sustainable Metropolitan Water Systems Planning', *Environmental Science & Technology*, vol. 38, no. 13, pp. 3465-73.
- Marsden Jacobs 2013, *Economic viability of recycled water schemes*, Australian Recycled Water Centre of Excellence.
- Marsden Jacobs 2014a, *Economic viability of recycled water schemes - Technical Report 2: Community values for recycled water in Sydney*, Australian Water Recycling Centre of Excellence.
- Marsden Jacobs 2014b, *Economic viability of recycled water schemes - Technical Report 3: Environmental and social values associated with non-potable recycled water*, Australian Water Recycling Centre of Excellence.
- Marsden Jacobs & Brisbane City Council 2011, *Case study: Integrated resource planning for urban water— Cabbage Tree Creek*, no. Waterlines 14, National Water Commission.
- Metropolitan Water Directorate 2015 <http://www.metrowater.nsw.gov.au/planning-sydney/2010-metropolitan-water-plan> (accessed 2 October 2015)
- Metropolitan Water Directorate 2014, *Metropolitan Water Plan Review - Community and Stakeholder Engagement Round Two Report*, Sydney.
- Mukheibir, P., Boyle, T. & Mitchell, C. 2013, 'End-use forecasting in the context of building adaptive water services', *Water Utility Journal*, vol. 6, no. 1, p. 10.
- Schwecke, M., Simmons, B. & Maheshwari, B. 2007, 'Sustainable use of stormwater for irrigation case study: Manly Golf Course', *The Environmentalist*, vol. 27, no. 1, pp. 51-61.
- Sharma, A., Grant, A., Grant, T., Pamminger, F. & Opray, L. 2009, 'Environmental and Economic Assessment of urban water services for a greenfield development', *Environmental Engineering Science*, vol. 26, no. 5, p. 15.
- Sydney Water 2012, *Sydney Water's response to IPART draft Determination of prices for Sydney Water Corporation's water, sewerage, drainage and other services*.
- Sydney Water 2014, *Sydney Water Annual Report 2014*, Annual Report Sydney Water, Sydney.
- Water Services Association of Australia 2014 *The role of the urban water industry in contributing to liveability*, Occasional Paper 30.

Willis, R.M., Stewart, R.A., Williams, P.R., Hacker, C.H., Emmonds, S.C. & Capati, G. 2011, 'Residential potable and recycled water end uses in a dual reticulated supply system', *Desalination*, vol. 272, no. 1–3, pp. 201-11.

Yamagata, H., Ogoshi, M., Suzuki, Y., Ozaki, M. & Asano, T. 2003, 'On-site water recycling systems in Japan', *Water Science & Technology: Water Supply*, vol. 3, no. 3, pp. 149-54.

ⁱ The strategic intent of that strategy was 'sustainable water services that enable a healthy, liveable and prosperous Melbourne', comparable to Sydney's Metropolitan Water Plan goal to deliver a secure and sustainable water supply through a cost effective portfolio of supply and demand measures that secures supplies, helps protect the health of affected rivers, and supports liveable urban communities.

ⁱⁱ e.g., i) Water security - \$103 million for improvements in the Shoalhaven transfer system this regulatory period to ensure safe yield predicted to be exceeded in the next decade (WaterNSW submission pg 56)

ii) Significant expenditure on new and upgraded wastewater treatment plants including upgrades at Winmalee and Riverstone and at least three new sewerage treatment plants in the South West (pg 239) in the next decade, expected to cost much more than current processes as they will need to meet more stringent discharge requirements to protect the Hawkesbury Nepean

iii) Complying with environmental protection licences, particularly wet weather overflow abatement (\$150 million- \$5.5 billion (p27, p54 Sydney Water Price Plan)).

ⁱⁱⁱ On page i: 'By providing sustained access to clean drinking water and sanitation since 1888, we have contributed to the overall *liveability* of the region.'

^{iv} For example, although significant capital infrastructure has been invested both publically and privately for recycled water supply in the Hoxton Park area to meet government objectives it would appear that this scheme has been effectively mothballed, with an expected 100% potable top up through recycled water pipes projected (SW submission pg 297).

In addition, Sydney Water's submission indicated capital savings due to renegotiation of wet weather overflow abatement and the deferral of investment on the Vacluse Diamond Bay system (where raw sewerage is discharged daily). The current approach for environmental regulation appears to be a two party negotiation between the environmental regulator and Sydney Water on an efficient outcomes basis. This is not to say that the outcomes are not prudent, however, it seems to miss the opportunity for alternative options that leverage both public and private funds for the same outcome. For example, one option may be a "bubble licence" type option with open bidding, beyond Sydney Water, for nutrient load reduction parcels, with contributions funded through price and administered through IPART, and with the bidding process managed through the EPA. This could allow for private sector options that include some portion of public funding for the public benefit and environmental outcomes and a portion of private funding for the private benefit.

^v Under section 42 of the WIC Act there is the requirement for a cost allocation manual to be developed and made publically available for declared services. Depending on the form of the accounts this may provide a useful tool for providing transparency and predictability of potential avoided costs on a system basis.

^{vi} 2012 IPART determination pg3 'Residential water and wastewater services should be standard unless there are material differences'