Submission to National Water Reform Draft Report

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Thank you for the opportunity to make a submission on the important work in reviewing national water policy. We are the co-chairs of the AWA Water Efficiency Specialist Network however this submission has not yet been endorsed by the SN and does not represent the views of the AWA.

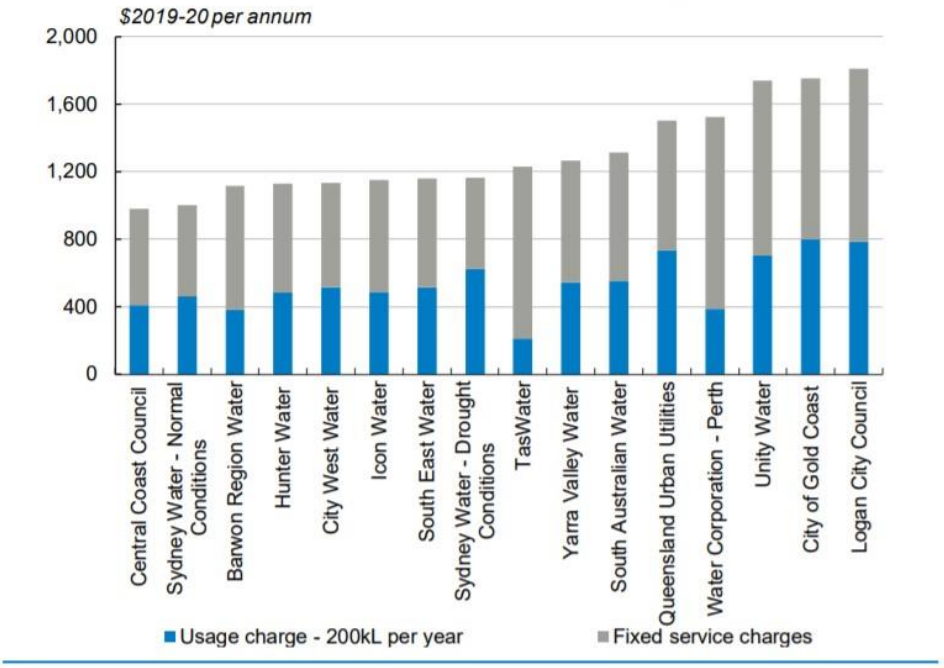
In the many issues the PC has considered we suggest that one aspect that has been overlooked and requires further consideration is improving the productivity and economic efficiency of the urban water sector both now and in the future.

We consider that the water 'markets' do not operate as true markets, and therefore there is a need for intervention to balance incentives to get a desirable outcome. We also believe the current approach for determining the income of water corporations does not promote greater water productivity, even if this is in the best interests of the community.

Most water utilities are monopolies, and so maximising their efficiency and productivity requires transparent and comprehensive oversight . Simple metrics including impact on household welfare, the size of regulatory asset bases, operational costs per property and volume of water delivered are absent from the Productivity Commission assessment and should become part of the language of measuring water corporation performance.

As an example, we have included an assessment done by IPART (2020) of the largest water corporations in Australia. Considering the combined charges for water and wastewater for households with 200kl of usage shows that Sydney is delivering water services for about $5/kl and Logan City Council at about $9/kl. This kind of assessment is rare in the water industry. It is notable that Sydney has a history of water efficiency programs (including BASIX) but South East Queensland has invested in a desalination plant, recycled water, a water grid and removed water efficiency provisions from its Development Code and appears to have four of the five most expensive water corporations shown in the graph.

Figure 14.5 Combined water and wastewater bills for households with 200kL of usage



We consider this to be an early example of evidence to suggest that incentivising an unbalanced investment in water supply augmentation over demand management can have dramatic, long-term impacts on cost – and subsequently a constraining impact on household welfare and business efficiency. This is not simply due to covering large capital expenditure, but also the high costs associated with operating water systems where demand is left unconstrained and water wastage is unchecked.

Looking forwards, the cost to the broader economy of water system failure is expected to be extreme, and we believe the risk of this (from a drought failure or any other crisis) is maximised with systems being run to greater capacity.

Were these issues to be measured there may be a more balanced interest in more economically efficient solutions.

The issue of energy efficiency has been extensively discussed in Australia with a recognition in the energy industry that there is a need for a regulator to proactively balance incentives between network augmentation and demand management to avoid inefficient services. We believe that this consideration should also be applied to the water industry.

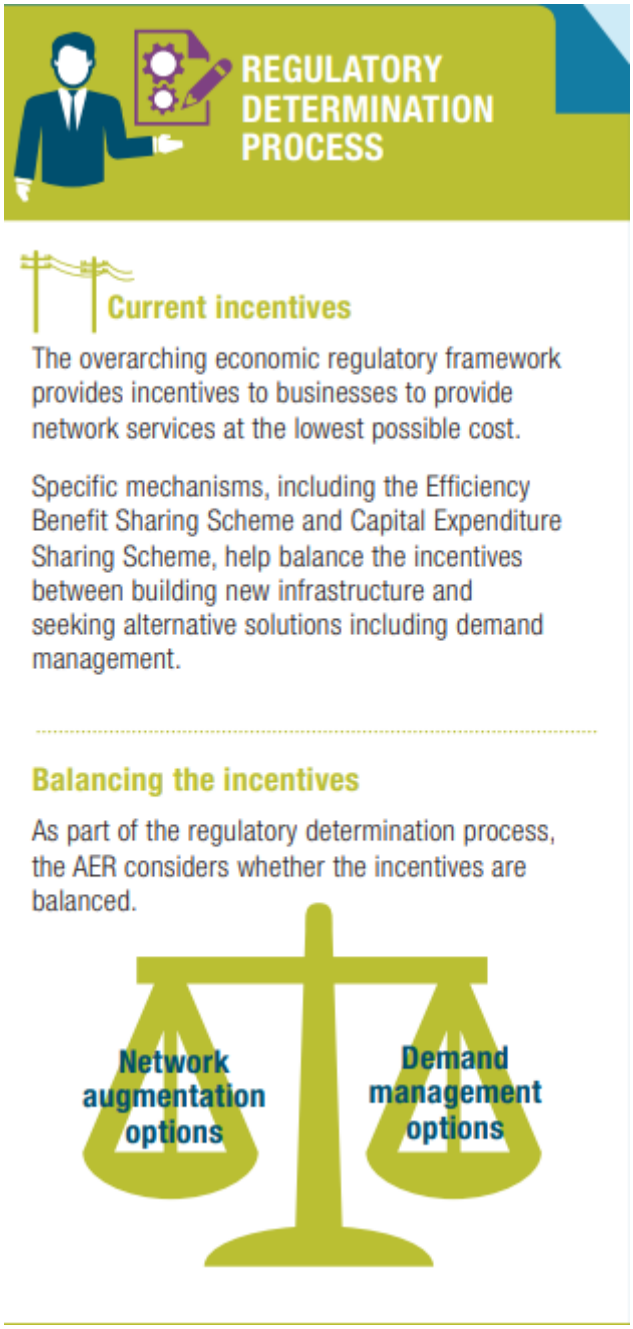


Figure 1 – Excerpt from an 'Australian Energy Market Commission' (AEMC) Fact Sheet[1]

In 2008 COAG (Australian Government, retrieved 2020) established national urban water principles. One of those principles was that the full portfolio of water supply and demand options should be considered for urban water management, and the first option was optimising the use of existing infrastructure through efficiency measures. COAG also considered that water should be managed on a whole of water cycle basis. This is important because water efficiency should be considered not only as the demand and supply of potable water but also take into account sewage, stormwater and irrigation efficiencies.

[1] https://www.aemc.gov.au/sites/default/files/content/85b2d487-5026-4a1b-88de-a432afae9855/ERC0177-Fact-sheet-final-determination.pdf

Likewise a key finding of the Case for Water Efficiency published by the AWA in 2012 was that supply augmentation proposals should always be accompanied by an assessment of increased water efficiency using the same criteria.

The AWA Water Efficiency Specialist Network has prepared a short list of example demand management opportunities that could be considered by each water corporation and water utility at the same time as considering supply augmentation. Endorsing this simple list could result in a significant reduction in water service costs, increased productivity and increased household welfare throughout the Australian economy.

We consider the under investment in water efficiency over the last decade means that a 20% reduction in household water corporation water consumption would have a net benefit for the community with little impact on household amenity but considerable benefits for network capital and operating costs. Note that this does not preclude the actual water use of the household, just how much of that water is supplied by the water corporation over distances of up to 100km. This figure is in practice a modest one compared to the very successful BASIX program which required design modifications to achieve a 40% reduction in water use and has been operating successfully since 2004. This would be an appropriate starting point for setting water efficiency targets for water corporations.

Recommendations

1. Require transparent metrics to be reported that highlight the true economic productivity of water utilities
2. Develop regulator engagement to ensure water utility incentives are effectively balanced between supply and demand solutions, and that options on both sides are compared effectively to determine the greatest efficiency.
3. Consider target setting to correct for under-representation of investment in demand management – for example we believe a 20% reduction in per capita water consumption from water corporations is an appropriate starting point for setting water efficiency targets for water corporations.
4. Establish the following standards for large water corporations. Recommendations for different scales are provided in Appendix A (Beatty 2019 unpub)

>500,000 customers	Should undertake a demand management strategy exercise every 5 – 10 years that considers how various demand management options, the water savings and the costs and benefits of options. Benefits to include the downsizing and/or deferral of capital expenditure, plus reductions on treatment and transfer costs. Should consider all options – including the wider use of recycled water, stormwater harvesting and rainwater harvesting systems modelling in a whole of system context.	Will have moved to smart water metering for all customers with water consumption in excess of 5,000 kL/a and a system for benchmarking and profiling water use and reporting on issues such as anomalous water use or high night flows. Should pilot a smart metering system for residential customers.	As determined by the demand management strategy. Options to be considered: • Residential retrofit program • Large water users audit program • Home tune up kits – toilet leak detection tablets, low flow showerheads and flow regulators for taps. • Should implement a program that provides free installation of water efficient showers. This program should only be terminated where there is clear evidence that it has reached market saturation. Follow up surveys of participating customers to verify medium and long-term retention	Permanent water saving rules should be in place. Other options as determined by the demand management strategy. Options to be considered include: • Water efficiency codes for new houses and buildings • Mandatory 5 yearly water efficiency benchmarking and reporting for large water users	At least one full time person dedicated to the coordination of water conservation-based education for customers and the community. Water efficiency benchmarking information should be widely available for customers.	The demand management strategy should consider: • High rainfall areas, may consider the use of building regulations to mandate the use of rainwater harvesting systems for new development. • Consider the use of recycled water for large water users. • The demand management strategy should also consider the costs and benefits of the use of recycled water systems beyond the largest users – especially in inland areas. • Stormwater and rainwater harvesting systems should also be considered.	Should have a system-wide automated water monitoring system that reports anomalous system events for investigation and action.

APPENDIX A

A Scale-appropriate Approach to Best Practice Water Efficiency and Demand Management – Australian Urban Water Utilities

Russell Beatty HARC

There are a wide range of water utilities/service providers operating across Australia with populations serviced ranging from the hundreds, to many millions. There are also varied administrative arrangements, with the most common being the separation of bulk supply and retail water services.

Water conservation, or demand management refers to "any regulatory, policy, technical, service or commercial interaction with customers or consumers that enables volumes to be managed to minimise economic costs and environmental impacts to society" (Cooperative Research Centre for Water Quality and Treatment 2006). In other words, demand management initiatives may include water efficiency but might also include regulations, changes to price and infrastructure improvements intended to reduce demand on potable water supplies.

In considering what water utilities should do, there needs to be a scale-appropriate response. There are a wide range of customer base sizes in urban water utilities in Australia, and what is defined as "best practice" will depend on the size of those utilities and the resources available for them to commit to improving water efficiency in their jurisdictions.

There has been a concerted effort on the part of National and state governments to support the efficiency labelling of water using fixtures and appliances. This will result in all water utilities getting the conservation benefits of these schemes. As a consequence, it is unlikely that there will be significant benefit in water utilities implementing programs that subsidise more expensive items such as washing machines and dishwashers.

Utility Size	Overall Strategy	Water Pricing and metering	Retrofit and Rebate	Regulations and Codes	Education	Alternative Water Sources	System Water Loss
<10,000 customers	There may not be resources to devote to the development of a full demand management strategy. Should instead introduce options that are likely to be cost-effective at the same time sending a message to the community about the importance of saving water.	All customers should have metered use. Water tariff should be set to recover at least 50% of revenue from water consumption charges. 75% is preferable.	Can consider a small program to distribute low flow showerheads from Water Utility offices.	Should consider a planning regulation that mandates low flow taps, showers, toilets and urinals be used on all new buildings.[2] Permanent water savings rules governing irrigation, car washing should be in place.	Provide water efficiency information on water bill flyers. Use opportunities such as festivals and fairs to promote water efficiency messages. Topics to be covered include: • Garden watering • Water efficient garden design and watering • How to buy a water efficient washing machine or dishwasher	High rainfall areas, information can be provided to residents on how to install rainwater tanks.	Should at least carry out an annual comparison of customer water meters and bulk input to the system. This difference will provide an indication of the volume lost to leakage.

[2] In a number of states and territories in Australia there are state-based mandates in place that specify the water efficiency of water using taps and sinks for new housing and other development. This would negate the need to implement this type of scheme at a water utility level.

Utility Size	Overall Strategy	Water Pricing and metering	Retrofit and Rebate	Regulations and Codes	Education	Alternative Water Sources	System Water Loss
10,000 to 50,000 customers	Should undertake a demand management strategy exercise every 5 – 10 years that considers how various demand management options, the water savings and the costs and benefits of options. Benefits to include the downsizing and/or deferral of capital expenditure, plus reductions on treatment and transfer costs.	All customers should have metered use. Water tariff should be set to recover at least 75% of revenue from water consumption charges. Consideration should be given to linking wastewater charges to water consumption via a discharge factor.	As determined by the demand management strategy. Options to be considered: • Residential retrofit program • Large water users audit program • Home tune up kits – toilet leak detection tablets, low flow showerheads and flow regulators for taps.	Permanent water saving rules should be in place. Other options as determined by the demand management strategy. Options to be considered include: • Water efficiency codes for new houses and buildings • Mandatory 5 yearly water efficiency benchmarking and reporting for large water users	Should be at least a part-time commitment to coordination of water conservation efforts. These could include school visitation, production of educations materials and media information.	The demand management strategy should consider: • High rainfall areas, may consider the use of building regulations to mandate the use of rainwater harvesting systems for new development. • Consider the use of recycled water for large water users	Annual reporting should include the calculation of the Infrastructure Leakage Index (ILI) using the methodology and approach adapted for Australian conditions by the Water Services Association of Australia (WSAA). Comparison of bulk water input and customer consumption should be conducted on a supply zone basis. This exercise will provide information on supply zones consideration for leakage investigations.
>100,000 customers	Should undertake a demand management strategy exercise every 5 years described above. Should consider all options – including the wider use of recycled water, stormwater harvesting and rainwater harvesting systems modelling in a whole of system context.	As above. Should have implemented a trial of smart water metering technology for a sample of residential and non-residential customers.	As above. Should implement a program that provides free installation of water efficient showers. This program should only be terminated where there is clear evidence that it has reached market saturation. Follow up surveys of participating customers to verify medium and long-term retention.	As above	At least one full time person dedicated to the coordination of water conservation-based education for customers and the community. Water efficiency benchmarking information should be widely available for customers.	As above. The demand management strategy should also consider the costs and benefits of the use of recycled water systems beyond the largest users – especially in inland areas. Stormwater and rainwater harvesting systems should also be considered.	As above. Consider the establishment of district metering areas. There should be permanent teams dedicated to the detection and repair of water system leaks. Should be trialling automated water system monitoring technology.

Utility Size	Overall Strategy	Water Pricing and metering	Retrofit and Rebate	Regulations and Codes	Education	Alternative Water Sources	System Water Loss
>500,000 customers	As above	Will have moved to smart water metering for all customers with water consumption in excess of 5,000 kL/a and a system for benchmarking and profiling water use and reporting on issues such as anomalous water use or high night flows. Should pilot a smart metering system for residential customers.	As above	As above	As above	As above.	Should have a system-wide automated water monitoring system that reports anomalous system events for investigation and action.

Bibliography

Australian Energy Market Commission. (2015). *Fact sheet: Distribution businesses and demand management.* AEMC. Retrieved from aemc.gov.au: https://www.aemc.gov.au/sites/default/files/content/85b2d487-5026-4a1b-88de-a432afae9855/ERC0177-Fact-sheet-final-determination.pdf

Beatty, Russell. (2019). *A Scale-appropriate Approach to Best Practice Water Efficiency and Demand Management – Australian Urban Water Utilities.* Unpublished.

IPART. (2020). *Review of Prices for Sydney Water from 1 July 2020 - Final Report.* Independent Pricing and Regulatory Tribunal New South Wales.