Submission to the Industry Panel reviewing the Australian Capital Territory (ACT) Independent Competition and Regulation Commission's (ICRC's) water and sewerage price determination for the 20132019 regulatory period

Thank you for this opportunity to make a submission to this review.

Residential water and sewerage price structure

While noting from the Panel's 25 July 2014 'Directions Hearing – Communiqué 25 July 2014'[1] that 'the Panel does not consider the present review is likely to be the appropriate vehicle for embarking on wider pricing reforms', I also note from that Communiqué that 'the scope of the issues that the review can consider must necessarily be limited to those that have the most material impact on stakeholders'.

So I wish to bring to the Panel's attention my understanding that the current ACT water pricing design involving setting the inclining block tariff (IBT) Tier 2 threshold at a community wide level would by its calculation-at-a-community- wide-level nature produce noticeable deadweight loss impacts for certain relatively small and relatively large ACT households. This is an issue having a material impact on a significant proportion of the ACT's residential dwellings because:

1) ideally such an IBT threshold would split a household's water use so the household's non-discretional or internal water use would be priced at the lower Tier 1 price while that same household's discretional or external water use would be priced at the higher Tier 2 price;
2) the number of persons (particularly adult persons) seems to be a major–perhaps even the major–factor affecting a household's non-discretional or internal water use;
3) there is a noticeably wide variation between ACT residential dwellings in the number of usual residents per residential dwelling[2]; and
4) ACT residential water bills and associated IBT tier thresholds are currently measured at a residential dwelling level and not a person level.

This IBT threshold deadweight loss problem could be largely overcome for ACT residential water prices by using dwelling-level data to produce a Tier 2 threshold water usage specific to each particular dwelling. My 12 April 2013 submission[3] to the ICRC goes into some detail on one methodology for producing such a dwelling-level residential water pricing Tier 2 threshold using recent water usage data for each ACT residential dwelling. While it is likely to require some water and sewerage bill calculation computer re-programming, separate judgement calls on the volumetric-related and fixed charge components of the ACT residential water and sewerage prices, plus a resident education process/campaign, that methodology provides a practical solution for adjusting IBTs for household size and I would commend it to you for use in the ACT.

I note that particular submission's dwelling-level water pricing methodology is linked to a complementary residential sewerage price methodology that also utilises dwelling-level water use

[1] See http://apps.treasury.act.gov.au/industrypanel/directions-hearing-communique-25-july-2014.
[2] For example, from Table 1 in my 19 October 2012 submission to the ICRC, about 20 per cent of residential dwellings in the ACT had just one usual resident in August 2011 (currently at http://www.icrc.act.gov.au/wp-content/uploads/2013/02/Submission_3_19_October_2012_S_Crawford.pdf).
[3] Currently at http://www.icrc.act.gov.au/wp-content/uploads/2013/02/Submission_18_12_April_2013_Scott_Crawford.pdf.

data and is aimed at dealing with not-that-dissimilar problems associated with the currently flat ACT residential sewerage price, the observed variations in the numbers of usual residents in ACT residential dwellings, and seasonal patterns (or otherwise) in ACT residential water usage and sewage 'production'.

While the ICRC's final report[4] noted on page 159 included the statement in relation to sewerage services tariffs:

> T he Commission's draft decision was to maintain the current sewerage price structure on the basis that the information and views presented in the submissions did not provide sufficient justification to move away from the current arrangement.
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> The Commission did not support a volumetric-based sewerage charge given that in the absence of a reliable measure of actual volumetric discharge, any potential economic efficiency benefits from attempting to estimate discharge are likely to be outweighed by the added complexity of the scheme.

I would contend that it is not necessary to exactly measure the actual volumetric discharge of sewage from each residential dwelling. A sufficiently accurate measure of the amount of water 'consumed' by residents at each ACT residential dwelling is already available and by making an estimate of the winter water consumption by the residents of the particular dwelling a sufficiently accurate estimate of the dwelling's volumetric discharge of sewage should be able to be derived. I would think the accuracy of such a winter-water-consumption-based estimate should lead to a much more accurate sewerage charge than the assumption currently being made that each ACT dwelling discharges the same volume of sewage (an assumption which cannot be accurate as the 2011 Census data demonstrates a wide variation in the number of usual residents in ACT residences). Does it really cost roughly the same to run a residential sewerage system for 150,000 people (imagining there was roughly only one person per ACT residential dwelling at the time of the 2011 Population Census[5]) as it does to run a residential sewerage system for just over 350,000 people[6]? It is not strictly necessary to know the exact amount of sewage discharged per residence, particularly as the current ACT residential sewage charge is so far from being fair.

Dam level charge

In view of the recent issues ACTEW has had in relation to lowered revenue in recent years due to a recent drought, changing water use patterns and wet weather, I would also suggest the ACT could add a 'Dam level water consumption charge'. Beginning with a zero level charge when the ACT dams are 100 per cent full, this latter charge could tend to increase in steps (each of, say, about 5 per cent of the ACT's dam capacity) in a non-linear manner as the ACT's overall dam level decreases until, for the situation where the ACT's dams were effectively zero per cent full, the (possibly Tier 2 only) water price would be equivalent to the cheapest price residents could buy water for in an ACT supermarket. The Fibonacci series (e.g. 1, 2, 3, 5, 8, 13, 21,...) may be one way of producing the increases. The Fibonacci series seems to have some expressions in nature so perhaps it will have a tendency to work in a practical fashion on human psychology and behaviour as well.

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[4] See http://www.icrc.act.gov.au/wp-content/uploads/2013/06/1-WSS-Final-Report_25June13-FOR-WEB1.pdf.
[5] See for example Table 1 in my 19 October 2012 submission to the ICRC (currently at http://www.icrc.act.gov.au/wp-content/uploads/2013/02/Submission_3_19_October_2012_S_Crawford.pdf).
[6] See www.abs.gov.au for the estimated ACT population of somewhere above 350,000 people at the time of the 2011 Population Census.

So the first level of the dam level charge could come in when the ACT's dams are at least 95 per cent full but less than 100 per cent full. This first charge step would correspond to the '1' in the abovementioned Fibonacci series and could be as low as $0.01 per kilolitre or as high as $0.05 per kilolitre or $0.06 per kilolitre. At $0.05 or so per kilolitre and a dam level of zero per cent, this Fibonacci series methodology appears to result in a water price per litre roughly equivalent to the $0.564/litre which water can be commonly currently be bought for at Woolworths supermarkets.[7]

With quarterly ACT residential water and sewerage billing already established, for dam level charge purposes the already-available dam level measurement at, say, the 15th day of each calendar month could be used as the basis for the dam level charge for quarterly residential water and sewerage bills with a quarterly water consumption period ending in the following month. This arrangement would give the programmer(s) and/or relevant employee(s) at least two weeks to plug the relevant dam level charge rate into the system before the time quarterly ACT residential water and sewerage bills would ordinarily be produced.

The dam level charge receipts could go towards recovering the amount of the revenue shortfall experienced in recent years and then on defraying dam costs. While primarily aimed at discretionary water use (it could be seen as a user-pays vehicle for residents making use of the extra dam capacity available above that necessary for residential winter water use), it could also be used in some manner for non-discretionary use, especially if it would minimise any significant risk of cross-subsidisation between discretionary water use and non-discretionary water use. Variations over time in ACT catchment area precipitation (a major factor affecting ACT dam levels) and the relatively high interstate mobility for the ACT's population are two factors which improve the relative user-pays targeting of such a dam level charge relative to certain other ACT water and sewerage charges.

Other Matters

I wonder whether February is the best calendar month (maybe February is too early to optimally forecast El Niño etc effects) to forecast ACT water demand for the coming 12 months from a particular date.

Perhaps the average rate of return over a longish period (e.g. 10 years) for large super funds[8] (or even industry funds) could be used as a guide/input for what rate(s) of return on capital the Panel uses. What do investment advisers say is an acceptable return on equity? What return on assets is regarded as below investment grade?[9]

Scott Crawford

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[7] See http://www2.woolworthsonline.com.au/Shop/Products#url=/Shop/Browse/drinks/water/spring-water.
[8] See for example http://www.superguide.com.au/how-super-works/performance-history-of-australias-largest-200-super-funds.
[9] I note pages 172 and 173 of the 2011 *Alan Kohler's Eureka Report: guide to personal investing* (with Barbara Drury) book provides some response to these latter two questions.