ICRC

INDEPENDENT COMPETITION AND REGULATORY COMMISSION

Productivity Commission Draft Report: Australia's Urban Water Sector

Submission

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Introduction

The Independent Competition and Regulatory Commission (the ICRC) is a statutory body established to regulate prices, access to infrastructure services and other matters in relation to regulated industries and to investigate competitive neutrality complaints and government-regulated activities. The Commission also has responsibility for licensing utility services and ensuring compliance with licence conditions.

The ICRC welcomes the opportunity to comment on the Productivity Commission's draft report on *Australia's Urban Water Sector*. The structure of tariffs for water pricing in the ACT is an issue that the Commission has given significant attention to over the last 15 years. In its 2009-10 Annual Report, the Commission stated that water pricing issues would continue to be explored given the ongoing debate over scarcity pricing, and the likely focus on it by the Productivity Commission (PC) in its future review of opportunities for reform in the water and wastewater services sector.[1]

This submission addresses the PC's consideration of efficient pricing, and the role of economic regulation in the urban water sector. With respect to water pricing, the PC finds specifically:

- that water prices need to be more flexible to balance supply and demand (p. 154)
- that long-run marginal cost (LRMC) pricing is an efficient option for the recovery of network transmission and distribution costs (p. 167)
- that inclining block tariffs (IBTs) invariably result in efficiency losses compared with flat volumetric pricing (p. 178).

To summarise, the PC's recommendation is that urban water prices be set so as to ensure the recovery of a water utility's efficient capital and operating costs, including a scarcity cost of water. To this end a two part tariff is proposed. The volumetric charge set to reflect the short-run marginal cost of the water service and a fixed charge to cover sunk costs not provided through a volumetric charge.

The PC's findings with respect to the role of economic regulation are:

- that regulation (accurately applied) is considered inappropriate for the purpose of ensuring full cost recovery (p. 99)
- that effective regulation of monopoly power can be achieved simply through price monitoring (p. 99)
- that "[t]here are strong reasons to question whether price regulation (and particularly, price setting) of the urban water sector is still needed" (p. 276)
- that regulation of the urban water sector may not yield a net benefit (p. 96).

The PC's view is that price regulation is relatively more inefficient than price monitoring, the cost of changing institutional and legislative arrangements is trivial, and the cost of price regulation is substantial.

[1] ICRC, *Annual Report 2009-10*, Independent Competition and Regulatory Commission, Canberra, September (2010).

Water pricing

Economic literature

When preparing to undertake its 2008 review and determination of ACT water and wastewater charges, the Commission undertook a detailed review of the economic literature on water pricing.[2] The Commission agrees that the literature specifies marginal cost pricing as necessary for efficient pricing. This conclusion holds where marginal cost is below average cost by the addition of a fixed charge to recover the sunk cost. However, an efficient price outcome also requires the conditions of perfect competition to hold.[3] The ICRC's Commission's review also noted that the economic literature contains many papers that demonstrate that economic welfare may be improved under non-linear pricing relative to linear pricing when there is a departure from ideal conditions.[4]

This literature suggests that any assessment of efficient prices needs to take account of the characteristics of the water market including the responsiveness of consumers to price signals, methodologies for forecasting future demand and the availability of future supply options and their costs. While these matters were noted in the PC's draft report, the Commission's view is that further analysis of these matters is needed before a definitive conclusion can be reached on the efficient pricing of urban water.

The Commission is concerned that the PC has not given sufficient weight to the economic literature identifying the limitations of marginal cost pricing.

Long-run marginal cost

The ICRC also reviewed the appropriateness of basing the volumetric charge on the LRMC, and found problems with this approach. The ICRC's review found in particular that the term 'long-run marginal cost' is misleading in the context of a water utility, as the physical characteristics of many of the factors of production restrict the utility's ability to vary them to obtain least cost combinations. The long-run cost pricing approaches adopted by regulators in Australia are based on marginal incremental cost (MIC) or average incremental cost (AIC), and will only achieve an efficient outcome if the forecasts and actual realisations of demand and capital expenditure correspond exactly. While the PC's draft report is critical of using a LRMC approach to set the bulk water component of the volumetric price, this criticism is limited to the failure of LRMC to provide the necessary flexibility to achieve the efficiency gains attributed to scarcity pricing.

The PC argues that water transmission assets should be recovered on the basis of either LRMC (or long-run average cost) pricing to reflect the small variable costs of the transmission network compared to the fixed costs. Putting aside concerns over the appropriateness of a LRMC approach, it is difficult to see what practical application this finding has in a location such as the ACT where the utility is vertically integrated, there are limited opportunities for alternative water supply, and consumers face a bundled price.

[2] ICRC, *Water and wastewater discussion paper 3: prices*, ICRC, Canberra, Aug (2007).
[3] A general discussion of this issue is provided by Fisher, P. S. 'The strange career of marginal cost pricing', *Journal of Economic Issues*, (1991) 25(1): 77-92.
[4] See for examples, Baumol, W. and Bradford, D., 'Optimal departures from marginal cost pricing', *American Economic Review*, (1970) 70(3): 265-283; Spence, M. 'Non-linear prices a welfare', *Journal of Public Economics*, (1977) 8(1): 1-18; and Willig, R. 'Pareto-superior nonlinear outlay schedules', *Bell Journal of Economics*, (1978) 9(1): 56-69.

Efficiency of an IBT

The draft report correctly criticises an IBT as being inefficient. However, this criticism should also be applied to a simple two-part tariff unless the regulator has perfect foresight of future demand and cost conditions faced by the utility. Although research is required, it may be the case that an IBT is welfare-improving if it results in a greater proportion of consumers facing the efficient price.[5] Furthermore, Grafton and Kompas (2007) highlight that an IBT is not inconsistent with flexible pricing if the quantity threshold for the second tier that triggers the flexible price is set at a level that "[ensured] the vast majority of households would pay the higher price for extra water consumed".[6] As is the case with a simple volumetric charge, a key factor in improving the efficiency of an IBT with a flexible price is ensuring consumers have sufficient and timely information on the quantity of water usage and the scarcity price they are going to incur.

Implementation costs of flexible pricing

The ICRC's principal concern with the PC's consideration of pricing is the cursory treatment it afforded to the issue of metering which was limited to a recommendation to require metering technology to be installed in new units. It also questionable why the utilities should be charged with responsibility for assessing the cost of retrofitting metering in established multi-unit dwellings, given the limited incentive they have as a monopolist for minimising operating costs.

In particular, inadequate consideration is given to operational problems associated with implementing flexible pricing arrangements. The most obvious problem relates to the lack of an effective means of delivering price signals to consumers. Residential consumers do not have access to real time information on their water consumption. Instead they receive a quarterly bill, possibly relating to a meter reading taken for an earlier period. The bill may indicate the total charge and number of kilolitres of water consumed. While the price for a kilolitre of water is not specified on the bill a consumer might be able to deduce a price based on average cost for their water use.

The problems noted above are not technically insurmountable. It should be possible to develop educational campaigns to inform consumers about how to determine the price of a litre of water. In the event that 'through-the-year pricing' of water is implemented, it might be possible to get an i-phone application to determine the cost of washing the car or watering the lawn. One might only need to plug in the number of buckets of water used or the type of hose fittings and download the price on the day. However, even if the consumer was willing to take the time to do this, their water utility does not have the capacity to record usage in real time. The ICRC has considered whether it is possible to work around this situation by having seasonal water prices so as to signal the higher value of water during warm and dry periods. The ICRC's conclusion was an accumulation meter was unable to measure seasonal water use in the ACT because of lags in the billing cycle.

The cost of replacing accumulation meters is prohibitive. This suggests that for some period of time to come, water prices for purely practical purposes will be set in advance based on forecasts of demand, available water stocks and the operating cost of delivery.

[5] Olmstead et al., 'Water demand under alternative price structures', *Journal of Environmental Economics and Management*, (2007) 54: 181-198.

[6] See p.239 in, Grafton, R. Q. and Kompas, T., 'Pricing Sydney water', *Australian Journal of Agricultural and Resource Economics*, (2007) 51: 227-241.

The role and cost of price regulation

The ICRC is concerned that the draft report's findings on current economic regulatory arrangements are not adequately informed by the literature on the benefits of economic regulation. There are numerous academic studies that examine the impact of privatisation and regulation on the efficiency of water and waste water industries in the United States and the United Kingdom. Abbott and Cohen (2009) provide a comprehensive literature survey of economic studies which have analysed the impact of both private and government ownership on efficiency levels in a variety of industries, and specifically the impact of water industry regulation on productivity and efficiency.[7] There are two general findings from this literature that relate specifically to the effect of regulation on the water industry:

- Outcomes for the levels of productivity and efficiency in the American water industry were found to depend on the type of regulation imposed on the business.
- Economic and environmental regulations imposed on privatised businesses in the United Kingdom produced improvements in efficiency and productivity.

The extensive studies from which the above findings were obtained demonstrate that sufficient evidence exists to challenge the PC's view that economic regulation can be simply replaced by both good governance procedures and price monitoring to improve efficiency. For example, a study by Aubert and Reynaud shows that a regulatory framework that is able to gather extensive information on a utility's operation played a significant role in increasing the efficiency of Wisconsin water utilities.[8]

This finding is consistent with those from studies in the United Kingdom. Erbetta and Cave show that when tighter regulation was imposed on English and Welsh water and sewerage companies there was an increase in the operating efficiency of utilities. They postulate that tough regulatory targets may increase the efficiency of water and wastewater utilities by aligning the interests of managers with both shareholders and debt holders.[9] Similar conclusions are obtained from studies on regulation and efficiency in water utilities in England and Wales.[10] The PC should consider and respond to results such as these.

The PC also fails to acknowledge and assess the potential costs that maybe imposed on the community in moving away from existing regulatory structures. Included in these costs are the institutional and legislative changes that would be required to move from regulation to a monitoring role in a jurisdiction. The draft report provides an overview of the major cost components associated with regulation and the role of governments, but does not provide an assessment of the costs associated with deregulation and establishing price monitoring. The PC needs to demonstrate that the benefits from moving from current regulation exceed the costs.

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[7] Abbott, M. and Cohen, B., 'Productivity and efficiency in the water industry', *Utilities Policy* (2009) 17:233-244.

[8] Aubert, C. and Reynaud, A., 'The impact of regulation on cost efficiency: an empirical analysis of Wisconsin water utilities', *Journal of Productivity Analysis* (2005) 23: 383-409.

[9] Erbetta, F. and Cave, M., 'Regulation and efficiency incentives: evidence from the England and Wales water and sewerage industry', *Review of Network Economics* (2007) 6: 425-452.

[10] See for examples, Saal, D.S. and Parker, D., 'The impact of privatization and regulation on the water and sewerage industry in England and Wales: a translog cost function model', *Managerial and Decision Economics* (2000) 21: 253-268; and
Saal, D.S., Parker, D. and Weyman-Jones, T., 'Determining the contribution of technical change, efficiency change and scale change to productivity growth in the privatized English and Welsh water and sewerage industry: 1985-2000', *Journal of Productivity Analysis* (2007) 28: 127-139.

Final comments

In conclusion, it is the ICRC's view that some form of flexible or scarcity pricing could be incorporated into the pricing regulation for water in the ACT if it were shown that the benefits to the community outweighed any potential costs. Indeed, it is the transparency and the periodic review by regulators together with extensive community consultation that could result in effective scarcity pricing.

Unfortunately, the draft report does not make a convincing case for either moving to scarcity pricing based on SRMC or towards the more limited regulatory role of price monitoring. The framework for the analysis of scarcity pricing is not persuasive and there is little to show that a volumetric price set at SRMC is any more efficient than an IBT. In addition, further analysis of the costs and benefits of economic regulation is required.

The draft report provides insufficient consideration to the economic issues relating to water transmission and distribution services, and the implications of treating them as separate businesses. Instead, much of the focus of the draft report's discussion and analysis is on bulk water, which ignores the complex issues of getting water from 'the dam to the tap'. While the draft report canvasses a wide range of issues, it provides the ICRC as an economic regulator charged with the practical responsibilities of determining prices in the ACT with little guidance on how to achieve the proposed reforms.

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