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Independent Advice on Cost of Debt and Labour Cost Proposals in SA Water's Regulatory Business Proposal 2016-20

Final Report

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Contents

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Acronyms

AER	Australian Energy Regulator
BBB	Bonds whose risk has been rated at BBB-, BBB and BBB+, e.g. corporate bonds rated as investment grade but not in the lowest risk categories of investment grade corporate debt.
CPI	Consumer Price Index
ESCOSA	Essential Services Commission of South Australia
GFC	Global Financial Crisis
WACC	Weighted Average Cost of Capital
QTC	Queensland Treasury Corporation
RAB	Regulated Asset Base
RBA	Reserve Bank of Australia

Executive Summary

The Essential Services Commission of South Australia (ESCOSA) is currently in the process of making a determination on the allowable revenue for the SA Water Corporation over the period 2016/17 to 2019/20, which includes identifying appropriate levels of operating and capital expenditures, as well as determining the rate of return to allow on SA Water's regulated asset base.

The SA Council on Social Services has asked the SA Centre for Economic Studies to provide an independent assessment of the required real rate of return on debt, and the escalation factor proposed for the cost of labour in SA Water's Regulatory Business Proposal (SA Water 2015), which details SA Water's proposal for its allowed revenue. The fact that we have not expressed a view on the other components of the WACC, or operating and capital costs should be taken as neither disagreement nor endorsement of the proposals contained in the Regulatory Business Proposal.

Cost of debt

ESCOSA's final framework approach is proposing two material changes to the approach to calculating the cost of debt in the WACC calculation, a shift from using 7 year BBB bonds as the reference series to using 10 year BBB bonds, and a shift from an 'on the day' approach to setting bond prices for the price determination period.[1] This approach has also been adopted by SA Water in their Regulatory Business Proposal.

We agree that the switch to a trailing average approach to setting the cost of debt has a strong theoretical rationale, and support its use.

However, we believe that a case has not been made for switching from a 7-year bond to a (generally more expensive) 10-year bond as the reference series, and as such ***recommend that the 7-year BBB bond remains the reference series for calculating the cost of debt.***

We also believe that the move to a trailing average approach has the potential to deliver a windfall to SA Water relative to retaining the existing 'on the day' approach to calculating the cost of debt. Shifting immediately to a 10 year trailing average calculated on the 10 year BBB bond series as proposed by SA Water would deliver an additional pre-tax return to SA Water of **$225 million** in the first year compared to the current method (calculations are based on the August 2015 rates in the RBA BBB bond series). Even compared to the bond yield included in the previous price determination the pre-tax windfall gain would be **$142 million** in the first year.

As such we recommend the use of a transitional arrangement as part of the switch to a trailing average approach, and follow Lally (2013) in recommending the QTC approach (modified to use a 7 year bond).

Escalation factor for cost of labour

Whilst disagreeing with the assumptions implicit in the BIS Shrapnel analysis presented by SA Water to support their use of an above inflation increase in labour costs, ***we believe that the 3 per cent nominal increase proposed by SA Water is appropriate and supported by the available evidence***.

[1] ESCOSA is also proposing to shift from using the Bloomberg fair value curve as the source of the reference price data to the RBA's commercial bond rate price series, but it is unlikely that this shift will, on average, have a material impact on the modelled cost of debt. We support the move to use of the RBA series as it increases the transparency of the process, the RBA having published the methodology used, whereas Bloomberg's compilation and analytical methods are proprietary technology.

1. Introduction

The Essential Services Commission of South Australia (ESCOSA) is currently in the process of making a determination on the allowable revenue for the SA Water Corporation over the period 2016/17 to 2019/20. In making the determination it is generally guided by costs that would be faced by, and therefore the revenue that would be required by, a typical efficient water utility (often described as a 'benchmark efficient entity'). The objective is to ensure that the regulated entity has the opportunity (should it run its operations efficiently) to make a reasonable rate of return, and to ensure that it is incentivised to make an efficient level of investment in the maintenance, renewal, and expansion of its existing stock of assets, whilst preventing it from using its natural monopoly to extract excess profits from water consumers.

In making the determination ESCOSA needs to form a judgement on the efficient cost of a range of operation and capital expenditures. It also needs to set an appropriate return on capital (the regulated asset base or RAB), this return on capital is known as the weighted average cost of capital (WACC). The WACC is the expected cost on average for all the various components of capital (equity and debt) used by the firm. Alternatively, it represents an estimate of the expected rate of return on company assets. All other things being equal, the higher the estimated WACC then the higher will be the efficient prices allowed by the regulator. In mathematical terms ESCOSA (2015) expresses the WACC as follows:

$$\text{WACC}_{post\ tax,real} = \frac{1 + \left(k_e \frac{E}{V} + k_d \frac{D}{V}\right)}{\left(1 + i_{exp}\right)} - 1$$

where: k_e is the expected real return on equity;
k_d is the required real return on debt;
E/V is the proportion of equity in total financing;
D/V is the proportion of debt in total financing; and
i_{exp} is the expected rate of inflation.

The SA Council on Social Services has asked the SA Centre for Economic Studies to provide an independent assessment of the required real rate of return on debt, and the escalation factor proposed for the cost of labour in SA Water's Regulatory Business Proposal (SA Water 2015), which details SA Water's proposal for its allowed revenue.

Chapter 2 of this report sets out our assessment on the cost of debt proposal, and Chapter 3 assesses the proposed escalation factor for labour.

2. Considerations on Cost of Debt

ESCOSA's final framework approach is proposing two material changes to the approach to calculating the cost of debt in the WACC calculation, a shift from using 7 year BBB bonds as the reference series to using 10 year BBB bonds, and a shift from an 'on the day' approach to setting bond prices for the price determination period.[2]

There is a strong theoretical rationale for the use of a trailing average approach in that a benchmark efficient utility firm will not be financing its entire stock of debt at the date on which a regulatory determination is made, but rather its cost of debt at any point in time will be a weighted average of past bond yields as it issues bonds from time to time to refinance expiring bonds, and to fund major new capital works.

It is arguable that using an 'on the day' BBB rate as at December 2012 in the last determination may have given SA Water an insufficient allowance for debt, as by December 2012 rates had fallen back to pre-GFC levels, whereas it is likely that a portion of SA Water's debt as at December 2012 would have had rates set in the period where the cost of (non-government) debt was well above its pre-GFC average (roughly the period Oct 2007 to Oct 2011). By way of illustration, if an equally weighted 7 year trailing average had been used in setting the cost of debt in April 2013, the nominal rate used would have been 7.76 per cent, rather than the 6.05 per cent adopted in the determination. Of course an equally weighted trailing average calculated over a period which includes a rate spike caused by a financial crisis is likely to overstate the costs of funds to a 'benchmark efficient entity', as a prudent firm would seek to minimise their use of the debt market during the period of high yields. SA Water, for example, based on the financial statements to their annual report had an average cost of debt of roughly 6.2 per cent in 2012/13.

The shift from a 7 year bond to a 10 year bond as the reference series is less strongly supported by either theory or evidence. There is no theoretical reason for preferring a 7-year bond tenor to a 10-year bond tenor or vice versa in setting rates of return for a regulated utility, making the choice of tenor an empirical matter. In selecting the tenor of bonds for use in a price determination a regulator would ideally use the tenor that best matched that which would be used by a 'benchmark efficient entity in the regulated sector. No data has been presented on the average tenor of bonds issued by regulated water utilities in Australia (or, indeed on the effective tenor of SA Water's own stock of debt). In the absence of such evidence we would recommend retaining the 7 year bond series as the reference for the costs of debt calculation, as it is not clear why South Australian consumers should be funding a slightly longer period of certainty of bond rates for SA Water.

It is important to note that each of the proposed changes will have the effect of increasing the allowance for cost of debt. And that this will occur at a time when yields in the reference bond series are close to record lows. We submit that moving immediately to this new approach to calculating the cost of debt will deliver a windfall gain to SA Water with little or no offsetting benefit to consumers such as reducing their exposure to increases in the cost of debt or increased security of supply by removing a risk to the financial sustainability of the regulated entity.[3]

Shifting the cost of debt calculation to an (equally weighted) 10 year trailing average calculated over 7 year BBB bonds would increase the allowable cost of debt by 222 basis points relative to an 'on the day' approach using the average BBB bond rate for August 2015 from the RBA data. Changing the

[2] ESCOSA is also proposed to shift from using the Bloomberg fair value curve as the source of the reference price data to the RBA's commercial bond rate price series, but it is unlikely that this shift will, on average, have a material impact on the modelled cost of debt. We support the move to use of the RBA series as it increases the transparency of the process, the RBA having published the methodology used, whereas Bloomberg's compilation and analytical methods are proprietary technology.

[3] Over the medium term, as mentioned above there is a justification for switching to a trailing average approach to the cost of debt to ensure that the allowed cost of debt and the benchmark efficient entity's remain in alignment over cyclical movements in market rates for corporate debt.

reference bond series from the 7 year to the 10 year series increases the cost by an additional 39 basis points.

As the assumption made in calculating the WACC for SA Water is that a benchmark efficient entity in the regulated sector would have a gearing rate of 60 per cent, even small changes to the allowance for the cost of debt can have significant impacts on the costs facing water consumers. Applying these increases in cost of debt to the combined estimate of the Regulated Asset Bases for water and sewerage services[4] suggests that a 10 year trailing average calculated on the 10 year BBB bond series as at August 2015 would deliver an additional pre-tax return to SA Water of **$225 million** in the first year alone compared to using the average yield of the 7 year bond series for the month of August 2015 (e.g. effectively the calculation approach adopted in the previous price determination, although averaged over the whole month rather than 20 days). Even compared to the bond yield included in the previous price determination the pre-tax windfall gain would be **$142 million** in the first year.

Of course, depending on the exact date on which ESCOSA sets the cost of debt for the first year of the next determination period and what happened to BBB bond yields in the interim, calculating the potential price windfall based on data as at August 2015 may overstate the potential windfall to SA Water, however unless there is a financial crisis in the intervening period accompanied by a sharp increase in yields it is likely that an immediate move to a 10 year trailing average (or even a 7 year trailing average) would provide SA Water with excess returns.

Conversely it should also be kept in mind that current rates are well below their long-run average, and adopting a price determination that was based on current 'on-the-day' rates would likely provide SA Water with insufficient returns.

This potential for windfall returns suggests that some form of transitional arrangement would be prudent. This is the approach adopted by the AER in their most recent determination process for electricity and gas utilities, where the cost of debt will be gradually transitioned to a 10 year trailing average over a 10 year period. As we are recommending the use of a 7 year bond tenor in calculating the cost of debt, our recommendation is that the transition be towards a 7 year trailing average.

Lally (2014) sets out two transitional arrangements suitable for use in a regulated utility transitioning from a fixed 'on-the-day' rate to a ten year trailing average. The notation of these transition arrangements is that $R_{t,T}$ denotes a bond rate set at time t running to time T.

The first approach outlined by Lally involves setting rates based on a weighted average of the current one year rate and one or more 10 year rates (Lally's report was prepared as part of the AER determination processes where a decision had been made to adopt a 10 year bond tenor as the reference series). In the first year a weighting of 90 per cent is given to the current one year rate, and 10 per cent to the ten year rate as at the current period. In the second year the 1 year bond rate for the second year is given a weighting of 80 per cent, with the ten year bond at year 1 and the 10 year bond at year two each given a 10 per cent weighting, and so on until in year 10 the rate used is an evenly weighted average of each of 10 year bond rates for each of the previous ten years (e.g. a 10 year trailing average), as set out in the following series of weightings:

Year 1: $0.1R_{0,10} + 0.9R_{0,1}$
Year 2: $0.1R_{0,10} + 0.1R_{1,11} + 0.9R_{1,2}$
…..
Year 9: $0.1R_{0,10} + 0.1R_{1,11} + 0.1R_{2,12} + \ldots + 0.1R_{8,18} + 0.1R_{8,9}$
Year 10: $0.1R_{0,10} + 0.1R_{1,11} + 0.1R_{2,12} + \ldots + 0.1R_{8,18} + 0.1R_{9,19}$

[4] Averaged across the start date estimate and end date estimate for the 2016/17 in each case, giving an average of $8291.5 million for water services and $3845.25 million for sewerage services.

The second approach considered by Lally is known as the QTC approach (having been first set out by the Queensland Treasury Corporation). This approach gives the 10 year rate set in year one a weighting of 100 per cent in year one. In year two the 10 year rate for the second year is included in the weighted average with a weight of 10 per cent, with the year one rate's weighting reduced to 90 per cent, and so on with the weighting given to the 10 year rate that prevailed in year once progressively being reduced by 10 per cent in each year as an additional year's 10 year rate is included in the average until in year 10 the rate used is an equally weighted trailing average of the previous ten years' rates, as set out below:

Year 1: $R_{0,10}$
Year 2: $0.9R_{0,10} + 0.1R_{1,11}$
…..
Year 9: $0.2R_{0,10} + 0.1R_{1,11} + 0.1R_{2,12} + \ldots + 0.1R_{8,18}$
Year 10: $0.1R_{0,10} + 0.1R_{1,11} + 0.1R_{2,12} + \ldots + 0.1R_{8,18} + 0.1R_{9,19}$

Lally concludes that on theoretical grounds he prefers the first approach, but that if the approach is being applied to a utility that has at least partially been hedging its rates over the previous determination period, the QTC approach is more likely to have a roughly even chance of over or under compensating firms for their actual cost of debt, and that it should therefore be preferred.

We agree with Lally and recommend that the QTC approach be adopted as the transitional arrangement to a trailing average approach.

However we recommend two variations from the QTC method.

First, as discussed previously, we recommend the use of a 7 year bond rate, and therefore a 7 year trailing average would be more appropriate given the use of a 7 year bond rate as the reference series implies that a benchmark efficient entity would be issuing its longer term debt in 7 year bonds, and so its current rate structure would be some form of average of prevailing rates over the past seven years.

Second, we recommend a faster transition to the seven year trailing average, such that the last year of the current determination period would be the first year in which the full seven year trailing average was used as the cost of debt. So to achieve this rate of transition, the rate at the start of 2013/14 (which we have assumed to be the rate as at June 2013) would be the base year for the calculation, with each additional year's bond rate introduced being given a weight of $^1/_7$. This would give the following calculation approach for the cost of debt over the determination period:

2016/17: $(^4/_7)*R_{7yr,\ Jun2013} + (^1/_7)*R_{7yr,\ Jun2014} + (^1/_7)*R_{7yr,\ Jun2015} + (^1/_7)*R_{7yr,\ Jun2016}$

2017/18: $(^3/_7)*R_{7yr,\ Jun2013} + (^1/_7)*R_{7yr,\ Jun2014} + (^1/_7)*R_{7yr,\ Jun2015} + (^1/_7)*R_{7yr,\ Jun2016} + (^1/_7)*R_{7yr,\ Jun2017}$

2018/19: $(^2/_7)*R_{7yr,\ Jun2013} + (^1/_7)*R_{7yr,\ Jun2014} + (^1/_7)*R_{7yr,\ Jun2015} + (^1/_7)*R_{7yr,\ Jun2016} + (^1/_7)*R_{7yr,\ Jun2017} + (^1/_7)*R_{7yr,\ Jun2018}$

2019/20: $(^1/_7)*R_{7yr,\ Jun2013} + (^1/_7)*R_{7yr,\ Jun2014} + (^1/_7)*R_{7yr,\ Jun2015} + (^1/_7)*R_{7yr,\ Jun2016} + (^1/_7)*R_{7yr,\ Jun2017} + (^1/_7)*R_{7yr,\ Jun2018} + (^1/_7)*R_{7yr,\ Jun2019}$

As the seven year rate for June 2016 is not yet known it is not possible to know what rate would result from this calculation approach. For the purposes of illustration, if the 7 year rate in June 2016 was the rate that is currently prevailing as at August 2015, then the 2016/17 rate calculated using this approach would be 5.8 per cent. If, instead, by then the 7-year rates had returned to their pre-GFC average of 6.58 per cent then the 2016/17 rate calculated using this approach would be 6.0 per cent.

3. Estimates of Labour Cost Trends in the RBP

In their Regulatory Business Proposal, SA Water have proposed that the allowance for unit wage costs in the Opex calculation to be allowed to increase at a rate that is higher than the CPI. This proposal needs to be considered within the broader framework of the overall Opex proposal which includes a 1 per cent annual productivity allowance. In broad terms this seems a reasonable approach to take, as the evidence suggests over the long-term Australian wages to increase at an average rate of CPI plus the overall rate of labour productivity growth (Borland 2012, quoted in AER 2015) with growth exceeding this long run average in times of strong growth in labour demand and undershooting when demand is weaker.

The question then arises as to what escalation should be used for unit wage costs in the SA Water price determination. As part of its Regulatory Business Proposal SA Water has presented modelling by BIS Shrapnel on projected growth in South Australian and Australian wages in the Electricity, Gas, Water and Waste Services sector (see Appendix I of SA Water's Regulatory Business Proposal). BIS Shrapnel's are forecasting that the nominal growth in the sector in South Australia will average just over 3.9 per cent nominal over the determination period (see Table 3.1). The RBA' s current forecasts of inflation are that it will remain close to 2.5 per cent (RBA, 2015b), therefore BIS Shrapnel is forecasting an average real increase of 1.4 per cent in unit wages over the next four years. This would require either an increase in labour productivity well above its historic average (at a time when for the economy as a whole productivity growth has slowed sharply) or a significant fall in the labour productivity of the sector.

Without examining the BIS Shrapnel model in detail it is not possible to identify what factors are driving the projection of strong growth in wages for the sector. However other charts presented in their report suggest that their model includes projections of a sharp increase in engineering construction activity in South Australia over the determination period. For example, a chart presented on page 40 of their report forecasts engineering construction spending in the utilities sector in SA will increase by 79 per cent over the period from 2015/16 to 2019/20. This projection appears to be driven by very high levels of utilities spending to support the expansion of the Olympic Dam mine, a project that is currently on hold. Similarly their forecasts for engineering construction more broadly are also very bullish with real engineering construction work forecast to increase in real terms from $4.1 billion in 2017/18 to $6.5 billion in 2019/20, a real increase of 58 per cent in two years. Again no evidence is presented that makes the case for such strong growth projections. As such we suggest that BIS Shrapnel's forecasts not be considered when setting the allowance for wage cost growth.

Table 3.1: Forecast nominal wage cost increases for the Electricity, Gas, Water and Waste Services sector, Australia and South Australia, annual percentage change

		Actual	Forecast					
		2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
BIS Shrapnel	SA	3.5	3.4	3.4	3.5	3.8	4.0	4.4
	Australia	3.3	3.2	3.3	3.6	3.9	4.1	4.3
Deloitte Access Economics	SA	4.2	3.0	2.4	3.0	3.0	3.1	3.1
	Australia	3.2	3.3	2.9	3.1	3.0	3.0	3.0

Source: BIS Shrapnel (2015), Deloitte Access Economics (2015)

SA Water in its Regulatory Business Proposal does not (strictly) propose that the BIS Shrapnel forecasts be adopted.[5] Instead it proposes an increase in unit wage costs of 3 per cent over the determination period, with the total labour costs subject to the same 1 per cent annual efficiency target

[5] Although it does refer to the BIS Shrapnel forecasts to imply that its proposal includes an effective 2 per cent efficiency target in its use of labour, given our concerns with the BIS Shrapnel modelling we believe that that contention is not supported by the available evidence, but rather the actual growth in nominal unit labour costs will be close to 3 per cent of the determination period, and therefore the actual efficiency proposed is the 1 per cent targeted more broadly across SA Water's operations.

as OPEX more broadly. This appears an entirely reasonable approach to take. It also means that the wage escalation would be in line with the unit wage cost forecasts for the sector produced by Deloitte Access Economics for the AER as an input into a number of their recent electricity determinations.

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