Independent Panel Review of ERA Rate of Return Guidelines (2018)

Questions for ERA following Panel Meeting of 20 August 2018

21 August 2018

Economic Regulation Authority Secretariat Response to the Independent Panel's Questions

The Economic Regulation Authority Secretariat is hereafter referred to as the ERA.

1. In relation to the factors to consider we note that one of the factors is "the impact of the guideline as a whole rather than issue-by-issue analysis". Given the question we have been asked plus the other factors we are required to consider (including whether the ERA has had regard to relevant information in reaching its conclusions) our interpretation of this requirement is that while we need to consider individual issues and the information considered in relation to those issues, we have to consider whether the guideline as a whole promotes the achievement of the National Gas Objective. In other words after considering all the issues is it reasonable to conclude that the overall likely outcome from applying the Guidelines promotes the achievement of the National Gas Objective.

   Could you please confirm this interpretation is correct?

   Yes, that is a valid interpretation.

2. We understand that the ERA has made use of a consumer consultative committee.

   Would we be able to have access to and refer to any documentation that the committee has prepared that is relevant to our scope of work?

   The ERA has not engaged its Consumer Consultative Committee on the Gas Rate of Return Guidelines. The committee is not constituted to undertake the tasks of a consumer reference group.

   The ERA is not required to engage a consumer reference group or consumer consultative committee.

   As a result, the ERA has leveraged the Australian Energy Regulator's (AER) Consumer Reference Group. The ERA has done this through reviewing the AER's public consultation processes and public documents. Consumer views and perspectives can then be contrasted against those expressed by industry.

3. At para 176 of the Draft Explanatory Statement for the Rate of Return Guidelines (2018) (the Guidelines) it is argued that if the inflation of input costs differs from general inflation then the differentials should not be compensated for as they are diversifiable.

   In the building blocks model as implemented by the ERA do forecasts for capital costs and operating costs assume inflation at the CPI or are they based on best nominal forecasts for capital and operating costs that implicitly contain a different price deflator?

   Under the post-tax revenue model, the regulatory asset base (and associated depreciation) are escalated by general inflation.

   The ERA separately considers specific escalators when assessing operating costs for the particular determination period.

   The ERA separately considers specific escalators when assessing new capital expenditure for the particular determination period.

4. Para 214 of the Guidelines – "Internal financing with retained earnings is least likely to signal investors and is therefore management's preferred source of financing."

   It is not clear what the first part of this sentence means?

   This paragraph describes the pecking order theory. With regard to the sentence: a business would utilise its retained earnings to first internally finance any necessary financial need (for example, a capital expenditure project).

5. What is meant by signalling efficient use in the second dot point of para 287 of the Guidelines?

   An efficient tariff will reflect efficient financing costs. Thereby, this will signal the efficient use of a regulated asset by customers. That is, customers do not over or under utilise the asset.

6. Can we please be provided with some numerical calculations showing how the hybrid trailing average cost of debt works in practice and how it compares to the on the day and full trailing average approaches?

The hybrid trailing average approach has now been implemented for all of Western Australia's regulated gas businesses. As each implementation occurred at the time of the separate business's determinations, the historic debt risk premium schedules of the three businesses may vary slightly.

Below is an example of the hybrid trailing average debt risk premium. This uses the agreed historic debt risk premium schedule for the Goldfields Gas Pipeline and the most recent BBB+ debt risk premium value calculated as at March 2018.

Calendar Year	**Credit Rating**	**DRP instruments**	**DRP**
Year 1	BBB	RBA approach	2.125%
Year 2	BBB	RBA approach	2.379%
Year 3	BBB	RBA approach	3.168%
Year 4	BBB	RBA approach	3.043%
Year 5	BBB	RBA approach	2.251%
Year 6	BBB	RBA approach	2.070%
Year 7	BBB	1/3 of RBA estimate for the period Jan to April 2016 and 2/3 of the Revised bond yield approach as estimated on 31 May 2016	2.582%
Year 8	BBB	Revised Bond yield approach	2.553%
Year 9	BBB	Revised Bond yield approach	1.862%
Year 10 (calculated as at 29 march 2018)	BBB+	Revised Bond yield approach	1.241%
Hybrid 10 year trailing average DRP			2.327%
'On the day' DRP			1.241%

The full trailing average approach cannot be applied, because it would require 10 years of debt risk premium values generated through the revised bond yield approach. However, the current hybrid trailing average approach is in transition to the full trailing average approach.

7. Could you please provide standard errors and 95% confidence intervals for both the arithmetic and geometric approaches, along with the means for all the market risk premium estimates?

The summary of standard errors and 95% confidence intervals is as below. We note that the standard errors are similar with those prepared by Professor Handley for the AER in 2011 using data for the period from 1883 to 2011.

Period	No. of Years	Arithmetic Mean							
		NERA				BHM			
		Mean	S/E	Lower Bound	Upper bound	Mean	S/E	Lower Bound	Upper bound
1883-2017	135	6.82%	1.41%	4.06%	9.58%	6.47%	1.41%	3.71%	9.23%
1937-2017	81	6.24%	2.14%	2.06%	10.43%	6.29%	2.14%	2.10%	10.48%
1958-2017	60	6.75%	2.79%	1.28%	12.22%	6.75%	2.79%	1.28%	12.22%
1980-2017	38	6.53%	3.43%	-0.21%	13.26%	6.53%	3.43%	-0.21%	13.26%
1988-2017	30	6.11%	3.14%	-0.05%	12.27%	6.11%	3.14%	-0.05%	12.27%
2000-2017	18	6.13%	4.22%	-2.14%	14.41%	6.13%	4.22%	-2.14%	14.41%

Period	No. of Years	Geometric Mean							
		NERA				BHM			
		Mean	S/E	Lower Bound	Upper bound	Mean	S/E	Lower Bound	Upper bound
1883-2017	135	5.47%	1.41%	2.71%	8.23%	5.12%	1.41%	2.36%	7.88%
1937-2017	81	4.40%	2.14%	0.21%	8.59%	4.45%	2.14%	0.26%	8.64%
1958-2017	60	4.42%	2.79%	-1.05%	9.89%	4.42%	2.79%	-1.05%	9.89%
1980-2017	38	4.26%	3.43%	-2.47%	10.99%	4.26%	3.43%	-2.47%	10.99%
1988-2017	30	4.50%	3.14%	-1.66%	10.66%	4.50%	3.14%	-1.66%	10.66%
2000-2017	18	4.32%	4.22%	-3.96%	12.59%	4.32%	4.22%	-3.96%	12.59%

In addition, the mean for all the market risk premium estimates (including estimates from arithmetic and geometric means and using NERA and BHM) is 5.47 per cent.

8. At para 693 of the Guidelines did the gross dividend data for the specific companies include tax credits and were they adjusted by the utilisation rate?

   In estimating equity beta for firms, the use of raw return is valid and widely adopted in empirical studies. The price of the asset (stock price) is adjusted for the payment of dividends. As such, the continuously compounded raw return to the stock represents a measure of total return to the investor. No further adjustments are made for the utilisation rate.

   This practice is consistent with the approach proposed by Henry (2008) and adopted by the Australian Energy Regulator.[1]

9. At para 694 were the gross dividend data including tax credits for the all ordinaries adjusted by the utilisation rate?

   In estimating equity beta for firms, the use of raw return is valid and widely adopted in empirical studies. The price of the asset (stock price) is adjusted for the payment of dividends. As such, the continuously compounded raw return to the stock represents a measure of total return to the investor. No further adjustments are made for the utilisation rate.

   This practice is consistent with the approach proposed by Henry (2008) and adopted by the Australian Energy Regulator.[2]

[1] Henry, *Estimating Beta: An Update*, April 2014.
[2] Henry, *Estimating Beta: An Update*, April 2014.

10. Were the data for the estimation of beta weekly or monthly and were estimates made for both?

    The estimates presented in the Draft Guidelines utilise weekly data.

11. At para 778 can an example of the linear interpolation be provided?

    Linear interpolation is necessary as RBA estimates of the Commonwealth securities and bonds is available at monthly intervals. Linear interpolation allows daily data to be produced, which then can be used over a desired averaging period.

    For example, linear interpolation is needed to calculate nominal risk free rate on 29 March 2018 based on a 5-year Commonwealth Government Security with maturity date on 29 March 2023. However, we observed there is no Commonwealth Government Security that will be maturing on that date

    Therefore we apply the linear interpolation approach by selecting two bonds (Bond A and Bond B) with the closest maturity dates that fall on either side of the date. The Bond A has maturity date before the date; while the Bond B has maturity date after the date.

    Therefore, the nominal risk free rate estimated from the Commonwealth Government Security with a maturity date of 29 March 2023 using interpolation approach as shown below:

$$Implied\ risk\ free\ rate = Bond\ A\ rate + \frac{(Bond\ B\ rate - Bond\ A\ rate) * (29\ March\ 2023 - Bond\ A\ maturity\ date\ )}{(Bond\ B\ maturity\ date - Bond\ A\ maturity\ date)}$$

    For the inflation rate, we repeat the above calculation for 20 consecutive days of nominal Commonwealth Government Security data and Indexed Treasury Bond data to obtain the average nominal risk free rate and the average real risk free rate.

    We then use the Fisher Equation to calculate the implied inflation rate based on the average risk free rates calculated above.

12. At para 810 is the estimated taxable income for the regulated entity based on actual gearing or benchmark gearing and is this part of the scope of the task to consider?

    The estimated taxable income is based on the benchmark gearing.

    The allocation for taxable income is out of scope of the Rate of Return Guidelines.

13. Is there an issue about whether regulatory taxation matches actual taxation in practice and is this part of the scope of the task?

    The allowance for tax is out of scope of the Rate of Return Guidelines.

14. Could you please provide a table showing all the parameter estimates and overall allowed rate for return for the proposed approach as if it were implemented at the current time and a comparison with the parameters from the ERA 2013 Guidelines?

    For representational purposes, the ERA has presented the table on data to 29 March 2018.

Table 1 The ERA's 2018 Draft Gas Rate of Return Guideline compared to the ERA's 2013 Gas Rate of Return Guideline

Parameter	ERA 2018 Draft Guideline	ERA 2013 Guideline
Averaging period	29 March 2018	29 March 2018
Cost of equity parameters		
Nominal risk free rate (per cent)	2.37	2.37
Equity beta	0.7	0.5 to 0.70
Market risk premium (per cent)	5.7% - 6.7%[3]	5.0 to 7.5
Nominal after tax return on equity (per cent)	**6.36% - 7.06%**	**4.87% - 7.62%**
Cost of debt parameters		
Nominal risk free rate (per cent)	n/a	2.37
Five-year interest rate swap (effective yield) (per cent)	2.590	n/a
Debt risk premium (per cent)[4]	2.327%[5]	n/a[6]
Benchmark credit rating	BBB+	BBB band (BBB-/BBB/BBB+)
Term of debt for debt risk premium	10 years	n/a
Debt issuing costs (per cent)	0.100	0.125
Debt hedging costs (per cent)	0.114	0.025
Nominal cost of debt (return on debt) (per cent)	**5.13%**	**n/a**
Other parameters		
Debt proportion (gearing)	55	60
Forecast inflation rate (per cent)	1.84	1.84
Franking credits (gamma) (per cent)	50	25-39
Corporate tax rate (per cent)	30	30

[3] The Draft Guidelines considers options for estimating market risk premium. The range is generated by the historic market risk premium as the lower bound and a market risk premium estimated from a 50/50 weighting between historic and dividend growth model approaches as the upper bound.

[4] Each of the three Western Australian gas businesses has its own historic schedule of debt risk premia. Consistent with the debt risk premium calculation above, for representational purposes, the Goldfields Gas Pipeline historic debt risk premia schedule and a 29 March 2018 update is used.

[5] The debt risk premium approach in the 2013 Rate of Return Guidelines was a bond yield approach together with a joint-weighting mechanism. As part of the subsequent determination processes this method was shortly superseded by the current hybrid trialing average approach. Therefore the ERA has not calculated a debt risk premium based on the 2013 Rate of Return Guidelines.

[6] On-the-day approach based on bond-yield approach together with a joint-weighting mechanism. Annually updated. This method has not been applied in any decision. Due to dispute, it was revised to the current approach soon after the 2013 Guidelines being released.

Parameter	ERA 2018 Draft Guideline	ERA 2013 Guideline
Weighted Average Cost of Capital		
Nominal after-tax WACC (per cent)	**5.68% - 6.00%**	**n/a**
Real after tax-WACC (per cent)	**3.77% - 4.08%**	**n/a**

Source: ERA analysis

15. We think that a face-to-face meeting for the panel members would be very helpful and would like to schedule one for 1 October 2018 in Perth. Could you please confirm this is acceptable and help with the travel arrangements?

    A face-to-face meeting is acceptable.

    The ERA will be in contact with the panel to make travel arrangements.