Economic Regulation Authority

PUBLICATION

Rate of Return Guidelines for Gas Transmission and Distribution Networks

FINAL GUIDELINES

The Economic Regulation Authority has today published on its website its Rate of Return Guidelines. The Authority has also published an accompanying Explanatory Statement for the Rate of Return Guidelines. These documents set out the Authority's revised approach under the National Gas Rules for determining the rate of return for gas transmission and distribution networks.

In developing the Rate of Return Guidelines, the Authority undertook a comprehensive review of approaches for determining the rate of return on capital. The Authority considers that its revised approach will meet the requirements of the National Gas Rules, and in particular, achieve the allowed rate of return objective.

The Authority has prepared an overview of the Rate of Return Guidelines which is provided in the attached explanatory memorandum to this notice. This explanatory memorandum includes an indicative estimate of the allowed rate of return for a benchmark efficient gas pipeline or network operator, were a decision to be made at December 2013 using the Authority's revised approach.

The National Gas Rules were amended in 2012, to require the Authority to prepare rate of return guidelines at least every three years. This is the first rate of return guidelines to be published by the Authority. The next rate of return guidelines are required to be published by 29 November 2016.

Access Arrangement Revision Proposals

The Authority is required, as part of the amendments to the National Gas Rules in 2012, to exercise its power under National Gas Rule 52(3) to extend the period for submitting the next access arrangement revision proposal for the Mid-West and South-West Gas Distribution System, and Goldfields Gas Pipeline to the date that is 3 months and 6 months respectively after the date the first rate of return guidelines are published.

The Authority confirms that the revision submission date for the Mid-West and South-West Gas Distribution System is 16 March 2014 and the revision submission date for the Goldfields Gas Pipeline is 16 June 2014.

The revision submission date for the Dampier to Bunbury Natural Gas Pipeline was not amended as part of the amendments to the National Gas Rules in 2012. The current access arrangement for the Dampier to Bunbury Natural Gas Pipeline stipulates a revision submission date for the access arrangement revision proposal of 1 January 2015.

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LYNDON ROWE
CHAIRMAN

16 December 2013

EXPLANATORY MEMORANDUM

The purpose of the explanatory memorandum is to provide interested parties with a summary of the Authority's Rate of Return Guidelines for gas transmission and distribution networks. This explanatory memorandum does not form part of the Authority's Rate of Return Guidelines or the reasons for the Authority's decision with respect to the matters of the Rate of Return Guidelines. Interested parties should consult the Rate of Return Guidelines and the Explanatory Statement for the Rate of Return Guidelines, for the details of the Authority's revised approach.

Background

The Authority's responsibilities under the National Gas Law (**NGL**) and the National Gas Rules (**NGR**) relate to approving third party access arrangements in Western Australia for the Dampier to Bunbury Natural Gas Pipeline, the Goldfields Gas Pipeline and the Mid-West and South-West Gas Distribution System.

The NGR were amended in 2012, to require the Authority to prepare rate of return guidelines at least every three years.[1] The guidelines provide an opportunity to undertake a comprehensive review of approaches for determining the rate of return on capital.

The new NGR require that the rate of return guidelines set out:[2]

- the methodologies that the Authority proposes to use in estimating the allowed rate of return, including how those methodologies are proposed to result in the determination of a return on equity and the return on debt in a way that is consistent with the allowed rate of return objective; and
- the estimation methods, financial models, market data and other evidence that the Authority proposes to take into account in estimating the return on equity, the return on debt and the value of imputation credits referred to in NGR 87A.

The rate of return guidelines will provide guidance for subsequent gas access decisions of the Authority for the three Western Australian gas pipelines and networks. However, the rate of return guidelines is not mandatory.[3] The Authority or service providers may depart from the guidelines in reviewing an access arrangement, provided that an adequate explanation for any proposed change, in terms of the NGL and NGR, is provided at the time of the review.

The development of the rate of return guidelines has allowed the Authority to review its approach to setting the rate of return for covered gas pipeline and network access arrangements.

[1] NGR 87(13)

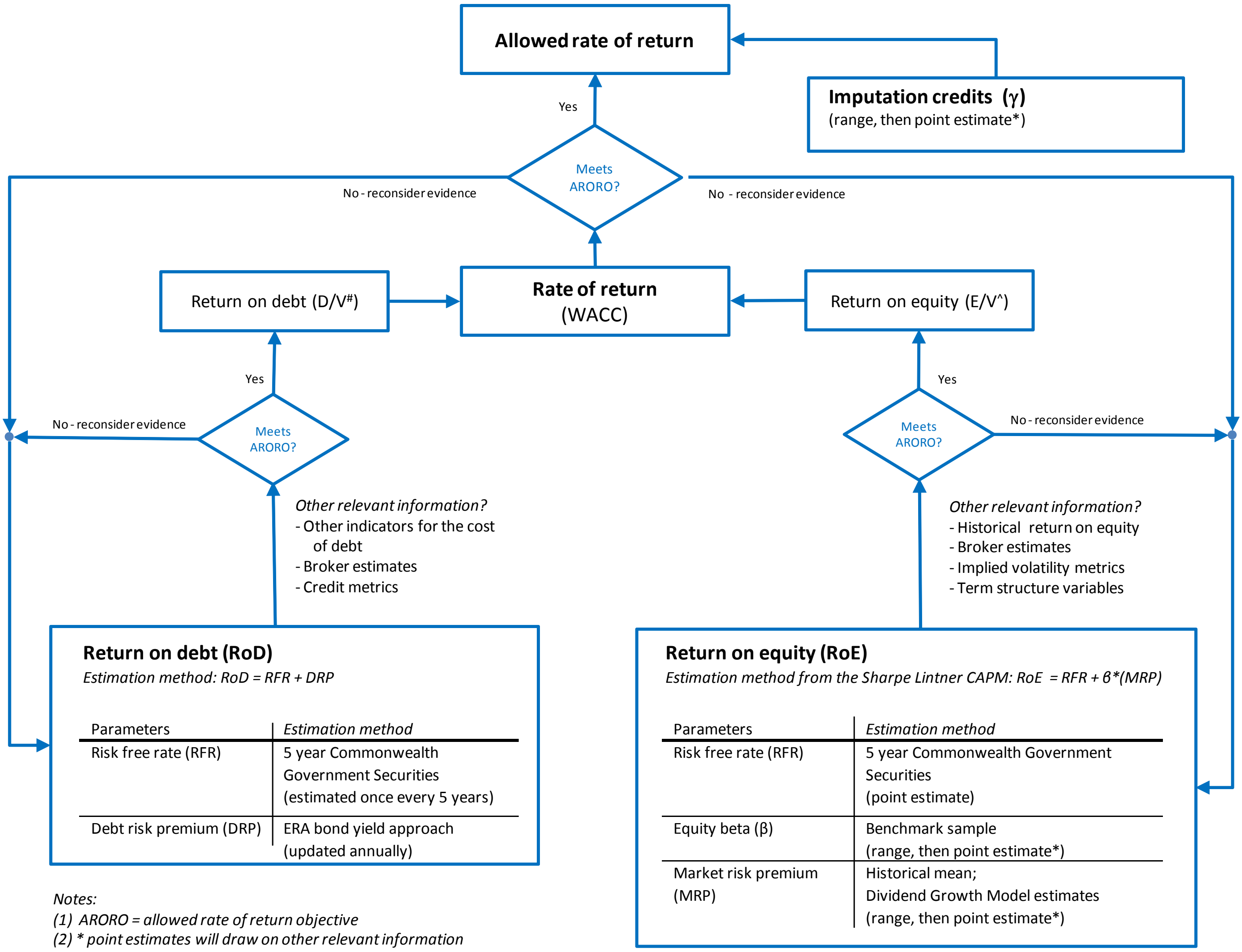
[2] NGR 87(14)

[3] NGR 87(18)

Overall rate of return

A schematic of the Authority’s overall approach to estimating the allowed rate of return is set out below (Figure 2).

Figure 1 Schematic of the Authority’s approach to estimating the allowed rate of return



Notes:
(1) ARORO = allowed rate of return objective
*(2) * point estimates will draw on other relevant information*
(3) # Debt proportion
(4)^ Equity proportion

The Authority is required to adopt a ‘nominal vanilla’ weighted average cost of capital (**WACC**) in developing the allowed rate of return for the benchmark efficient entity.[4]

[4] NGR 87(4)

A WACC for a benchmark efficient entity in its ‘vanilla’ form may be expressed as

$$WACC_{vanilla} = E(r_e)\frac{E}{V} + E(r_d)\frac{D}{V} \tag{1}$$

where

$E(r_e)$ is the expected return on equity;

$E(r_d)$ is the expected return on debt;

E/V is the proportion of equity in total financing (comprising equity and debt; and

D/V is the proportion of debt in total financing.

The Authority’s indicative estimate of the allowed rate of return WACC under its revised approach, for a decision that was made at December 2013, would be (see Appendix 30 of the Explanatory Statement for details):

The 1-year rate of return WACC = **6.42 per cent**

The estimate is based on gearing of a 60 per cent proportion for debt and a 40 per cent proportion for equity.

The estimate would be updated annually, to account for the annual update in the debt risk premium component of the return on debt.

The Authority considers that this estimate would achieve the allowed rate of return objective under National Gas Rule 87.

Return on debt

The Authority will base its estimates of the return on debt on a risk premium over and above the risk-free rate, plus a margin for debt raising costs and hedging costs:

Return on Debt = Risk Free Rate + Debt Risk Premium + Debt raising costs + Hedging costs

To reflect prevailing conditions, the Authority will update the return on debt annually, by updating the estimate of debt risk premium to apply in each regulatory year.

The risk free rate will be set once, at the start of the regulatory period, and will not be annually updated. It will be based on the observed yield of a 5-year term Commonwealth Government Security, averaged over a 40 day period just prior to the regulatory period. This rate will apply in each regulatory year. The 5-year term reflects the present value principle that the term of debt should match the regulatory update period, which is five years.

The debt risk premium will be derived from the yield to maturity of an observed sample of bonds issued by comparator firms with similar credit ratings as the regulated entity. The ‘bond yield’ sample will cover relevant bonds issued by comparator firms, that have at least two years remaining term to maturity, just prior to the regulatory year. The similar credit rating provides for a similar degree of risk in providing the reference services. The term of the estimate of the debt risk premium will reflect the average term to maturity of the sample.

The return on debt estimated for the first regulatory year – based on the sum of the estimates of the risk-free rate and the debt risk premium for the first year – will contribute to the setting of the initial revenue path for remaining years two to five of the regulatory period.

The Authority will implement the annual update by setting tariffs – for regulatory years two to five – by including an automatic cash flow adjustment to the revenue path in each respective year. The adjustment would account for the after tax difference in revenue, which arose from the difference in the return on debt in the first regulatory year and the annual update of the return on debt in each respective regulatory year. The difference in the return on debt will reflect the change in the debt risk premium.

The Authority’s indicative estimate of the components of the allowed return on debt under its revised approach, for a decision that was made at December 2013, to apply for the period of the following year, would be:

The 5-year CGS risk-free rate:	3.44 per cent
The debt risk premium observed from the bond yield approach:	2.03 per cent
Debt raising costs	0.125 per cent
Hedging costs	0.025 per cent

Utilising the Authority’s estimation method:

Return on Debt = Risk Free Rate + Debt Risk Premium + Debt raising costs + Hedging costs

The estimated indicative return on debt, for a regulatory decision made in December 2013, would be:

The 1-year return on debt = **5.62 per cent**

The estimate would be updated annually. The update would be included in the allowable revenue by means of an automatic update mechanism.

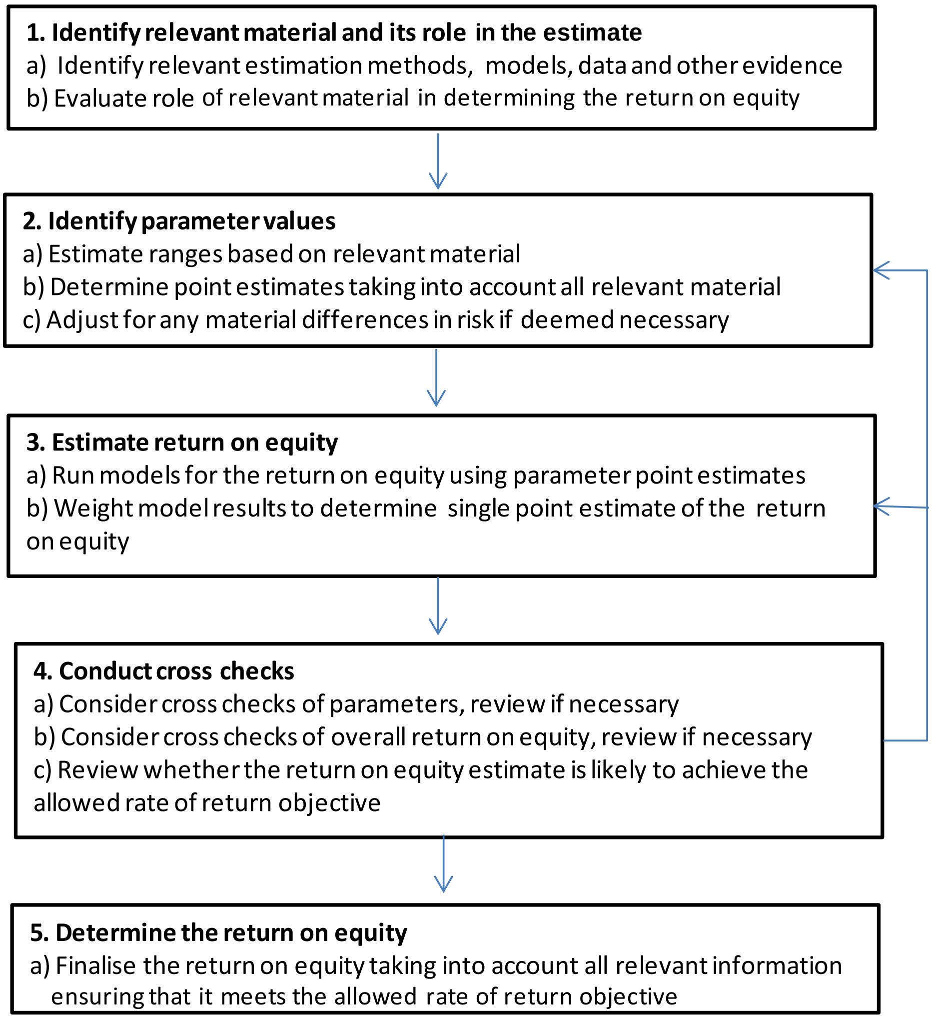
The Authority considers that this estimate would achieve the allowed rate of return objective under National Gas Rule 87.

Return on equity

The Authority will adopt a five step approach for estimating the return on equity. The five steps are summarised in Figure 2.

The five step approach will allow the Authority to have regard to a wide range of material, taking account of relevant models for the return on equity, as well as a range of other relevant information. The Authority will give weight to each piece of information according to its relevance and merits at the time of each determination. This will enable it to provide a transparent and clear decision that meets the allowed rate of return objective.

Figure 2 Proposed approach to estimating the return on equity[5]



The Authority has reviewed financial models for determining the return on equity. The conclusion from its assessment leads the Authority to consider that only the Sharpe Lintner CAPM model is relevant for informing the Authority's estimation of the prevailing return on equity for the regulated firm, at the current time.

Formally, there are three main components of the Sharpe Lintner CAPM for measuring the return on an asset: (i) the market risk premium (**MRP**), which is the return on the market portfolio in excess of the risk free rate of return, (ii) the beta risk β, which correlates the return on the specific asset, in excess of the risk free rate of return, to the rise and fall of the return on the market portfolio and iii) the risk free rate of return.

[5] The Authority considers that the term:

- 'approach' refers to the overall framework or method for estimating the return on equity, which combines the relevant estimation methods, financial models, market data and other evidence;
- 'estimation material' refers to any of the relevant estimation methods, financial models, market data and other evidence that contribute the 'approach';
- 'estimation method' relates primarily to the estimation of the parameters of financial models, or to the technique employed within that model to deliver an output.

The most common formulation of the CAPM directly estimates the required return on the equity share of an asset as a linear function of the risk free rate, plus a component to reflect the risk premium that investors would require over the risk free rate:

$$R_e = R_f + \beta_e \left(R_m - R_f \right)$$

where

R_e is the required rate of return on equity;

R_f is the risk free rate (set at the start of the regulatory period, to apply for the whole regulatory period, and hence, reflecting the 'present value principle', to be based on a 5-year term);

β_e is the equity beta that describes how a particular portfolio i will follow the market which is defined as;

$\beta_e = \mathrm{cov}\left(r_i, r_M\right) / \mathrm{var}\left(r_M\right)$; and

$\left(R_m - R_f\right)$ is the market risk premium, MRP.

The Authority also proposes to give weight to relevant outputs from the Dividend Growth Model (**DGM**) when estimating the market risk premium (**MRP**) for input to the Sharpe Lintner CAPM. In particular, estimates from the DGM will be used to inform the range of the MRP, which will be then used as input to the Sharpe Lintner CAPM.

The Authority will take into account other relevant information in determining the equity beta estimate. The Authority considers that relevant empirical evidence supports a view that there is some downward bias in equity beta estimates that are less than one, and upward bias in equity beta estimates that are greater than one. The Authority intends to undertake work to quantify the extent of this potential bias. This work would then inform the degree to which the Authority might adjust up the point estimate of the equity beta within the estimated range, so as to account for any potential beta bias.

Other models and approaches are considered to be irrelevant within the Australian context at the current time, at least without some new developments in terms of the theoretical foundations or in the empirical evidence.

The Authority's indicative estimate of the components of the allowed return on equity under its revised approach, for a decision that was made at December 2013, to apply for the period of the following year, would be:

The 5-year risk-free rate:	3.44 per cent
Equity beta	0.7[6] (from within a range of 0.5 to 0.7)
Market risk premium	6.0 per cent (from within a range of 5.0 to 7.5 per cent)

Taking into account all of the relevant information, the Authority is of the view that an expected return on equity would be:

Estimated return on equity = 3.44 per cent + 0.7*(6.00 per cent) = **7.64 per cent**

The Authority considers that the estimate is commensurate with the efficient equity financing costs of the benchmark efficient entity, prevailing at this time. The Authority considers that the estimate will meet the allowed rate of return objective under National Gas Rule 87.

Gamma

The NGR require that the Authority set out the estimation methods, financial models, market data and other evidence that the Authority proposes to take into account in estimating the value of imputation credits referred to in NGR 87A.

The Authority considers that it is appropriate to estimate gamma as the product of two components: (i) the payout ratio (F); and (ii) the market value of imputation credits (θ). This can be represented as follows:

$$\gamma = F.\ \theta$$

The Authority considers that an estimate of the payout ratio of 70 per cent is appropriate based on the empirical evidence currently available.

The Authority considers that for the purposes of these guidelines the range of theta is 0.35 – 0.55.

Given the payout ratio of 0.70, and the range for theta of 0.35 – 0.55, the Authority considers that the estimated range for gamma is 0.25 to 0.39.

As the Authority has no additional relevant material to inform the position in the range, the Authority considers that the rounded mid-point estimate of 0.3 will provide the best indicative estimate within the range, at the current time.

[6] For the purposes of this indicative estimate, the Authority has assumed a point estimate for the equity beta that is at the top end of the estimated range, so as to account for potential bias in the estimate. As noted above, the Authority intends to undertake work to quantify the extent of this potential bias.