Independent Panel

REVIEW OF THE
AUSTRALIAN ENERGY REGULATOR'S
RATE OF RETURN DRAFT GUIDELINES

7 September 2018

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Abbreviations

2013 Guidelines	AER, *Rate of Return Guidelines*, December 2013; AER, *Rate of Return Guidelines - Explanatory Statement*, December 2013; and/or AER, *Rate of Return Guidelines - Explanatory Statement - Appendices*, December 2013
AER	Australian Energy Regulator
ARORO	Allowed Rate of Return Objective
ASX	Australian Securities Exchange
ATO	Australian Taxation Office
BEE	Benchmark Efficient Entity
CAPM	Capital Asset Pricing Model
CCP	Consumer Challenge Panel
CCP16	Sub-panel 16 of the CCP established to provide advice on the AER's review of the rate of return Guidelines.
CGS	Commonwealth Government Securities
CoAG	Council of Australian Governments
DGM	Dividend Growth Model
DRP	Debt Risk Premium
ERP	Equity Risk Premium
FAB	ATO franking account balance
GDP	Gross Domestic Product
HER	Historical Excess Returns
legislative objectives	The NEO, NGO, ARORO, and RPPs
MRP	Market Risk Premium
NEL	National Electricity Law

NEO	National Electricity Objective
NER	National Electricity Rules
NGL	National Gas Law
NGO	National Gas Objective
NGR	National Gas Rules
RAB	Regulatory Asset Base
Regulated services	Electricity prescribed transmission service, and electricity distribution direct control service, and/or a gas reference service
Regulatory period	Regulatory control period and/or an access arrangement period
Regulatory year	A year within a regulatory period
RPPs	Revenue and Pricing Principles
Service provider	An electricity transmission network service provider, an electricity distribution network service provider, and/or a gas service provider
SLCAPM	Sharpe-Lintner Capital Asset Pricing Model
WACC	Weighted Average Cost of Capital

Executive summary

Why this review of the AER's Draft Guidelines is important

On 10 July 2018, the Australian Energy Regulator (AER) released its Draft Rate of Return Guidelines (Draft Guidelines) and a detailed Explanatory Statement. Together, these documents set out the approach it proposes to use to determine the rate of return for regulated energy utilities in Australia.

This current process of reviewing the rate of return guidelines is particularly important for several reasons:

- First, the rate of return is a significant driver of regulated revenue and electricity bills. The AER estimates that the rate of return makes up approximately 50 per cent of a network business' allowed revenue. Network business' revenue contributes up to 50 per cent of final electricity bills.[1]
- Second, the AER review of its 2013 Guidelines is being undertaken against a backdrop of heightened debate and considerable change in the Australian energy market and regulatory landscape.
- Third, the Council of Australian Government's (COAG) Energy Council has proposed legislative amendments to replace the current Rate of Return Guidelines with a binding legislative instrument. This means that once finalised, the rate of return for all Australian regulated energy utilities will be estimated in the same way in each regulatory determination automatically, without any exercise of regulatory discretion.

Against this backdrop, the AER has established this independent panel (Panel) to review its Draft Guidelines as a means of promoting stakeholder confidence in the review process and confidence that the Final Guidelines are capable of achieving the national gas and electricity objectives.

What we have been asked to do

The Panel's specific role, as defined by the AER, is to report on:

> *In the Panel's view, is the draft guideline supported by sound reasoning based on the available information such that it is capable of promoting achievement of the national gas and electricity objectives?*

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[1] AER, New Process – Rate of Return Guideline: Independent Panel, Factsheet, 12 July 2018.

This is the first time that an Independent Panel has been established for this purpose. It is important to understand what the Panel's role is, and what it is not. Our role does not extend to forming a judgement about whether the rate of return itself is appropriate or providing further expert analysis on matters that the AER has already considered. Equally, our role is not to propose an alternative value or approach, or to propose our preferred means of promoting the national gas and electricity objectives, or to put forward alternative or amended Guidelines.

Instead, our role focuses on concluding whether the Draft Guidelines meet the requirements set down for the Panel – namely whether the Draft Guidelines are supported by *sound reasoning*, based on the *available information*, and *capable of promoting achievement of the national gas and electricity objectives*.

The Panel has concluded that the Explanatory Statement should be largely self-contained. A diligent reader should be able understand the Explanatory Statement without prior knowledge of the 2013 Guidelines or submissions by stakeholders in the past five years. The Explanatory Statement should clearly set out all relevant reasoning, evidence and calculations with clear and specific references to other relevant documents that are publicly available.

We have assessed each of the key components of the rate of return including the overall form and structure of the rate of return, the gearing ratio, the return on equity, the risk free rate, the market risk premium, the equity beta and the return on debt. We have also assessed the proposed treatment of imputation credits.

The Panel's assessment

The AER has undertaken an extensive consultation and engagement process. For the most part, the Explanatory Statement has set out in significant detail the evidence, analysis and conclusions that the AER has reached in determining each of the rate of return parameters, and the value of imputation credits, to form an overall estimate of the rate of return.

However, we have identified a number of areas where the AER's explanations and reasoning supporting its approach to various issues needs to be clarified. We have stated our recommendations in the relevant chapters of this report and we list them at the end of this Executive Summary. If the AER follows these recommendations, then in the Panel's view the resulting Guidelines will be supported by sound reasoning, based on the available information, such that it is capable of promoting achievement of the national gas and electricity objectives.

While we have set out a list of 30 recommendations for the AER to address, there are several overarching issues that we consider the AER needs to give attention to. These are summarised below and detailed in the Report.

Replicability of the AER's methodology

One of the key factors that we have been asked to consider is the replicability of the AER's methodology. We are concerned that stakeholders (other than the regulated entity) will not be able to replicate the AER's rate of return calculation because the AER proposes to keep confidential the averaging period used to determine the risk free rate and the return on debt, even after the period has passed.

The AER has itself noted that it is important for transparency and predictability that by reading the Guidelines, stakeholders are able to replicate its estimates to a reasonable degree of accuracy at a point in time.

We have recommended that the Explanatory Statement explain clearly and address the reasons for maintaining the confidentiality of the averaging period used to determine the risk free rate and the return on debt after that period has passed. It should also consider where there is any way that maintaining the confidentiality of that data can be consistent with stakeholders being able to replicate the estimate.

The exercise of judgement unexplained – rounding and switching methodologies

There are examples where the AER has exercised judgement, but not explained sufficiently or detailed its reasons for doing so. We are concerned that judgement unexplained risks the regulatory process being arbitrary and unpredictable. It also has the potential to undermine trust in the regulatory process and thereby discourage investment.

One area of judgement applied involves rounding, for example, to determine the value of gamma, estimated as the product of the distribution rate (F) and the utilisation rate (theta). The tendency to round numbers has the perverse effect of reducing the incentive to improve the precision of the inputs. Further, it is not clear why some variables are rounded to one decimal point and others to two decimal points.

In the context of these Draft Guidelines, it appears that the effects of rounding various parameters are likely to offset each other, and hence are unlikely to adversely affect the achievement of the national objectives. But, in other circumstances, adopting this approach could cause a directional bias. The AER needs to be alert to the impact that the exercise of its judgement may have on the overall result and explain how it has assured itself that the approach to rounding various parameters provides a robust estimate.

Another area of judgement involves switching methodologies, for example, using one methodology to establish a range, and then using another methodology to pick a point within the range. Switching methodologies is not necessarily wrong, but it needs to be explained fully or otherwise risks appearing arbitrary.

For example, the AER's decision on equity beta involved two separate lines of reasoning. First, the AER (a) decided on a set of comparable regulated entities, (b) calculated betas for subsets of this set over different time periods and then (c) gave '*most weight to estimates from the longest estimation period*.' It then made a second decision to limit the reduction in beta from 2013 to 2018 to at most 0.1 – in part to 'promote stability.'

The second step implies that the AER values stability in rate of return estimates and is therefore averse to large changes between 2013 and 2018. However, the context is that the AER has diminished confidence in the Black model, which played a major role in determining the 0.7 beta estimate in the 2013 Guidelines. Given the AER's diminished confidence in the Black model, it is not clear that limiting the change of estimate from the 2013 Guidelines is justifiable.

The AER's concerns with stability also appear to be limited to the case of estimating beta. But if the AER considers that stability is worthwhile, why does it not apply this approach to other parameters? Further, if discontinuity is a concern, then the concern logically applies to the equity risk premium itself and indeed to the overall rate of return, rather than just one of its components. Concerns regarding stability would more appropriately be considered as one aspect of the assessment of the overall outcome (see below).

Being satisfied that the overall outcome is neither too high nor too low

The third issue deserving fuller explanation is the tradeoff between risk and cost. The relevant submissions to the AER focused on a specific risk – the effect on investment incentives of over or underestimating the rate of return. Since estimating the rate or return involves uncertainties, there is a 50 per cent chance that the decisions on each of the components is higher than the efficient level and a 50 per cent chance that they are lower than the efficient level.

Results that differ from the efficient level cause significant costs. If the result is lower than the efficient level, then investment may be lower than is efficient; whereas a result higher than the efficient level will result in an inefficient price that suppresses efficient consumption and may incentivise investment that does not provide benefits commensurate with the cost recouped from consumers.

At a theoretical level, a rate of return that reflects the cost of capital faced by a benchmark efficient utility, and properly considers the risk-cost tradeoff summarised above, is necessarily capable of meeting the national gas and electricity objectives – *to the extent the rate of return itself contributes to those objectives*.

While the Explanatory Statement addresses each technical step in the rate of return calculation, it does not sufficiently consider or demonstrate how each of the decisions about individual parameters, when taken together to produce a final estimate of the rate of return and value of imputation credits, will contribute to the achievement of the national gas and electricity objectives.

The AER should explain more clearly how the Final Guidelines promote the achievement of the national gas and electricity objectives, including why the AER is confident that the rate of return methodology that it has determined results in an outcome that is neither too high or too low.

The Panel's recommendations

The Explanatory Statement should be largely self-contained. It should clearly set out all relevant reasoning, evidence and calculations. Where including a full explanation would be too technical or long-winded, the Explanatory Statement should provide clear and specific references to other relevant documents that are in the public domain. A diligent reader should be able understand the Explanatory Statement without prior knowledge of the 2013 Guidelines or submissions by stakeholders in the past five years.

The AER should amend its Draft Guidelines and/or Explanatory Statement to give effect to the following:

Parameter	No.	Independent Panel recommendations
Form and structure	**1**	Explain more clearly the basis for criteria used to choose between a fixed methodology and fixed value.
	2	Explain more clearly why the relationship of risk free rate to market risk premium is neither one of lock-step movement nor one susceptible to a robust, predictive methodology.
	3	Explain more clearly: ▪ why the AER intends to disregard RAB multiples ▪ how and when the 'monitoring' and 'gauging' of RAB multiples will take place, what questions the AER will seek to answer, and what actions the AER will take once it has answered those questions.
	4	Explain more clearly why the AER has singled out debt from the other building blocks in suggesting that profitability may inform decisions on the cost of debt.
Benchmark gearing ratio	**5**	Address whether consistency is necessary in the treatment of hybrid and subsidiary debt for gearing, as compared to their treatment for estimating beta.
Return on equity	**6**	Explain more clearly why it should place any reliance on the Wright approach to determining equity risk premium estimates.

	7	Chapter 5 of the Explanatory Statement should include a discussion of the Black model and the low beta bias and should consider whether any adjustments to the return on equity are justified based on that model and bias.
Risk free rate	**8**	Justify more adequately the use of a 10-year term for the risk free rate, including explaining the justification for adopting a 10-year term for the cost of equity.
	9	Explain for non-expert readers the reasons why: ▪ the CGS estimation formula involves identifying two CGS yields ▪ an adjustment is necessary to change the remaining maturity during the averaging period.
	10	Explain: ▪ the reasons why confidentiality, and thus a provider-nominated averaging period, are important ▪ what, if any, scope there would be, given the provider's ability to nominate the averaging period, for the service provider to manipulate the market in the two bonds during that period ▪ why it is reasonable that the averaging period nominated by the service provider will not be made public after the period has passed, since a continuation of confidentiality results in the rate of return estimate not being replicable by stakeholders other than the regulated entity.
Market risk premium	**11**	Explain: ▪ why long-run, arithmetic averages of historical market risk premia are appropriate for setting allowed regulatory returns ▪ what specific information, relevant to a five-year regulatory period, is provided by the geometric average.
	12	Explain, or at least more fully reference, the method of adjusting historical excess returns for imputation credits.
	13	Check the reasonableness of the proposed market risk premium by examining historical averages of market risk premia in other developed countries.
	14	Clarify the discussion of the possible correlation between the market risk premium and the level of risk-free interest rates.

	15	Identify the evidence the AER is relying on for the link between reduced debt risk premiums and a lower market risk premium.
Equity beta	**16**	Clarify the discussion of financial risk in Chapter 2 of the Explanatory Statement and of the conceptual analysis in Chapter 8.
	17	Clarify whether, in estimating beta, there is any relevance of the Black model and the low beta bias.
	18	Consider whether the discussion of the Black model and the low beta bias should be moved to the section on the Sharpe-Lintner Capital Asset Pricing Model or to another part of the Explanatory Statement.
	19	Explain why limiting the change in beta from that selected in the 2013 Guidelines is justified, given that the 2013 beta estimate was materially influenced by the Black model, in which the AER has diminished confidence.
Cost of debt	**20**	Test what assumptions would be required to reconcile the Chairmont data with an average 10-year term at issuance.
	21	Explain the reasons for adopting a 10-year benchmark for the average term of debt at issuance, rather than relying on the judicial reviews, which did not consider the choice between a 10-year and a shorter term.
	22	Investigate the possibility of: ▪ expanding the scope of future debt information collection to include characteristics on the stock of debt, as well as recent issuances ▪ making more of the Chairmont detail available in the Explanatory Statement for the Final Guidelines, while respecting the commercially sensitive nature of the source data.
Imputation credits	**23**	Adopt a proactive approach to improving the quality and relevance of dividend drop off studies and expanding the number of listed companies to be included in the distribution rate study beyond the Top 20.
	24	Explain more clearly why adopting an incremental review to update the estimates for the utilisation rate and the distribution rate is consistent with the Rules and the achievement of the national electricity and gas objectives.

	25	Explain more clearly why the AER has not considered a distribution rate estimate higher than 0.88.
	26	Explain more clearly how SFG's 2016 dividend drop-off study and the adjustment suggested by Lally and Handley have informed the adopted utilisation rate estimate of 0.6.
	27	Explain more clearly why it has not considered a utilisation rate estimate higher than 0.6.
	28	Explain more clearly the rationale and methodology used to establish the set of values for gamma of 0.5, distribution rate of 0.83 and utilisation rate of 0.6.
	29	Review the AER's rounding policy in relation to gamma, including considering whether to round to the nearest five per cent or to two decimal places.
Conclusion	**30**	Explain more clearly how the Final Guidelines promote achievement of the national objectives, including why it is confident that the rate of return methodology it has determined results in an outcome that is neither too high nor too low having regard to the risk-cost tradeoff involved.

1. Introduction

1.1 BACKGROUND

On 10 July 2018, the Australian Energy Regulator (AER) released its Draft Rate of Return Guidelines (Draft Guidelines) and a detailed Explanatory Statement. Together, these documents set out the approach it proposes for determining the rate of return for regulated energy utilities in Australia. The rate of return comprises the weighted average of the return on debt and the return on equity. The Draft Guidelines also set out the proposed value of imputation credits.

Estimating the rate of return and the value of imputation credits is a complex technical task. It draws from corporate finance theory and practice and requires extensive information and judgement. The rate of return is also a significant driver of regulated revenue for utility businesses and final electricity bills. The AER estimates that the rate of return makes up approximately 50 per cent of a network business' allowed revenue. The network business' revenue contributes up to 50 per cent of final electricity bills.[2]

Under the current legislative framework, the AER is required to periodically review its Guidelines and publish amended Guidelines if necessary. The existing 2013 Guidelines are required to be reviewed by December 2018.

The AER initiated this current review of its 2013 Guidelines in mid-2017. This review is being undertaken against a backdrop of considerable debate and change in the Australian energy market and regulatory landscape. Among other factors, the Council of Australian Governments (CoAG) Energy Council has proposed legislative amendments to replace the current rate of return Guidelines with a binding legislative instrument.

The proposed legislative amendments require the binding legislative instrument to set out how the rate of return will be estimated in each regulatory determination automatically, without any exercise of regulatory discretion.[3] The amendments also include provisions to allow this 2018 review of the Guidelines to satisfy the process for developing the first binding rate of return instrument. As of the date of this Report's publication, legislation had been

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2 AER, New Process – Rate of Return Guideline: Independent Panel, Factsheet, 12 July 2018.

3 In contrast, the current legislative framework allows the AER and other Australian regulators to depart from the AER's 2013 Guidelines when setting rates of return for specific regulated entities if doing so would result in an outcome that better achieves the legislative objectives set out in the *National Electricity Law* and the *National Gas Law*.

introduced into the South Australian Parliament to give effect to the proposed legislative amendments but not yet passed.[4]

Considering CoAG Energy Council's commitment to implement a binding rate of return instrument, the AER has developed Draft Guidelines that are capable of:

- operating as non-binding Guidelines under the current legislative framework or
- being automatically applied as a binding rate of return instrument if the legislative framework changes.

In conducting its review, the AER has sought to enhance its transparency and increase stakeholder engagement, to assist in developing its approach to calculating the rate of return and determining the value of imputation credits. Specifically, it has:

- issued a series of consultation papers, both on the overall approach to the review as well as on specific issues and components of the rate of return
- called for and received numerous submissions from consumers, service providers, investors and representative groups
- established Reference Groups to help facilitate greater engagement with consumers, investors and retailers
- established a Consumer Challenge Panel to assist in better understanding and considering consumer concerns
- established a 'hot-tub' of experts in concurrent evidence sessions, whose members have been nominated by different consumer and industry stakeholders.

This process has produced a wealth of information and perspectives, which the AER has sought to reflect in its Explanatory Statement. Table 1 summarises the key rate of return parameter estimates, and assumptions proposed by the AER in the Draft Guidelines.

4 Statutes Amendment (National Energy Laws) (Binding Rate of Return Instrument) Bill 2018, 2 August 2018.

Table 1: Summary of key rate of return parameters –2018 Draft Guidelines

Parameter	2018 Draft Guidelines
Equity beta	0.6
Market risk premium	6 per cent
Equity risk premium	360 basis points
Risk free rate	Average yield of 10-year CGS
Risk free rate averaging period	Averaging period 20 to 60 business days Service providers choose start date for averaging period subject to certain conditions
Gearing ratio	60 per cent
Return on debt approach	Trailing 10-year average, with 10-year transition from 'on the day'
Yield on debt instruments	BBB+ (estimated from 1/3 A band + 2/3 BBB band yield curves) Service providers choose averaging period between 10 business days and 1-year subject to certain conditions
Imputation credits (gamma)	0.5

The AER indicates that the approach set out in the Draft Guidelines will contribute to a lower overall rate of return:

> *Overall, we estimate that our draft guideline will result in a 45 basis point reduction in the overall rate of return compared to the approach we have applied in our regulatory determinations since the 2013 Guidelines. … Over the next five years, the total impact could be larger or smaller depending on changes in market conditions.*[5]

[5] Explanatory Statement, p.18.

1.2 THE ROLE OF THE INDEPENDENT PANEL

As a part of its process, the AER has established this independent panel (Panel) to review its Draft Guidelines. The Panel's specific role, as defined by the AER, is to report:

> *In the Panel's view, is the draft guideline supported by sound reasoning based on the available information such that it is capable of promoting achievement of the national gas and electricity objectives?*

The Panel is required to have regard to the following factors:

- the impact of the guideline as a whole rather than an issue-by-issue analysis
- the revenue and pricing principles in the National Electricity Law and National Gas Law
- the rate of return provisions in the National Electricity Regulations and National Gas Regulations[6]
- the impact of COAG Energy Council's ongoing reforms to implement a binding rate of return instrument
- whether the AER has had regard to relevant information in reaching its conclusions
- whether there is a clear link between the AER's conclusions and the information on which it relied
- whether, in the Panel's view, the methodology set out in the Draft Guidelines will allow stakeholders to replicate the AER's estimate at a point in time
- interactions with other building block components and the relevant rules impacting estimation of those components.[7]

This is the first time that an independent panel has been established for this purpose. While its establishment is due to the AER's discretionary decision, the legislative amendments introduced into the South Australian Parliament to give effect to the new binding rate of return instrument include provisions requiring the establishment of an independent panel to give a written report about the AER's Draft Guidelines.[8]

According to the AER's Positions Paper, the Panel's objective is to:

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6 AER, *Positions Paper,* Chapter 3, Attachment 1, 28 November 2017.

7 The AER provided the Panel with further guidance in relation to this requirement in correspondence dated 25 July 2018. The advice confirmed that the Panel was expected to examine both the inter-relationships between various rate of return parameters as well as the inter-relationships between the rate of return parameters and with other building block components.

8 Sections 18P and 30K, Statutes Amendment (National Energy Laws) (Binding Rate of Return Instrument) Bill 2018, 2 August 2018.

> *[A]ssist the AER in making the best possible final guideline by providing an independent perspective on the development of the draft guideline. In doing so, the independent panel should also promote stakeholder confidence in the guideline review process and confidence that the final guideline is capable of achieving the national gas and electricity objectives.*[9]

The Panel comprises five members, selected by the AER following a selection process drawing on nominations provided by stakeholders. The Panel members have diverse backgrounds and areas of expertise, including regulatory, legal, economic, finance, consumer perspectives and institutional investment. Appendix A provides a summary of each Panel member's credentials relevant to this review.

The Panel's role is not to propose its preferred means of promoting the national gas and electricity objectives, or to put forward an alternative or amended Guidelines. Instead, its role focuses on providing its own conclusions about whether the Draft Guidelines meet the requirements set down for the Panel.

The AER has specified that the Panel's role does not extend to forming a judgement about whether the rate of return itself is appropriate, or providing additional expert opinion on matters already addressed in the expert hot tubbing process:

> *[T]he role of the independent panel should not include duplication of our regulatory judgement or provision of additional expert opinions on matters already addressed in the expert hot tubbing process. Our view is that the independent review panel is best suited to a role of* ***reviewing that we have undertaken an effective review process; engaged with the material before us with an open mind; and have reached a decision that is supported by our stated reasons and the information available to us****.*[10] *[emphasis added]*

The Panel is required to set out its conclusions in a publishable report, which the AER will publish on its website. The Report needs to indicate whether it is provided by consensus. Where Panel members disagree, the report is required to set out the range of views by Panel members without specifically attributing them to individual Panel members.

The Panel is not expected to engage with stakeholders or perform any independent consultation when reviewing the Draft Guidelines.[11]

The Panel's findings are not binding on the AER but are to be part of the evidence that the AER will need to consider in forming its final decision and in preparing the Final Guidelines.

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9 Australian Energy Regulator (AER), *Positions Paper,* Review of the rate of return guidelines – process for the guideline review, November 2017, p.13.

10 AER, Consultation paper: process for reviewing the rate of return guidelines, July 2017, p.14.

11 See AER, Response to Panel questions, 22 June 2018 and AER, New Process - Rate of Return Guideline: Independent Panel, Factsheet, 12 July 2018.

1.3 THE PANEL'S APPROACH

The Panel has conducted its review and assessment of the Draft Guidelines over the period 10 July 2018 (when the Draft Guidelines and Explanatory Statement were released publicly and to the Panel) to 7 September 2018 (when this Report was submitted to the AER).

Together the Draft Guidelines and the Explanatory Statement total nearly 500 pages. Additional extensive evidence has been collected by the AER through submissions, written transcripts of concurrent expert evidence, further expert reports including the experts joint report prepared by an independent advisor, notes of Reference Group and Consumer Challenge Panel meetings and publicly available information and reports.

In the time available for its assessment, the Panel has not reviewed all the documentation that has been provided to the AER. To fill in certain gaps, the Panel has asked the AER several questions about the process it has followed and the information that it has considered:

- Does the AER believe that it has considered all the available information in preparing the Draft Guidelines?
- What information has the AER considered and/or what process has it adopted in ensuring that it has considered all available information in preparing its Draft Guidelines?
- Is there any information that has been provided to the AER that it has not had regard to in preparing the Draft Guidelines? If not, why not?
- Has the AER been provided with confidential or commercially sensitive information that is not available on its website and/or has not been explicitly referenced in the Draft Guidelines or accompanying documents?
- How has such confidential or commercial sensitive information been considered in preparing the Draft Guidelines?
- How has the AER satisfied itself that it has considered the latest thinking and developments in corporate finance and regulatory practice in preparing its Draft Guidelines?
- Has the AER commissioned any additional reports to assist it in developing the Draft Guidelines? If so, please advise what reports have been prepared and whether they have been made publicly available.

The AER's responses to these questions provide the Panel with confidence that focusing its review and assessment primarily on the Draft Guidelines and the Explanatory Statement gave the Panel a sufficient basis on which to carry out its responsibilities.[12] The Panel also

[12] See correspondence between the Panel and the AER 3-12 July 2018.

sought further information from the AER to clarify other matters in the Explanatory Statement. For transparency and independence, a summary of each of the Panel's requests for further information have been published on the AER's website.

The Panel has assessed the key components of the rate of return estimation methodology and the valuation of imputation credits as set out in the AER's Draft Guidelines using the factors listed above, as directed by the AER. The components of the rate of return estimation methodology include the overall form and structure of the rate of return estimate, the gearing ratio, return on equity, the risk free rate, the market risk premium, the equity beta and return on debt. The Panel has also assessed the proposed treatment of imputation credits.

For each component of the methodology the Panel has applied four criteria:

1. **Consideration of available, relevant information**: Do the Draft Guidelines consider and address relevant information and insights available from the evidence?
2. **Sound reasoning and explanation**: Are the Draft Guidelines supported by sound reasoning and explanation, such that there are logical links, clearly stated and explained, between the AER's conclusions and the information on which it relied? Is the discussion of each issue sufficiently accessible to a non-expert, diligent reader, and to practitioners seeking to be effective in AER proceedings, as well as judicial tribunals?
3. **Replicability**: Is the methodology sufficiently clear, detailed and prescriptive, in terms of data to be used and calculations to be performed for each component, to enable stakeholders to replicate the AER's estimates at any point in time?
4. **Interactions among components**: Do the Draft Guidelines explain sufficiently whether and how each component affects other components? Does the treatment of each component take these interactions into account sufficiently?[13]

Having assessed each of the Draft Guidelines' components individually, the Panel has then assessed the consistency of the Draft Guidelines' overall effects with respect to the following questions:

5. Are the Draft Guidelines consistent with the revenue and pricing principles in the NEL/NGL?
6. Are the Draft Guidelines consistent with the rate of return provisions in the NER and NGR?

[13] We have focussed on interactions between components of the rate of return estimation and the estimation of the taxation allowance (since the latter is dependent on the gearing ratio). The other cashflow components of the building block regulatory approach have no direct interaction with the rate of return estimation.

7. Are the Draft Guidelines consistent with the COAG Energy Council's ongoing reforms to implement a binding rate of return instrument?
8. Overall, are the Draft Guidelines consistent with, and capable of promoting, achievement of the objectives of the NEL and NGL?

1.4 STRUCTURE OF THIS REPORT

This Report follows the structure of the AER's Draft Guidelines and Explanatory Statement. It sets out the Panel's overall conclusions about whether the AER's discussion of each rate of return component is supported by sound reasoning and based on the available information, such that Draft Guidelines are capable of promoting achievement of the relevant objectives. It also identifies areas where the Panel recommends further explanation and clarification by the AER.

The remainder of this report is structured as follows:

- Chapter 2 provides the Panel's assessment of the proposed form and structure of the rate of return estimation methodology.
- Chapter 3 provides the Panel's assessment of the proposed benchmark gearing ratio.
- Chapter 4 provides the Panel's assessment of the proposed approach to determining the return on equity.
- Chapter 5 provides the Panel's assessment of the proposed approach to determining the risk free rate.
- Chapter 6 provides the Panel's assessment of the proposed approach to determining the market risk premium.
- Chapter 7 provides the Panel's assessment of the proposed approach to determining the equity beta.
- Chapter 8 provides the Panel's assessment of the proposed approach to determining the return on debt.
- Chapter 9 provides the Panel's assessment of the proposed approach to determining the value of imputation credits.
- Chapter 10 presents the Panel's overall conclusions, including conclusions on whether the Guidelines are capable of achieving the national objectives.

The Executive Summary provides a high level overview of the Panel's assessment and includes a list of all the recommendations arising from its assessment of the AER's Draft Guidelines.

2. Form and structure

2.1 BACKGROUND

The Explanatory Statement describes the AER's general approach to estimation of the rate of return as:

- taking the form of a nominal, vanilla, weighted average cost of capital that is consistent with the value of imputation credits
- not including transaction costs involved in raising capital
- being capable of application automatically, without the exercise of regulatory discretion.[14]

In setting out its proposed form and structure for determining the rate of return, the AER made 11 distinct decisions:

1. use a nominal, vanilla weighted average cost of capital
2. establish criteria for choosing between fixed value and fixed methodology
3. set gearing ratio via a fixed value
4. set market risk premium via a fixed value
5. set equity beta via a fixed value
6. calculate risk-free rate using a fixed formula
7. calculate return on debt using a fixed formula
8. set imputation credits via a fixed value
9. do not use RAB multiples to inform rate of return, but monitor them to gauge overall impact of AER decisions
10. do not use historical profitability measures to inform rate of return
11. do not use financeability assessments to inform rate of return.

As discussed in section 2.2 below, we infer that the AER's actual choices between fixed value and fixed methodology involve considerations not included in the AER's statement of the criteria. Subject to that qualification, we conclude that the AER's discussion of form and structure:

- describes each of these decisions clearly
- explains their relationship to other decisions well
- considers the information, insights and arguments presented by stakeholders and experts

[14] Explanatory Statement, p.123.

- displays sound reasoning, which has been explained in terms that practitioners and reviewing courts will be able to understand.

If reflected in the Final Guidelines, the AER's proposed form and structure would allow others to replicate the AER's results throughout the period in which the Draft Guidelines will be effective if and only if all the relevant data was publicly available.

As explained in Chapter 5, the AER proposes to not make all relevant information available. In particular, the Explanatory Statement provides that a service provider's choice of averaging period used to determine the risk free rate and the return on debt will be kept confidential permanently. If this decision remains unchanged, it means that stakeholders other than the regulated entity will be unable to replicate the rate of return estimate.

This Chapter sets out the Panel's consideration of each of the AER's 11 decisions related to the form and structure of the rate of return. We have made a number of recommendations that, if implemented by the AER, will improve the clarity of certain explanations. We discuss the detailed determination of each element – gearing ratio, market risk premium, equity beta, risk free rate, return on debt and imputation credits – in succeeding chapters.

2.2 USING A NOMINAL, VANILLA WACC

The AER's rate of return estimate will be based on the vanilla weighted average cost of capital (WACC) for a 'benchmark efficient entity.' The AER proposes that for a given regulatory year, the WACC would be the weighted average of the return on equity estimated at the start of the regulatory period and the return on debt estimated for that regulatory year. Those two elements would be weighted by the benchmark gearing ratio. In contrast to the standard WACC estimates used for valuation purposes, the vanilla WACC does not consider the deductibility of interest in assessment of corporate taxation. The deductibility of interest in assessment of corporate tax and the value of imputation credits are instead taken into account in the taxation component of the AER's (building block) regulation of electricity lines and pipeline businesses.

The AER proposes to determine the transaction costs of raising debt and equity capital on a company-specific basis, outside of the generic equation used to calculate the WACC.[15] Separating out the transaction costs, the AER explains, leaves the WACC determination in plain vanilla form, so that it can be replicated regardless of the company involved.

This approach is consistent with the AER's longstanding approach and with the standard regulatory approach used internationally. The Explanatory Statement also notes that the

15 Explanatory Statement, p.123.

AER has not received any submissions suggesting any other approach.[16] The Panel finds that the Explanatory Statement explains the basis for adopting this approach logically and clearly.

2.3 CHOOSING BETWEEN A FIXED VALUE AND A FIXED METHODOLOGY

To ensure replicability of results, each variable in the WACC calculation must be either a fixed value or the result of a fixed methodology. Determining in advance whether to use a fixed value or fixed methodology also increases predictability.[17] To choose between these two options, the AER has proposed to use the following criteria:

- Use fixed parameters for those variables that are 'relatively stable over a long period (a regulatory period or more).
- Use fixed methodologies where '*market variables influence the appropriate value at a given time*.' In those situations, a fixed methodology allows the value to be '*computed mechanistically and objectively*,' so that the computed value is '*commensurate with the market conditions at that time*.'[18]

We agree that setting out the criteria for choosing fixed parameter or fixed methodology will maximise predictability and replicability.[19]

The Panel infers from the Explanatory Statement that when choosing between a fixed parameter value and a fixed formula that uses current market data to derive that parameter value, the main criterion applied is whether any feasible formula (rather than a fixed value) will produce results that will track market movements accurately between the five-year reviews. Since this is different to the criterion quoted above, the AER should explain whether this inference is correct, or otherwise explain its selection criteria more clearly.

RECOMMENDATION

The Explanatory Statement should explain more clearly the basis for criteria used to choose between a fixed methodology or fixed value.

16 Explanatory Statement, p.124.

17 The proposed legislative amendments to give effect to the Binding Rate of Return Guideline states that the AER may set out the way to calculate the rate of return on capital, and may either set the value or the way to calculate the value of imputation credits. [See section 181]

18 Explanatory Statement, pp.126-27.

19 Cambridge Economic Policy Associates, Rate of Return Guideline – Facilitation of Concurrent Expert Evidence, Expert Joint Report, 21 April 2018, section 2.1.1, pp.12, 17.

2.4 SETTING THE GEARING RATIO VIA FIXED VALUE

The gearing ratio is the ratio of debt to the total debt and equity in a company's capital structure. The AER proposes to make the gearing ratio a fixed value, because '*the core capital structure decisions of companies are stable*,' and because there is a '*cost to changing capital structure in response to regulatory gearing changes*.'[20]

While it is logical to make the gearing ratio a fixed value, the Panel found both explanations unclear, particularly the reference to the term '*stable*', and the unqualified reference to '*companies*.' We detail these concerns in Chapter 3 (Benchmark Gearing Ratio).

The Explanatory Statement also expressed the view that a fixed methodology would not work well because it would rely on data inputs. It states this problem: '*[S]hort term gearing data can be distorted by market fluctuations in share prices.*'[21] The distortion then would produce a result inconsistent with a benchmark approach. Given these factors, the Explanatory Statement proposes a gearing ratio based on data averaged over a longer period, with the ratio then fixed for the life of the Draft Guidelines.[22]

The need for clarity aside, we find that the AER's proposed approach is consistent with the evidence provided by experts. Adopting such an approach ensures predictability and replicability because it allows the plain vanilla WACC equation to be used without the need for adjustments.

2.5 SETTING THE MARKET RISK PREMIUM VIA FIXED VALUE

The market risk premium '*is the difference between the expected return on a market portfolio and the return on the risk free asset.*'[23] It is one of three variables used to determine the return on equity. The return on equity is, in turn, the result of adding to the risk free rate the product of equity beta and the market risk premium.

The Explanatory Statement proposes to set the market risk premium via a fixed value. It argues that given that the risk free rate is itself not fixed, inevitable increases (or decreases) in the risk free rate during the five-year period between rate of return reviews would cause

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20 Explanatory Statement, p.127, citing the Expert Joint Report.

21 We infer that, conceptually, the AER is setting the benchmark entity's **target** gearing. For any actual entity the observed gearing will fluctuate because of changes the market value of its equity (and to a lesser extent the market value of its debt). Short term fluctuations in observed gearing do not reflect changes in the target gearing and so there is no reason for the (target) gearing parameter in the Draft Guidelines to track such fluctuations.

22 Explanatory Statement pp.127-28.

23 Explanatory Statement, p.199.

a fixed equity return to undercompensate (or overcompensate) equity investors.[24] Therefore, it is necessary to establish a market risk premium that will apply to all the regulated companies.

To establish that market risk premium, the AER must choose between a fixed value and a fixed methodology.[25] The AER states that the answer is not obvious because '*the market risk premium is neither constant nor directly inversely related to the risk-free rate.*'[26] The Explanatory Statement then explains that there is no accepted model for correlating the market risk premium with the risk free rate – and that there is neither a theoretical basis for assuming that the two move in lock-step, nor a basis for robustly determining how the market risk premium varies with the risk free rate.[27]

As a result, the AER has concluded that the only feasible option is to determine a fixed value for the market risk premium, and then to reset it every five years. It states that this treatment is more likely than other measures '*to remain unbiased and reduce risk of over/under investment.*'[28]

There appears to be broad support for the AER's proposed approach to fix the market risk premium, even though there are different views among stakeholders about what the market risk premium value should be (See Chapter 6, Market Risk Premium). However, the Explanatory Statement should explain more clearly why the relationship of risk free rate to market risk premium is neither one of lock-step movement nor one susceptible to a robust, predictive methodology.

RECOMMENDATION

The Explanatory Statement should explain more clearly why the relationship of risk free rate to market risk premium is neither one of lock-step movement nor one susceptible to a robust, predictive methodology.

24 Explanatory Statement, p.130.

25 It must also exercise this choice for the risk free rate and equity beta, as discussed further in this Report.

26 Explanatory Statement, p.129.

27 There is also a more general difficulty with determining how the market risk premium varies over short periods, given that the most widely used methodology for determining the market risk premium (estimating the historic excess return compared to the risk free rate) requires a long time series.

28 Explanatory Statement, pp.129-130.

2.6 FIXING A VALUE FOR EQUITY BETA

The Explanatory Statement notes that the equity beta:

> *[M]easures the 'riskiness' of a firm's returns compared with that of the market. Specifically, the equity beta measures the standardised correlation between the returns on an individual risky asset or firm with that of the overall market.*[29]

According to the AER, there was unanimous agreement that the 'value for equity beta should be fixed as it is stable over long periods.'[30]

As explained in Chapter 7 (Equity Beta), it is not clear that beta is '*stable over long periods*.' However, the AER has looked at beta estimates for different periods and at portfolios which were reasonably stable. That evidence supports its decision to set a fixed value for equity beta.

2.7 CALCULATING THE RISK FREE RATE USING A FIXED FORMULA

The risk free rate '*measures the expected return from a riskless asset.*'[31] There was again unanimous agreement that the risk-free rate should be calculated using a fixed methodology.[32]

The risk free rate is subject to material changes between guideline reviews. Moreover, market data are available to derive a risk free rate estimate at any given date with little or no uncertainty (*e.g.*, CGS market yield data).

The Panel concludes that the explanation and reasoning supporting the AER's decision to determine the risk free rate on the basis of a formula rather than a numeric value is sound. We discuss the formula itself in Chapter 5 (Risk Free Rate).

2.8 CALCULATING RETURN ON DEBT USING A FIXED FORMULA

The current rules framework requires the AER to use a fixed formula to calculate the return on debt if there is to be any annual updating of the cost of debt.[33] The Panel finds that the

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29 Explanatory Statement, p.242.
30 Explanatory Statement, p.128.
31 Explanatory Statement, p.191.
32 Explanatory Statement, p.128.
33 Explanatory Statement, p.130.

Explanatory Statement explains sufficiently the decision that there should be an annual updating. We discuss the design of the formula and the sources of its variables in Chapter 8 (Return on Debt).

2.9 FIXING THE VALUE OF IMPUTATION CREDITS

Under Australian tax law, eligible investors can receive a credit against their tax liability for taxes paid by the companies in which they invest. These credits are a benefit to investors on top of any cash dividend or capital gain they receive. The higher the credit, the less return investors require from dividends and capital gain. Under the NER/NGR, this benefit to investors is reflected in an adjustment to '*the revenue granted to a service provider to cover its expected tax liability*.'[34]

The AER proposes to calculate imputation credits as the product of the payout ratio and the utilisation rate.[35] It also proposes to fix these two values because they '*do not change quickly,*' and because it '*sees no reasons to expect movement up or down*.'[36]

While there is debate about the values (see Chapter 9, Imputation Credits), we conclude that the AER has explained sufficiently its reasoning for setting the imputation credits via a fixed value.

2.10 DISREGARDING RAB MULTIPLES

A regulatory asset base (RAB) multiple is a firm's enterprise value (as determined by acquisition data or trading data) divided by its regulated asset base.[37] The AER proposes not to use RAB multiples to inform its rate of return calculation.

RAB multiples are influenced by a number of factors. As the AER acknowledges, one factor might be that the investors' required equity return is lower than the AER's allowed return. But RAB multiples can result from other factors. The investor paying the multiple might expect the company to perform better than the regulatory benchmarks set for operating expenditure, capital expenditure and taxes. Other important influences on the multiples can include (a) expectations about earnings from the firm's unregulated businesses, (b) the value to the investor (if an acquirer) of fully controlling the acquired company, (c) market

34 Explanatory Statement, p.390.
35 Explanatory Statement, p.390.
36 Explanatory Statement, p.131.
37 Explanatory Statement, p.132.

conditions at the time of the acquisition (which conditions can change for reasons unrelated to company performance or regulatory policy), and (d) investor over-optimism.

According to the AER, there is no consensus on a methodology for assigning consistent weights to these factors. In the context of corporate acquisitions, each individual company's multiple could occur for different reasons specific to that acquisition at that point in time. Also RAB multiples, which may reveal an investor's view of a firm's future profitability relative to investors' cost of capital, are an output of investors' decisions rather than an input to them. While those decisions may tell us something about allowed returns, they do not themselves affect investors' cost of capital.

The AER has acknowledged that the persistence of multiples in acquisitions and trades suggests that it is possible that the authorised return on equity exceeds the real cost of equity. But the AER reasons that the presence of subjectivity and the lack of expert agreement suggests that it should not have a fixed policy on how to use evidence of RAB multiples. The AER instead proposes to:

> *[M]onitor RAB multiples (as part of our separate review into reporting profitability measures). This may assist us in gauging the overall impact of all our decisions (including expenditure allowances) on investment in network businesses.*[38]

The Panel is not clear what the AER means by the phrase '*gauging the overall impact of our decisions on investment in network businesses.*' If RAB multiples are relevant to investors' decisions (and the Draft Guidelines do not suggest they are not relevant), then they are necessarily relevant to the return on equity prospective investors require to make investments. While the AER has explained that RAB multiples can arise from varied causes, the difficulty of sorting out and weighing those causes does not make any one of them irrelevant.

The Panel is not opining as to whether the use of RAB multiples would be useful. We are saying that if the AER intends to disregard RAB multiples entirely, it should explain more clearly why this information is not useful. It should also clarify how and when the 'monitoring' and 'gauging' of the multiples will take place, what questions the AER will seek to answer, and what actions the AER might take once it has answered those questions.

RECOMMENDATION

The Explanatory Statement should explain more clearly:

- why the AER intends to disregard RAB multiples; and

[38] Explanatory Statement, p.134 (footnote omitted).

- how and when the 'monitoring' and 'gauging' of RAB multiples will take place, what questions the AER will seek to answer, and what actions the AER will take once it has answered those questions.

2.11 DISREGARDING HISTORICAL PROFITABILITY MEASURES

The AER considered four measures of historical profitability: return on assets, return on equity, earnings before interest and taxes/number of customers, and RAB multiples. It proposes to not use any of these measures to inform the rate of return because it does not currently have *'a robust data set to calculate these measures.'*[39]

However, the AER then says that:

> *[G]oing forward, … careful consideration of profitability measures (such as those identified from financial statements) may be helpful in identifying whether the business' actual cost of debt has been systematically lower or higher than the cost of debt applied in the rate of return.*[40]

We found this statement confusing because it focuses solely on the cost of debt. Actual equity returns can vary from authorised returns for many other reasons, such as actual company performance that exceeds (or falls below) the building block values; values such as *'revenues; expenditure allowances; interest costs; gearing; depreciation and tax allowances.'*[41] Indeed, incentive-based regulatory approaches are intended to reward the company for beating these targets. So actual returns above authorised returns could provide evidence that the regulatory framework is working.

But not necessarily. The AER's later statement is clearer. It says that profitability data:

> *[C]an help inform us on the effectiveness of our regulatory framework and identify areas that require further investigation. For example, if investigation of actual profitability against the allowed rate of return identifies that the main driver of the higher profits is due to systematically lower than expected expenditures, then we may need to further investigate our approach to setting the expenditure allowances.*[42]

However, the AER returns to singling out debt:

39 Explanatory Statement, pp.143-44, 148.
40 Explanatory Statement, p.144.
41 Explanatory Statement, p.148.
42 Explanatory Statement, p.148.

> *[C]onsideration of profitability … may be helpful in identifying whether the business' actual cost of debt has been systematically lower or higher than the cost of debt applied in the rate of return.*[43]

43 Explanatory Statement, p.148.

RECOMMENDATION

The AER should explain more clearly why it has singled out debt from the other building blocks in suggesting that profitability may inform decisions on the cost of debt

2.12 DISREGARDING FINANCEABILITY ASSESSMENTS

The Explanatory Statement explains that the AER proposes to not use financeability assessments to inform the rate of return. It states that a company's own data are not useful because that company's results would not reflect the benchmark efficient utility.[44]

The Explanatory Statement also states:

> *[A] financeability assessment would not be helpful in a regulatory context if it were to be undertaken using the assumptions (e.g., gearing and interest costs) underpinning the allowed revenue. … [because] the cash flows assumed under such a financeability assessment, would be equal to the cashflows provided in calculating the allowed revenues in the first place.*[45]

As with profitability measures, the rate of return component of building block revenue, while large, is not the sole determinant of cash flows. Cash flows are affected by actual and forecast revenue, operating expenditure and finance costs, as well as performance in the context of specific rewards and penalties. Financeability also depends in part on rating agency opinions about the company's future performance relative to expenditure allowances. Therefore, '*a lower credit rating than our benchmark rating is not necessarily an indication that the rate of return is insufficient (and vice versa).*' The AER also pointed to the absence of evidence connecting financeability problems to insufficiency in the allowed return.[46]

On this point, the Panel finds that the AER considered the available information and evidence and explained sufficiently its reasoning.

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44 Explanatory Statement, p.149.

45 Explanatory Statement, p.153.

46 Explanatory Statement, pp.152-53.

3. Benchmark gearing ratio

3.1 BACKGROUND

The allowed rate of return is calculated as the weighted average of the return on debt and the return on equity, producing the weighted average cost of capital (WACC). The gearing ratio specifies the weighting. The benchmark gearing ratio also plays a role in estimating the equity beta since observed betas need to be adjusted for the effect on beta of gearing differences between the comparator companies and the benchmark efficient entity. We discuss this use in section 3.4 below and in Chapter 7 (Equity Beta).

The Explanatory Statement proposes a gearing ratio of 60 per cent, the same as in the 2013 Guidelines. The AER says it arrived at this number for these reasons:

- The 60 per cent gearing ratio gives primary weight to gearing estimates based on the market value (rather than the book value) of equity.
- The current comparator set (which puts greater weight on Australian listed companies) provides sufficient data for a reliable gearing estimate.
- The analysis considers sample periods of five and 10 years.
- The analysis includes hybrids (but not shareholder loan notes) as debt in calculating gearing of service providers.

3.2 OBSERVED GEARING RATIOS

The Explanatory Statement explains that in choosing a fixed gearing ratio that reflects a benchmark efficient entity, primary weight should be placed on gearing estimates from market values as opposed to book values (for equity). Doing so promotes consistency between the benchmark gearing ratio and other rate of return variables that are typically informed by market data and which are affected by gearing. Consequently, the Explanatory Statement uses only listed companies in the sample.

The Panel finds that AER has accessed the relevant data and interpreted those data accurately. Audited balance sheet information, suitable for determining the actual gearing ratio, is readily available on an annual or semi-annual basis and on a timely basis. Also available is a time series of consistent balance sheet data. The availability of both the balance sheet data and the related equity market value data means that the calculations are replicable, subject to some definitional issues discussed below.

3.3 TREATMENT OF HYBRIDS

Estimating the gearing ratio for the companies in the sample requires information about these companies' hybrid securities (securities that have characteristics of both debt and equity), so that the analyst can classify them as debt or equity.

Of relevance is the treatment of shareholder loan notes. The Explanatory Statement determines that shareholder loan notes have certain characteristics of equity, and notably are 'stapled' to shares. Based on these characteristics, the AER excludes these hybrids from the debt calculation used to estimate the gearing ratio. This treatment is consistent with the treatment in the 2013 Guidelines.

The Explanatory Statement treats other more traditional forms of hybrids (including non-convertible subordinated debt) as debt. It clearly explains the rationale for its treatment of hybrids and shareholder loan notes, including a more substantive discussion of the characteristics of loan notes.

The Panel regards the reasoning on hybrids as clear and sound. Such clarity is an important consideration for replicability.

3.4 INTERACTIONS AMONG COMPONENTS

The gearing ratio has a degree of interaction with the calculation of equity beta. Estimating the equity beta requires an adjustment to consider the effects of differences in gearing between companies in the beta sample. The technique for carrying out the adjustment is the Brealey-Myers de/re-levering formula. Gearing also interacts indirectly with the return on debt, in the sense that the level of gearing impacts the credit rating, which in turn influences the cost of debt. The only significant interaction of the gearing ratio with other building blocks is with the taxation component. Because interest costs are tax deductible, consistency requires the same gearing ratio to be used in the rate of return and taxation building blocks.

Interactions between the gearing ratio and other components affect rates of return. A higher gearing ratio might appear to reduce the WACC, because the cost of debt is less than the cost of equity. But in the AER model, this effect is offset by the interaction between the gearing ratio and equity beta, because beta and the cost of equity increase with the debt-equity ratio. Thus, the higher weight of the return on debt in the WACC is offset by the higher return on equity arising from a higher equity beta.

The Explanatory Statement refers to the interrelationships between gearing and the estimation of beta. However, it does not discuss the issue of consistency between the treatment of hybrid and subsidiary debt in the gearing section versus the treatment in the beta estimation section.

RECOMMENDATION

The Explanatory Statement should address whether consistency is necessary in the treatment of hybrid and subsidiary debt for gearing, as compared to their treatment for estimating beta.

4. Overall approach – return on equity

4.1 BACKGROUND

This Chapter describes the steps that the AER proposes to take in setting the equity return for the benchmark efficient entity. The key is the model connecting risk and return, which the Explanatory Statement proposes to be the Sharpe-Lintner capital asset pricing model (CAPM or SLCAPM). The AER also adopted this model in the 2013 Guidelines.

The SLCAPM calculates the return on equity as the sum of the current risk-free interest rate plus the equity risk premium (ERP). The ERP is in turn the product of the proposed beta (0.6) and the market risk premium (MRP, 6 per cent). If the risk-free rate is 2.64 per cent (the illustrative rate in Explanatory Statement Table 19), the equity return is 0.0264 + 0.6 × 0.06 = 6.24 per cent.

The Explanatory Statement next considers information that could support a judgmental adjustment to the SLCAPM rate. Such information includes:

- Estimates of the ERP by the Wright approach, which assumes a constant market return derived from historical evidence, regardless of the current level of interest rates
- ERPs set by other Australian regulators
- Estimates of the ERP from recent brokerage reports and takeover and valuation reports
- Changes in debt risk premiums (DRPs, that is, credit spreads).

In the end, the Explanatory Statement makes no adjustment to the equity risk premium:

> *We recognise that the ERP ranges from the Wright approach, valuers' and other regulators' decisions are above the ERP we have estimated. By contrast, our ERP for this decision represents an increase relative to the DRP. Once their strengths and weaknesses are accounted for, we do not see a case for making further adjustment to the result calculated using the SLCAPM.*[47]

4.2 THE PANEL'S VIEWS

The Explanatory Statement explains clearly the process for setting the ERP. However, two steps are unclear. First, why does the Explanatory Statement consider results from the Wright approach? The Explanatory Statement concludes that the approach:

47 Explanatory Statement, p.189.

> *[H]as no theoretical basis in Australia and is not an appropriate tool for regulatory use, nor is it used by market practitioners.*[48]

The Explanatory Statement then says that:

> *We continue to observe results from the Wright model… [because] the return on equity does not necessarily move one-for-one with movements in the risk free rate.*[49]

This reasoning is not clear, because the Wright model assumes that the return on equity does not move at all when the risk free rate changes.

RECOMMENDATION

The Explanatory Statement should explain more clearly why the AER should place any reliance on the Wright approach to determining equity risk premium estimates.

Second, why does this chapter of the Explanatory Statement *not* discuss the Black model and the low-beta bias? That model or that bias could provide a basis to adjust the ERP upwards.

The Black model is a version of the CAPM that allows for the absence of truly risk-free assets or restrictions on borrowing by investors. The low-beta bias is the well-documented tendency for low-beta stocks to generate long-run average returns higher than the SLCAPM predicts. The Black model and the low-beta bias both imply a '*flatter*' relationship between beta and expected equity returns than the SLCAPM calls for. Moving from the standard SLCAPM to a flatter relationship would increase the ERP and cost of equity for low-beta firms and therefore for the benchmark efficient entity.

The Explanatory Statement discusses the Black model and the low-beta bias at length in section 8.3.5. It explains why it does not rely on that model or that bias to adjust the estimate of beta. But the model or bias have nothing to do with estimating beta. The model and bias should be evaluated as part of the overall approach to estimating the return on equity.

RECOMMENDATION

Chapter 5 of the Explanatory Statement should include a discussion of the Black model and the low beta bias and should consider whether any adjustments to the return on equity are justified based on that model and bias. (*See also Recommendation 18*)

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48 Explanatory Statement, p.182.

49 Explanatory Statement, pp.182-183.

5. Risk free rate

5.1 BACKGROUND

The risk free rate is one of the three components used to determine the return on equity.[50] It is also required to estimate the market risk premium (MRP).

The Explanatory Statement sets out the following approach:

- Estimate the risk free rate using a daily average of Commonwealth Government Security (CGS) yields sourced from the Reserve Bank of Australia's (RBA) published statistical data *Indicative Mid Rates of Australian Government Securities – F16*.[51]
- Calculate the daily average using the yields on the two CGSs with maturity dates closest (earlier and later respectively) to 10 years from the start of the averaging period, with the averaging formula considering the daily change in the remaining maturity of the two CGSs during the averaging period.
- Allow the service provider to nominate, in the relevant regulatory proposal, the length of the averaging period, which must be between 20 and 60 consecutive business days.
- Allow the service provider to nominate the dates for the averaging period prior to the start of that proposed averaging period, with the start date being no earlier than 7 months, and end date being no later than 3 months, prior to the beginning of the regulatory control period.
- If service provider fails to nominate an averaging period that satisfies the above conditions, the AER will adopt the default averaging period of 20 consecutive business days ending three months prior to the commencement of the regulatory control period.

This approach differs from that used to determine the risk free rate in the 2013 Guidelines. Specifically, the AER now proposes to allow regulated service providers to nominate the start and end dates and thus the number of days of averaging (between 20 to 60 days). In the 2013 Guidelines, the AER required averaging to be over the 20 consecutive business days as close as practicable to the commencement of the regulatory control period.

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50 The other components used to determine the return on equity are the equity beta and market risk premium.

51 The AER proposed to use Bloomberg ADSWAP10 index as an alternative source if the RBA stops publishing daily data.

Overall, the Panel finds that the Explanatory Statement specifies the relevant data (RBA CGS indicative mid rates) and applies an appropriate methodology to specify which CGS yields will be used to estimate the 10-year CGS yield.

There are, however, several areas where the Explanatory Statement should provide further reasoning, particularly as it relates to the 10-year term and the averaging period to be nominated by service providers.

Further, the Draft Guidelines provisions regarding confidentiality of the risk free rate (and cost of debt) averaging periods preclude replicability of the rate of return methodology. These issues are discussed in the following sections.

5.2 USE OF CGS YIELDS

While the Explanatory Statement does not discuss the decision to use CGS yields as the basis for estimating the risk free rate, the use of government bond yields is standard practice.

This treatment reflects a long-standing consensus that government bond yields provide an appropriate measure of the risk free rate where a country's bonds are highly rated. However, government bond yields in some countries have been negative because of quantitative easing (*i.e.*, purchases of such bonds) by central banks since the global financial crisis. The negative yields have led to suggestions that the yields are distorted and thus not an appropriate measure of the risk free rate.

CGS yields in Australia have not at any point been negative, so this concern need not affect Australian rate of return determinations. Thus, we conclude that the AER's decision to use CGS yields reflects sound reasoning.

5.3 TERM OF THE RISK FREE RATE

Section 6.3 of the Explanatory Statement states that the AER:

> *[I]dentified the averaging period, automatic application of the risk free rate and the term of the CGS yields used to estimate the risk free rate as the key issues to consider in this review.*[52]

While the Explanatory Statement explains and usefully illustrates the benefits of allowing a longer averaging period and using a formula, it provides only a cursory discussion of the choice of a 10-year term. In effect, the Explanatory Statement offers that the reason for the

[52] Explanatory Statement, p.192.

10-year term is that a change in the term of the risk free rate from the 10-year term used in the 2013 Guidelines would require changes to the estimation of other cost of equity components.

The Explanatory Statement notes that consumers submitted that a shorter CGS term of five years was appropriate for the risk free rate. They argued that a five-year term is appropriate for the following reasons:

- The return on equity is set for a five-year period (i.e. over the course of the regulatory period) so the risk free rate should use the same period.
- The equity beta and the market risk premium in the CAPM comes from an index of share price volatility measured over shorter periods but averaged over a longer period.
- Investors reassess their portfolios over a much shorter period than 10 years.[53]

The Explanatory Statement rejects this submission on these grounds:

> *This change would require the term for estimating all parameters of the return on equity to be revised to five years. The consumer submission did not provide sufficient justification or support for changing the SLCAPM parameter term from 10 to 5 years.*[54]

This summary of the consumer submission states the essence of the arguments usually made to support a risk free rate of five years (where the regulatory period is five years). Thus, in the Panel's view the Explanatory Statement does not provide a sufficient reason for rejecting the consumer submission. In this context, the Panel notes that the AER's last full discussion of the term for the risk free rate was in the Explanatory Statement for the draft 2013 Guidelines.[55]

RECOMMENDATION

The AER should justify more adequately the use of the 10-year term for the risk free rate, including explaining the justification for adopting a 10-year term for the cost of equity.

53 Explanatory Statement, p.196.

54 Explanatory Statement, p.196.

55 AER, *Rate of Return Guideline, Explanatory Statement,* July 2013 pp.181-184. This discussion was not included the Explanatory Statement for the final 2013 Guidelines.

5.4 FORMULA FOR CALCULATING THE YIELD TO MATURITY ON CGS YIELDS

The formula for calculating the CGS yield recognises that for any given start date for the averaging period, there may not be a CGS that matures exactly 10 years after that date. Therefore, the formula uses the CGS with maturity dates closest (earlier and later respectively) to 10 years from the start date of the averaging period. The outcome of this formula will be the same if there is a CGS with a maturity date exactly 10 years after the start date.

The averaging formula in effect takes the average of the yields of the two CGS identified. It also considers that the amount of time remaining to maturity for each of the two CGS decreases each day during the averaging period.

Although the methodology is widely applied in financial markets, the Explanatory Statement does not explain why the estimation formula involves the specific procedure for identifying two CGS yields nor the adjustment for the change in remaining maturity during the averaging period. While the reasoning may be known to parties involved in technical consultation, there would be benefits from providing a simple explanation for consumers.

The formula would enable the estimation of the risk free rate to be replicated after the averaging period, provided that the confidentiality of the averaging period is also lifted. We discuss the confidentiality problem in section 5.6.

The Panel considers that the Explanatory Statement explains sufficiently the decision that the service provider nomination of the averaging period should be between 20 and 60 days.

RECOMMENDATION

The Explanatory Statement should explain for non-expert readers the reasons why the CGS estimation formula involves identifying two CGS yields and an adjustment is necessary for changing the remaining maturity during the averaging period.

5.5 SERVICE PROVIDER NOMINATION OF THE AVERAGING PERIOD LENGTH

As noted above, the AER proposes to allow service providers to nominate an averaging period start and end date to calculate the 10-year CGS yields, subject to certain requirements.

The Explanatory Statement explains that ideally the risk free rate used in the Sharpe-Lintner Capital Asset Pricing Model (SLCAPM) would reflect market rates as close as possible to the commencement of the regulatory control period. However, it also explains that this aim

needs to be weighed against the benefits of using a longer averaging period.[56] It identifies the benefits as reduced exposure to volatility and reduced exposure to intentional distortions of CGS yields.

The Explanatory Statement states that network companies and consumers agreed it would be beneficial to allow service providers greater flexibility in how they mitigate exposure to fluctuations in the daily rate, with a provider choice of an averaging period between 20 and 60 days providing appropriate flexibility. The Explanatory Statement also includes a chart indicating the reasoning for setting 60 days rather than a longer period as the maximum averaging period.

The Panel considers that this aspect of the rate of return calculation is explained soundly and that the AER has considered the available evidence and views of stakeholders.

5.6 SERVICE PROVIDER NOMINATION OF DEBT AVERAGING PERIODS

The Explanatory Statement explains that the AER is prepared to allow service providers flexibility in nominating averaging periods for both the risk free rate and return on debt determination.

The Draft Guidelines provide for boundaries on the extent of this flexibility. In the case of the risk free rate, the averaging period can vary in length between 20 and 60 business days, if it must start up to seven months before the commencement date of the regulatory period and must end no later than three months before that date. Thus, there is a four-month period in which the averaging may be undertaken.[57] The AER would allow the provider to keep its chosen averaging period confidential even after the period has passed.

In the determination of the return on debt, the averaging period nominated by a service provider can vary between 10 business days and 12 months in length, if it finishes between three and 12 months prior to the beginning of a regulatory year.[58] The averaging period must be kept confidential.[59]

However, the Explanatory Statement does not spell out why confidentiality is sought by providers, or why confidentiality is otherwise required.

In response to a question from the Panel, the AER explained:

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56 Explanatory Statement, pp.192-193.

57 AER, Draft Guidelines, Clauses 6 and 7.

58 AER, Draft Guidelines, Clauses 18.

59 AER, Draft Guidelines, Clauses 17.

> *[T]he AER has never published averaging periods (once completed) in relation to determination made under the 2013 rate of return guidelines (even though the 2013 Guideline only indicated averaging periods would be kept confidential until they had passed). The reason for not publishing average periods once complete has been some service providers have used the same averaging periods from year to year and disclosure of prior periods could disclose future periods due to this practice.*[60]

The Panel is unpersuaded by this reasoning. It is also concerned that maintaining the confidentiality of the averaging period even after the period has passed prevents replicability of the AER's estimate of the risk free rate or return on debt, to the extent that market rates vary over that period.

The Explanatory Statement also fails to address the negatives associated with confidentiality. The service provider must nominate the averaging period prior to the start date in its initial proposal for a regulatory review. Given that market rates for CGS are in general not predictable, this approach addresses most concerns regarding a provider obtaining an upward bias from the nomination. However, there may be concerns regarding the provider's nomination of the start of the averaging period including whether the service provider could manipulate the market in the two bonds during the averaging period.

The Explanatory Statement does not consider this possible concern.

The Panel has recommended that the Explanatory Statement needs to explain clearly and address a number of specific points, as outline below.

RECOMMENDATION

The Explanatory Statement should explain clearly:

- the reasons why confidentiality, and thus a provider nominated averaging period, are important
- what, if any, scope there would be, given the service provider's ability to nominate the averaging period, for the service provider to manipulate the market in the two bonds during that period
- why it is reasonable that the averaging period nominated by the service provider will not be made public after the period has passed, since ongoing confidentiality results in the rate of return estimate not being replicable by stakeholders other than the regulated entity.

60 AER, Response to questions from the Independent Panel, 28 August 2018.

5.7 DEFAULT AVERAGING PERIOD

The Explanatory Statement proposes that if the provider fails to nominate an averaging period that complies with the Guideline conditions, the default averaging period will be the period that applied to all providers under the 2013 Guidelines. The Panel considers that this default is based on sound reasoning.

6. Market risk premium

6.1 BACKGROUND

The market risk premium (MRP) is the expected (forward-looking) difference between the expected rate of return on the market portfolio and the risk-free rate. The net risk premium included in the cost of equity is the product of the equity beta and the MRP. The MRP is not constant over time, but there is no practical formula or procedure that can track its fluctuations.

The Explanatory Statement proposes a fixed value of 6 per cent for the next five years.

The Explanatory Statement starts with historical excess returns, that is, year-by-year differences between rates of return on the Australian stock market and rates of return on 10-year Australian government bonds. The annual returns are averaged over several periods, the most recent and shortest being 1988-2017.[61] This averaging produces a range of 5.0-6.5 per cent. The Explanatory Statement puts most weight on arithmetic averages but uses a long-term geometric average to establish the bottom of the range at 5.0 per cent.

The historical return averages lead to a point estimate of 6 per cent for the MRP, a reduction of 0.5 per cent from the 6.5 per cent MRP set in the 2013 Guidelines. The 2013 Explanatory Statement started with the same 6 per cent MRP based on historical excess returns, but added 0.5 per cent based on other information, principally higher MRPs forecasted by dividend growth models (DGMs). The 2018 Explanatory Statement concludes that MRPs from DGM models are not trustworthy; therefore, the upward adjustments made in 2013 are not necessary. The Explanatory Statement also notes:

> *MRP [of] 6 per cent is also consistent with decreased volatility in equity markets since 2013 and material reductions in debt risk premiums over the past 5 years.*[62]

In other words, the AER cites reduced volatility and lower credit spreads as reasons *not* to increase the MRP from the 6 per cent point estimate derived from historical excess returns.

The Explanatory Statement checks the 6 per cent MRP against survey data on MRP forecasts. It considers whether the MRP is inversely correlated with the level of interest rates and concludes that such a correlation cannot be reliably estimated—if it exists. The Explanatory Statement does not use the so-called Wright method, which assumes a constant overall market return rather than a constant MRP. As noted, the AER indicates that it does not now trust DGM models.

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61 Explanatory Statement, Table 25: Historical excess returns, p.215.

62 Explanatory Statement, p.200.

6.2 THE PANEL'S VIEWS

The Explanatory Statement casts a wide net, collecting data from several sources and noting arguments and information from stakeholders with different interests and points of view. The Explanatory Statement has adequately considered available information relevant to estimating the MRP.

Most of the Explanatory Statement chapter on the MRP is devoted to discussing stakeholder arguments and suggestions. But the road to the 6 per cent MRP estimate is clear and simple. The estimate is based on arithmetic averages of historical Australian MRPs as reported in Table 25 of the Explanatory Statement, which range from 6.0 per cent to 6.5 per cent. The Explanatory Statement's 6.0 per cent MRP matches the most recent average for 1988-2017.

The Explanatory Statement makes clear what data and logic it finds helpful. Data and logic that receive lesser or no weight are also clearly identified. However, the Panel has identified several issues that deserve clearer explanation.

6.2.1 Arithmetic and geometric averages

It is common in corporate finance practice to rely on long-run arithmetic averages of historical MRPs, but the Explanatory Statement does not explain clearly why arithmetic averages are appropriate for setting allowed regulatory returns.[63]

The Explanatory Statement also notes a long-run geometric average of 5.0 per cent, which it uses as a floor for a MRP range of 5.0 per cent to 6.5 per cent. It acknowledges '*that the geometric average is downwardly biased.*'[64] But the AER also considers the extra information the geometric average returns provide when determining an estimate for the MRP.[65]

The Explanatory Statement does not identify the information provided by the geometric average and does not explain how that information was used in making the 6 per cent MRP estimate.

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63 The Explanatory Statement at p.212 cites research by Jacquier, Kane and Marcus as showing '*That where the holding period is more than one year, then the arithmetic mean of one-year returns is an upward biased measure.*' But this upward bias is not material at the 5- and 10-year horizons relevant here. See E. Jacquier, A. Kane and A.J. Marcus (2005), 'Optimal Estimation of the Risk Premium for the Long Run and Asset Allocation,' *Journal of Financial Econometrics* 3, pp.37-55. This paper also shows that the downward bias in geometric averages is significant at 5- or 10-year horizons.

64 Explanatory Statement, p.215.

65 Explanatory Statement, p.212.

RECOMMENDATION

The Explanatory Statement should explain clearly:

- why long-run, arithmetic averages of historical MRPs are appropriate for setting allowed regulatory returns
- what specific, relevant to a five-year regulatory period, is provided by the geometric average.

6.2.2 Use of imputation credits

The Explanatory Statement states that in determining the return on equity, the Draft Guidelines adjusted estimates of the MRP in a manner consistent with the value of imputation credits.[66] Table 25 of the Explanatory Statement indicates that the historical excess returns are *'[c]alculated using an assumed imputation value (or theta value) of 0.6.'*[67] The theta value is determined in Chapter 11 of the Explanatory Statement. However, the Explanatory Statement does not explain the method of adjusting historical excess returns for imputation credits and does not provide any references.

As noted in Chapter 9 of this Report, the methodology was explained in detail in the 2015 South Australian Power Networks determination.[68] The estimates of the MRP derived in the Explanatory Statement use the same methodology as in that determination. This methodology also is implicit in the spreadsheet made available on the AER website, together with the Draft Guidelines.[69]

The Panel recommends that the methodology should be described, or at least referenced, in the Explanatory Statement. This matter is also discussed in Chapter 9 (Imputation Credits).

RECOMMENDATION

The Explanatory Statement should explain, or at least more fully reference, the method of adjusting historical excess returns for imputation credits.

66 Explanatory Statement, p.395.

67 Explanatory Statement, p.200.

68 AER, Final Decision, SA Power Networks determination 2015-16 to 2019-20, Attachment 3 – Rate of Return, October 2015, p.397.

69 AER, Historic Excess Returns and Wright Approach Data, 20 July 2018.

6.2.3 International evidence

The Explanatory Statement states:

> *We do not take international regulator data [about equity risk premiums] into account because of the issues surrounding differences in regulatory procedures and tasks.*[70]

But regulatory differences are no bar to considering historical evidence about MRPs worldwide. The Australian capital market is open to international investment, which should ensure that the Australian MRP is like MRPs in other developed economies. Further, given that the presence of international investors is considered in the calculation of the value of imputation credits, it would be consistent to recognise that the Australian market MRP will be influenced by the MRPs prevailing in other markets.

RECOMMENDATION

The Explanatory Statement should check the reasonableness of its proposed market risk by examining historical averages of market risk premia in other developed countries.

6.2.4 Dividend growth models (DGMs)

The 2013 Guidelines increased the estimated MRP from 6.0 per cent to 6.5 per cent, in part because DGMs indicated future excess returns higher than historical average MRPs. The 2018 Explanatory Statement reexamines DGMs, finding that their forecasted returns vary widely, depending on seemingly arbitrary assumptions. The forecasted returns are especially sensitive to the assumed long-term dividend growth rate. There is no consensus about what that growth rate should be.

The AER's current distrust of DGMs is clearly explained.[71]

6.2.5 MRPs and the level of interest rates

The MRP cannot be strictly constant. For example, it tends to be high (low) when dividend yields, and earnings-price ratios are high (low).[72] Thus many observers considered that the MRP was unusually low in the boom of the late 1990s and unusually high in the recession following the financial crisis of 2008-2009. The financial crisis also began a period of

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70 Explanatory Statement, p.233.

71 The comment on dividend reinvestment plans at p.222 of the Explanatory Statement should be deleted. DGMs assume only that dividends are received. DGMs do not care whether dividends are consumed or reinvested. Dividend reinvestment plans may change the number of shares outstanding, but usually by much less than share repurchase programs.

72 See J. H. Cochrane (2011), "Discount Rates," *Journal of Finance* 66, pp.1047-1108.

extremely low interest rates. Thus, expected equity returns probably did not move in lock-step with lower interest rates, because the MRP was increasing as interest rates fell.

The Explanatory Statement considers this view, but concludes:

> *[W]hile the MRP may vary over time, there is no estimable relationship between the MRP and the risk-free rate.*[73]

While this statement is true, it is possibly misleading, because '*relationship*' may suggest a causal link. The recession following the financial crisis had two separate effects:

1. It led monetary authorities to expand credit and reduce interest rates.
2. It led investors to demand a higher MRP.

However, (1) did not cause (2) or vice versa. The Panel recommends that the Explanatory Statement clarify this issue.

The view that low interest rates are correlated with high MRPs finds its most extreme expression in the Wright approach, which estimates the overall equity return and then finds the MRP by subtracting the risk-free rate of interest. The Explanatory Statement explains clearly why this approach should not be used to estimate the MRP.

RECOMMENDATION

The Explanatory Statement should clarify its discussion of the possible correlation between the market risk premium and the level of risk-free interest rates.

6.2.6 MRPs and debt risk premiums

The Explanatory Statement notes the decline in debt risk premiums (credit spreads) as support for deciding on a lower MRP now (6 per cent) than in 2013 (6.5 per cent).

Such a linkage between reduced debt risk premiums and a lower MRP seems plausible, but the Explanatory Statement offers no evidence that the linkage exists.

RECOMMENDATION

The Explanatory Statement should identify the evidence that the AER is relying on of the link between reduced debt risk premiums and a lower market risk premium.

73 Explanatory Statement, p.204.

7. Equity beta

7.1 BACKGROUND

Beta (β) measures the contribution of a stock to the risk of a diversified portfolio. The Explanatory Statement proposes a beta of 0.6, which indicates less than average risk. By comparison, the beta of the market and of an average-risk stock is 1.0.

The proposed beta of 0.6 is not for any individual regulated firm, or of a portfolio of all such firms, but for:

> *[A] benchmark efficient entity with a similar degree of risk as a relevant service provider in the provision of regulated energy services.*[74]

The benchmark entity is assumed to be 60 per cent debt financed (a debt-equity ratio of 60/40 or 1.5). Equity betas increase with the debt-equity ratio, so equity betas observed for actual firms have to be 'relevered' to what the firms' betas would be at 60 per cent debt.

The Explanatory Statement reports estimates of relevered betas for several samples of Australian energy network firms. Firms with extensive unregulated activities are given less weight than firms that are closer to 'pure play' regulated businesses.

The Explanatory Statement estimates beta from weekly returns for three estimation periods: (1) the longest period available; (2) the period from 2000-2017, excluding the years of global financial crisis; and (3) the last five years of available data. It presents and evaluates both equal-weighted and value-weighted estimates.

From these estimates the Explanatory Statement establishes a beta range of 0.4 to 0.8 and settles on the midpoint of 0.6. This beta is a reduction of 0.1 from the 0.7 beta in the 2013 Guidelines, which was at the top of an estimated range of 0.4 to 0.7. The AER considers that the 2013 beta was set cautiously high, and that less caution is now needed.[75]

The beta of 0.6 is proposed for each of the four sectors regulated by the AER (electricity transmission, electricity distribution, gas transmission, gas distribution).

The Explanatory Statement presents a wide range of evidence on betas. It assembles and evaluates the available relevant information. The discussion is thorough and the reasoning clear.

However, the Panel has identified three issues where the clarity of the Explanatory Statement should be improved:

- the conceptual analysis of business and financial risk

74 Explanatory Statement, p.291.

75 Explanatory Statement, p.298.

- the discussion of the Black model and the low-beta bias
- the decision to limit the reduction in beta to 'promote stability and predictability.'[76]

7.2 CONCEPTUAL ANALYSIS

The Explanatory Statement cites the conceptual analysis as additional evidence supporting the low betas estimated for Australian energy network firms. The conceptual analysis is presented in Chapter 2, but used in Chapter 8 as a cross check on statistical beta estimates.

The Explanatory Statement concludes that the businesses regulated by the AER are inherently low risk. For example, regulation stabilises profits and '*increases the certainty of the revenue stream, thereby reducing risk*.'[77] Thus, the AER reasons, the benchmark efficient entity should have lower risk than an otherwise-similar unregulated business.

Corporate-finance practice distinguishes business risk, which depends on the nature of the firm's assets and operations, from financial risk, which is created by debt financing. The higher the leverage ratio, the more financial risk borne by equity investors; the equity beta increases as the debt-equity ratio increases.

The benchmark efficient entity could have low business risk but high financial risk, because it is assumed to be 60 per cent debt financed. But the Explanatory Statement states that '*high financial leverage does not necessarily result in equivalently high financial risk*,' because the risk of default and bankruptcy is low.[78]

This statement is incorrect as a matter of basic corporate finance theory and practice. The Panel agrees that low default risk is a good thing. But financial risk does not depend on the likelihood of default. It depends on the fixed cost of servicing debt. The higher the fixed cost, the higher the (percentage) volatility and beta of the residual claim, which is equity. Financial risk can be large even when the risk of default is zero.

The Explanatory Statement uses a formula to 'relever' observed betas to the 60 per cent leverage assumed for the benchmark efficient entity. This formula incorporates the correct definition of financial risk. The relevering formula implies that the equity beta increases with the debt-equity ratio and takes no account of the odds of default.[79] Thus the statement

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76 Explanatory Statement, p.244.

77 Explanatory Statement, p.105.

78 Explanatory Statement, p.111.

79 The so-called Brealey-Myers formula assumes that the beta of the firm's assets is constant. Thus $\beta(\text{asset}) = \beta(\text{debt})D/V + \beta(\text{equity})E/V$ = a constant, where D and E are the market values of debt and equity. The Explanatory statement assumes the beta of debt is zero, so $\beta(\text{asset}) = \beta(\text{equity})E/V$ and $\beta(\text{equity}) = \beta(\text{asset})D/E$.

that '*high financial leverage does not necessarily result in equivalently high financial risk*' clashes with the procedures used by the Explanatory Statement to adjust beta estimates.[80]

The Explanatory Statement also states that higher leverage '*reduces [the] cost of capital if debt is cheaper than equity*.'[81] This Statement should be explained more carefully. The immediate cost of debt is of course lower than the cost of equity. That does not mean that the weighted average cost of capital declines when more debt is used, because increased leverage increases the equity beta and the cost of equity. The relevering formula used by the Explanatory Statement to adjust beta estimates assumes that the beta of the regulated firm's assets does *not* depend on financial leverage.

RECOMMENDATION

The Explanatory Statement should clarify the discussion of financial risk in Chapter 2 and of the conceptual analysis in Chapter 8.

7.3 THE BLACK MODEL AND LOW-BETA BIAS

The Black model is a version of the CAPM that allows for the absence of truly risk-free assets or restrictions on borrowing by investors. The low-beta bias is the well-documented tendency for low-beta stocks to generate long-run average returns higher than the CAPM predicts. The Black model and the low-beta bias both imply a '*flatter*' relationship between beta and expected equity returns than the CAPM calls for. Moving from the standard CAPM to a flatter relationship would increase the cost of equity for low-beta firms, with a corresponding decrease for high beta firms.

The Explanatory Statement discusses the Black model and the low-beta bias at length in section 8.3.5. It explains why it does not rely on that model or that bias. It is not clear why this discussion occurs in Chapter 8. The model or bias have nothing to do with estimating beta. If the model or bias were relied on in estimating the cost of equity, the remedy would be to use a flatter relationship between beta and the cost of equity, not an arbitrary add-on to the beta of the benchmark efficient entity.

80 Explanatory Statement, p.111.

81 Explanatory Statement, p.111.

RECOMMENDATION

The Explanatory Statement should:

- clarify whether, is estimating beta, there is any relevance of the Black model and the low beta bias
- consider whether the discussion of the Black model and the low beta bias should be moved to Chapter 5 or another part of the Explanatory Statement. (*See corresponding Recommendation 7*)

7.4 STABILITY AND PREDICTABILITY OF BETA

The Explanatory Statement reports beta estimates for several subsets of a set of regulated Australian energy companies. The estimates are 0.51 for all subsets and 0.57 for the whole set.[82] These results could suggest a beta estimate below 0.6. But the AER decided to limit the reduction in beta to 0.1, from 0.7 in the 2013 Guidelines to the proposed value of 0.6. This decision was taken in part to '[promote] stability by not departing substantially from our previous value.'[83]

It appears that the AER values stability in cost of capital estimates and is therefore averse to large changes from 2013 to 2018. However, the context is that the AER has diminished confidence in the Black model, which in the 2013 Guidelines played a major role in the choice of 0.7 for the beta estimate. The Panel agrees that the Black model or bias demonstrated by that model have nothing to do with estimating beta. Given that the role of the Black model in the choice of the beta estimate in 2013 was not appropriate, it is not at all clear that limiting the change of estimate from the 2013 Guidelines is justifiable.

The concern with stability regarding beta also seems inconsistent. The AER invokes stability only in the estimation of beta. The Draft Guidelines also reduced the MRP by 0.5 per cent, from 6.5 per cent in 2013 to 6 per cent in 2018. Is 0.5 per cent too large a discontinuity? The Explanatory Statement does not invoke stability when it sets the MRP, ERP or return on equity. As a methodical issue, the Panel questions, whether limiting the change in beta from that selected in the 2013 Guidelines can be justified, given that the 2013 beta estimate was materially influenced by the Black model, in which the AER has diminished confidence.

82 Explanatory Statement pp.51-53.

83 Explanatory Statement, p.244.

RECOMMENDATION

The Explanatory Statement should explain why limiting the change in beta from that selected in the 2013 Guidelines is justified, given that the 2013 beta estimate was materially influenced by the Black model, in which the AER has diminished confidence.

8. Return on debt

8.1 BACKGROUND

As explained in Chapter 2, the allowed rate of return is the weighted average cost of capital (WACC). It is calculated as the weighted average of the return on debt and the return on equity. The gearing ratio defines the weighting. This Chapter 8 addresses the AER's treatment of the return on debt component.

The Draft Guidelines calculate the return on debt with reference to a benchmark efficient entity, using yield curve data from third party providers and benchmarks for the term of debt and credit rating.

The approach involves an equally-weighted 10-year trailing average with an annual update and a 10-year transition from the previous 'on the day' estimate to the 10-year trailing average. The 2013 Rate of Return Guideline determined that there would be a 10-year transition from the on the day approach to a trailing average approach.

The Explanatory Statement acknowledges that

> *[U]nder the trailing average approach, for any given regulatory period, the present value of expected net operating cash flows over the regulatory period plus the closing RAB will not necessarily equal the opening RAB. That is, at the start of any given regulatory period, the present value of expected future cash flows will unlikely equal the RAB because the cash flows based on historical interest rates will either be too high or too low (relative to the prevailing cost of debt in the market).*[84]

The Explanatory Statement asserts nevertheless:

> *We consider ex-ante efficient compensation can hold under either the on-the-day approach or the trailing average approach (if a transition is applied). As such, both approaches are capable of being approximately equivalent over the term of the RAB (which will be multiple regulatory periods).*[85]

It also states:

> *As either the on-the-day or trailing average approach would contribute to the achievement of the ARORO, a switch between regimes that is accompanied by a revenue neutral transition will also contribute to the achievement of the ARORO.*

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84 Explanatory Statement, p.331.
85 Explanatory Statement, p.331.

> *For a more thorough explanation, we refer to our final decision on the 2018-22 access arrangement determination for APA's Victorian Transmission System.*[86]

The Panel notes that there is no reason to believe that the over- or under-estimation will cancel out over any given set of periods. Consequentially, it is not clear how the trailing average approach affects the incentives for investment and thus achievement of the national energy objectives.

The decision to have the transition occur over an extended period rather than immediately has been upheld in judicial reviews.

In describing the proposed approach to determining the return on debt, the Explanatory Statement has set out several key decisions:

- Use equally-weighted yield curve data from three third-party data providers (RBA, Bloomberg and Thomson Reuters). Where the published curve has a maximum published effective term of less than the target term to maturity, use linear extrapolation to extrapolate that term to the benchmark term of 10 years.
- Adopt a BBB+ benchmark credit rating.
- In the absence of a published BBB+ yield curve, estimate the curve using a weighted average of 2/3 for the broad-BBB yield curve (i.e. the average yield on the sampled bonds with ratings of BBB+, BBB and BBB-) and 1/3 for the broad-A yield curve (i.e. the average yield on sampled bonds with ratings A+, A and A-).
- Use a benchmark term of debt of 10 years.
- Use the 10-year trailing average approach with an annual update.
- For each year of the 10-year trailing average, estimate the return on debt as the simple average of rates observed over a period nominated by the service provider to whom the allowed return on debt will apply.[87].
- The averaging period must meet the following requirements.[88]
  - be a future period of 10 or more consecutive business days up to a maximum of 12 months
  - finish between three and 12 months prior to the commencement of a regulatory year
  - be specified prior to the commencement of the regulatory control period
  - be specified for each regulatory year of the regulatory control period

86 Explanatory Statement, p.331.

87 Clause 17 of the Draft Guidelines provide that the nominated period must be kept confidential.

88 Explanatory Statement, Summary of Table 46, p.373.

  - not overlap for different regulatory years, although the regulatory period is not required to be identical for each regulatory year.
- Use a 10-year transition from the previous on the day approach to the 10-year trailing average approach.
- Use actual debt issuance information as a sense check on the benchmark characteristics.

8.2 THE PANEL'S VIEWS

In estimating the return on debt, the Panel concludes that the AER has accessed the relevant data on market yields and interpreted those data accurately. Where judgement is required regarding market yields, the AER has explained its approach and its rationale clearly.

However, Clause 17 of the Draft Guidelines provide that the nominated averaging period must be kept confidential. This treatment precludes replication by stakeholders other than the regulated entity. This obstacle could be removed if confidentiality of the nominated period ceased once the period has passed. The cost of debt estimation could then be replicated once the averaging period is known, but not otherwise.

The proposed choice of BBB+ as the benchmark credit rating has clear empirical support. The approach of estimating a BBB+ curve using readily available data for a weighted average of BBB and A curves is clear and the reasoning for the decision is sound.

However, the Explanatory Statement does not provide a clear justification for setting the benchmark term at issuance as 10 years. While the AER engaged Chairmont Group (Chairmont) to obtain, analyse and compare recent debt issuance data for 11 privately owned service providers in the broader corporate debt market, it did not test the assumptions that would be needed to reconcile the Chairmont data with an average 10-year term at issuance. In the absence of such an analysis, the AER's proposed 10-year term appears to be inconsistent with the conclusions of the Chairmont report, which the AER commissioned.

The Panel suggests that a change in the average term at issuance could be accommodated by defining the benchmark debt structure appropriately – for example as comprising a proportion of debt with a term at issuance of 10 years with the remaining debt having a short term at issuance. The transition to a trailing average approach could be adapted to align with such a structure. The Panel suggests that the decision on the average term structure should not be constrained by the transition to a trailing average approach.

The Explanatory Statement provides the background to the trailing average approach and the transition to it. However, the Panel notes that the analysis and judicial review of the move and the transition does not appear to have focused on the choice between a 10-year term and a shorter term. Thus, the Panel suggests that the decision on the term needs to be justified on a basis independent of the judicial reviews.

8.3 YIELD CURVE DATA SOURCES

For the 2013 guideline, the AER relied on yield curve data from two independent data providers (RBA and Bloomberg). It subsequently identified two potential additional providers (Thomson Reuters and S&P Global).

Based on the quality of the data, the AER has decided to include the Thomson Reuters data to determine the yield curve, but not S&P Global. It proposes to give each of the three selected curves equal weight.

Data on yield curves and credit ratings are readily available and broadly consistent. Although the three sources may sometimes report different results, taking the average from the three sources will reduce the effect of any errors or anomalies.

The Panel considers that the AER has assessed the relevant data on market yields and interpreted those data accurately. Where judgement is required regarding market yields, the AER has explained its approach and its rationale clearly.

8.4 USING A BBB+ CREDIT RATING

The AER's choice of BBB+ as the benchmark credit rating has clear empirical support.

None of the three data providers has data for a BBB+ yield curve, however. The Explanatory Statement therefore proposes to estimate a BBB+ curve using a weighted average of BBB and A curves, which are readily available. Supporting this decision, the Explanatory Statement notes:

- This is a conceptual improvement on the previous approach which used the BBB curve solely.
- The approach has empirical support in the sense that it more closely approximates the actual cost of borrowing of the service providers.

Given the three-notch difference between BBB flat and A flat, a two thirds/one third weight is appropriate. The use of the weighted average of the BBB and A curves will result in a lower estimated return on debt compared to the previous approach. In the Panel's view, the approach is clear and the reasoning for the decision is sound.

8.5 BENCHMARK TERM OF DEBT

The Explanatory Statement proposes a 10-year benchmark for the average term of debt at issuance. This treatment is consistent with the AER's 2013 and 2009 decisions.

As in the previous guidelines, the benchmark is implemented on the basis that the debt is issued with a uniform 10-year term at issuance, rather than some debt being issued with a longer term and some with a shorter term to produce an average term of 10 years at issuance. The Explanatory Statement acknowledges that companies are financed typically by a combination of debt with a shorter term at issuance and debt with a longer term at issuance. The approach adopted in the 2013 Guideline and the current draft Guideline is a simplification compared to actual debt management practice.

Only limited and low-reliability data are available from public sources to provide an empirical basis for the decision on the benchmark average debt term at issuance. As a result, the AER engaged Chairmont Group (Chairmont) to obtain, analyse and compare actual data relating to recent debt issuance by 11 privately owned service providers within the broader corporate debt market. The decision to engage Chairmont creates an additional and useful source of data and expertise to support the AER's decision-making.

According to data obtained by Chairmont, the average term of debt issued over the survey period (2013 – 2017) is less than the 10-year term proposed in the Explanatory Statement. In the Explanatory Statement, the AER observed:

- The simple average of the term of debt issued will provide an underestimate of the average term at issuance of the stock of debt.[89]
- The period over which the data has been collected (2013-17) coincides with the period of transitions to a trailing average return on debt approach and therefore may impact borrowing practices.

Whilst these are valid observations, the Explanatory Statement does not provide a clear justification for setting the benchmark term at issuance at 10 years. It does not test what assumptions would be required to reconcile the Chairmont data with an average 10-year term at issuance.

In the absence of such an analysis, the AER's proposed 10-year term appears to be inconsistent with the conclusions of the Chairmont report.

The Panel sought and received (on a confidential basis) further detail from the AER regarding the data collected by Chairmont and enquired whether it is feasible to request further data on the characteristics (including term) of the stock of debt, rather than only when and what amount of debt was issued. AER's advice is that this requested information would fall within the scope of information it is able to request to perform its regulatory obligations. The Panel considers that such information would be beneficial.

The Panel recognises that a transition to the trailing 10-year term is currently partly completed for some regulated companies and has been incorporated into debt management

89 Explanatory Statement, p.346, pp.349-350 and section 10.9.

planning for other regulated companies. We infer that this fact is seen as by the AER as a major obstacle to implementing any shorter than 10-year benchmark average debt term at issuance.

However, a change in the average term at issuance could be accommodated by defining the benchmark debt structure appropriately – for example, a structure comprising a proportion of debt with a term at issuance of 10 years with the remaining debt having a short term at issuance (such as one year). The transition to a trailing average approach could be adapted to align with such a structure. Accordingly, the Panel suggests that the decision on the average term structure should not be constrained by the transition to a trailing average approach.

The Panel notes that the analysis and judicial review of the move to a trailing average approach and the transition to it does not appear to have focused on the choice between a 10-year term and a shorter term. Thus, the Panel suggests that the decision on the term needs to be justified on a separate analysis, rather than being viewed as a necessary consequence of the move to the trailing average approach with a 10-year transition.

RECOMMENDATION

The AER should test what assumptions would be required to reconcile the Chairmont data with an average 10-year term at issuance.

The Explanatory Statement should set out the reasons for adopting a 10-year benchmark for the average term of debt at issuance, rather than relying on the judicial reviews which did not consider the choice between a 10-year and a shorter term.

8.6 TRANSITION PERIOD

The AER observes that the reasons for the move to a 10-year trailing average and a 10-year transition have been discussed in detail and have been the subject of several judicial reviews. The Panel considers the AER has provided sound reasoning for the 10-year transition to the trailing average approach.

8.7 ACTUAL DEBT ISSUANCE INFORMATION

The AER notes that it intends to continue to collect actual return on debt information. The Panel recommends that the AER also investigate these two possibilities:

- expanding the scope to include characteristics on the stock of debt, as well as recent issuances
- making more of the Chairmont detail available in the Explanatory Statement for the Final Guideline, while respecting the commercially sensitive nature of the source data.

RECOMMENDATION

The AER should investigate the possibility of:

- expanding the scope of future debt information collection to include characteristics on the stock of debt, as well as recent issuances
- making more of the Chairmont detail available in the Explanatory Statement for the Final Guidelines, while respecting the commercially sensitive nature of the source data.

9. Imputation credits

9.1 BACKGROUND

Australia's tax system includes a dividend imputation element, whereby investors receive imputation credits for tax paid at the company level. These credits offset Australian income tax liabilities for eligible shareholders (broadly speaking, Australian residents). With imputation as part of the framework, eligible equity investors have access to three potential value streams: dividends, capital gains and imputation credits.

The NER/NGR provide for a post-tax WACC framework with a rate of return that is after company tax, but before personal tax. In determining the total revenue requirement for a regulated company, corporate tax is introduced as a separate building block, but it needs to be adjusted for the value that investors receive under the imputation arrangements.

Hence the corporate tax building block is specified as:

Tax allowance = Taxable Income * [Tax Rate * (1- gamma)],

where gamma has a value between zero and one.

The key decision is how to provide a reliable estimate of gamma, defined as the value of imputation credits (expressed as a proportion of company tax) returned to investors through the utilisation of imputation credits. Such amount should not be recovered in regulated earnings.

The AER proposes to estimate the value of imputation credits at 0.5. This result comes from the following steps: Determine a plausible range of 0.3 to 0.6, determine within that range an estimate of 0.53, then round that number to one decimal place, producing 0.5. In carrying out these steps, the AER does the following:

- Continues to favour a utilisation approach, rather than implied market value approach, to determining the value of imputation credits, thus producing a value of gamma based on a product of the distribution rate (F) and the utilisation rate (theta).
- Uses a utilisation rate of 0.6, which estimate relies significantly upon an estimate of the utilisation rate for 'all equity' (that is, data reflecting the ownership of both listed and unlisted Australian equity) from updated ABS equity ownership data.
- Begins with a preferred estimate of 0.88 for the distribution rate, which is then adjusted to 0.83 to ensure consistency between the rounded gamma and a utilisation rate of 0.6. The preferred estimate of 0.88 is based on an appropriate benchmark efficient entity (BEE) which gives primary weight to Lally's updated

estimate of the distribution rate from the Top 20 Australian Stock Exchange (ASX) listed firms.[90]

- Rejects the use of simple ATO data without adjustment, both because (a) the ATO advised that its franking account balance data should not be used for detailed time series analysis of Australia's imputation system and (b) the AER concludes that a market-wide distribution rate such as is provided by the ATO data is no longer appropriate for a BEE.[91]

9.2 THE PANEL'S VIEWS

The Panel considers that the AER has demonstrated that it has identified, accessed and considered the available, relevant information. It has critically assessed the merits and shortcomings of the data and made rational and well-reasoned decisions about the relevance and weight of data sources.

Subject to the exceptions discussed below, the Panel concludes that the proposed approach to determining the value of imputation credits is supported by sound reasoning and there are logical links to the relevant information sources.

The methodology is clear and the relevant data sources are accessible and current (e.g., Top 20 listed company reports are available annually or semi-annually, and ABS data quarterly). Each major source is available in a timely way, with relatively short and predictable publication lags.

There are three relevant interactions between imputation credits (a critical part of the taxation building block) and other building blocks:

- The first is the fundamental relationship between company tax and the rate of return components, which are determined on a pre-company tax basis. The Explanatory Statement clearly outlines this relationship.
- The second involves the relationship between the utilisation rate (theta) and the MRP. While this relationship is referenced in the Explanatory Statement,[92] there is no explanation or methodology provided.
- The third is that the distribution rate (F) appears as a small part of the operating expenditure allowance, as a component of the cost of raising equity funds. This

90 Lally, M, Estimating the Distribution Rate for Imputation Credits, June 2018.

91 Explanatory Statement, p.388.

92 Explanatory Statement, Table 25, p.215.

is the rationale for fixing a value of F consistent with the assumed value of gamma and theta.

The Explanatory Statement also states:

> *[The] definition of the MRP in the Sharpe-Lintner capital asset pricing model (CAPM) should account for the capitalised value of imputation credits. Accordingly, in our determination of the return on equity we adjust estimates of the MRP in a manner consistent with our determination of the value of imputation credits.*[93]

However, there is no explanation of the method by which this adjustment occurs.

The methodology was explained in detail in the 2015 South Australian Power Networks determination.[94] The estimates of the MRP derived in the Explanatory Statement use the same methodology as in the SAPN determination. This methodology is implicit in the spreadsheet made available on the AER website, as part of the Draft Guidelines.[95] But the Panel considers that the methodology should be discussed, or at least referenced, in the Explanatory Statement.

The Panel recommends that the AER address identified information gaps for future rate of return determinations. It agrees with the AER's intention to:

> *[C]ontinue to work with the ATO to better understand the ATO data sets, and the reliance that should be placed on the different data sets for estimating gamma.*[96]

The Panel encourages the AER to adopt a similar proactive approach to improving the quality and relevance of DDO studies and expanding the number of listed companies to be included in the distribution rate study beyond the Top 20.

In this context, the Panel notes that this is a relatively new area of research and that it is not a topic that is globally relevant (only a minority of jurisdictions have dividend imputation as part of their tax system). Therefore, research and data are not widely available, or are not available in the form required. The Panel recommends that the AER do more to encourage or initiate research in this area.

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93 Explanatory Statement, p.395.

94 AER, Final Decision, SA Power Networks determination 2015-16 to 2019-20, Attachment 3 – Rate of Return, October 2015, pp.3-397.

95 AER, Historic Excess Returns and Wright Approach Data, 20 July 2018.

96 Explanatory Statement, p.436.

RECOMMENDATIONS

The AER should adopt a proactive approach to improving the quality and relevance of dividend drop off studies and expanding the number of listed companies to be included in the distribution rate study beyond the Top 20.

9.3 APPROACH TO DETERMINING IMPUTATION CREDITS

In determining the value of imputation credits, the Explanatory Statement adopts a definition of the BEE that assumes that the entity is operating in Australia with potential for both domestic and offshore investors. That is, the defined market is an Australian domestic market that recognises foreign investors to the extent that they invest in the Australian market.

The approach to estimating gamma is to use the Monkhouse formula, which defines gamma as the product of the distribution rate (the proportion of the entity's imputation credits which is paid to investors) and the utilisation rate (the investors' ability to use those credits to offset Australian tax liability). This approach is unchanged from the 2013 Guidelines, other than AER's view that a market wide distribution rate is no longer appropriate for the BEE. This is discussed in more detail below.

In discussing its approach, the Explanatory Statement states:

> *[W]hile our approach here to updating the estimates for theta (the utilisation rate) and the distribution rate is consistent with an incremental review, we did consider if departure from an incremental review was required in order to meet our legal requirements. We have determined it is not as we consider our current 'utilisation' approach is consistent with the Rules and will contributing (sic) to the achievement of the NEO and NGO.*[97]

The Explanatory Statement does not explain how the AER has reached this view

RECOMMENDATION

The Explanatory Statement should explain more clearly why adopting an incremental review to update the estimates for theta (the utilisation rate) and the distribution rate is consistent with the Rules and the achievement of the national electricity and gas objectives.

97 Explanatory Statement, p.419.

9.4 DISTRIBUTION RATE

In estimating the distribution rate (F), the AER calculates the proportion of imputation credits generated that have been distributed by companies over the relevant period. Since the 2013 Guidelines, the AER has changed its approach to estimating the distribution rate in two ways:

- It now considers that it is not appropriate to use a market-wide estimate for the BEE; it is more appropriate to focus on listed companies. Its main reasoning is that unlisted companies may have an incentive to reduce the distribution rate.
- It has reduced its reliance on ATO data, which was the primary data source in the 2013 Guidelines. This judgement is based in part on advice from the ATO of the 'low reliability' of its data for this purpose.

To fill the gap, the AER has relied on more recently available data provided by Lally on the distribution rates of the Top 20 Australian listed companies since 2000.[98] The Panel finds that these data are relevant (they measure precisely what is required), reliable (audited) and replicable (the definitions and methodology are clear).

Estimates of the distribution rate for listed companies in the sector, while a very small sample, appear broadly consistent with Top 20 data.

The Panel accepts that distribution rates for the Top 20 Australian listed securities provide a meaningful insight into the BEE, but offers the following comments:

- It is not clear whether the Top 20 is used because it is the most relevant group or because it is judged representative.[99] Either way, there would be merit in extending the analysis beyond the Top 20, especially in view of the concentration of finance sector securities in the Top 20. The information to undertake this work is readily available.
- Given the specific mention of domestic operations in the definition of the BEE to which we referred earlier, there could be more attention given to excluding offshore operations (or companies with a high proportion of offshore earnings). Lally has provided some information about this impact.

Based primarily on the results of Lally's (extended) analysis of the Top 20, the AER concludes:

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98 Lally's original study covered the period 2000 to 2014 and the AER has updated the estimates to 2017 using the same methodology.

99 In this context, the term 'relevant' means that the BEE will unambiguously fall in this group, whereas 'representative' means that the answer would be unlikely to be different if we used Top 20 or 30 or 40.

> *[W]e do not consider that a distribution rate based on Lally's top 20 listed firms of 0.88 would be expected to overestimate the efficient distribution rate for a BEE.*[100]

The Panel considers that this conclusion is supported by the following:

- Excluding companies with a high level of offshore earnings lifts the estimate materially (to 0.95).
- The industry specific estimates are higher.
- In any event, the AER has chosen an effective distribution rate of 0.83.

In these circumstances, the Panel is not clear why the AER has not considered an estimate higher than 0.88. The case for reconsidering an estimate higher than 0.88 is reinforced by the subsequent 'consistency' adjustment which results in an effective theta of 0.83. This should be clarified in the Explanatory Statement.

RECOMMENDATION

The Explanatory Statement should explain more clearly why it has not considered a distribution rate estimate higher than 0.88.

9.5 UTILISATION RATE

Choosing the utilisation rate (theta) involves making a judgement about the extent to which imputation credits distributed by the service provider will be used by taxpayers to reduce tax or obtain a refund.

At the outset, it is worth noting that the AER's definition of the BEE, and particularly the explicit contemplation of ownership by offshore investors, implies a value for theta less than one. This is relevant because there is an argument that a pure interpretation of the Officer model which forms the basis of the AER's approach on the rate of return involves only domestic investors. On this interpretation theta would be equal to one. The Panel regards the inclusion of offshore ownership as a concession to reality and is of the view that it does not compromise the application of the Officer model.

In adopting an estimate of theta of 0.7 in the 2013 Guidelines, the AER put varying weights on the following:

- equity ownership approach (AER had 'more regard' for this approach)
- tax statistics (AER had 'regard' for this approach)

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100 Explanatory Statement, p.419.

- implied market studies (AER had 'less regard' for this approach)
- conceptual goalposts approach (AER had 'less regard' for this approach).

In the Explanatory Statement, the AER has adopted an estimate of theta of 0.6 after making these judgements:

- placing significant reliance upon the equity ownership approach (ABS National Accounts)
- placing limited reliance on tax statistics (ATO) (including 'no reliance' on the ATO FAB data)[101]
- placing limited reliance on implied market value (dividend drop off) studies
- placing no reliance on the conceptual goalposts approach.

The three factors upon which the AER relies are discussed in turn.

9.5.1 Equity ownership approach

The equity ownership approach measures the proportion of the value of the Australian equity market owned by domestic investors. This information will give a good estimate of theta on the reasonable assumption that domestic investors will have access to and will avail themselves of all their imputation credits (theta = 1), whereas offshore investors will not have access (theta = 0). Subject to that assumption, this definition of theta is consistent with the Monkhouse formula.

ABS National Accounts data provide quarterly estimates of the domestic ownership share. Recent estimates of the domestic ownership share have been in the range 0.6 to 0.7. The December 2017 estimate was 0.65.

The Panel accepts the arguments set out in the Explanatory Statement in relation to the ABS data and its desirable characteristics, relating to reliability, accessibility and timeliness.

9.5.2 Tax statistics

The tax statistics provide two approaches to estimates of the utilisation rate:

- The first is based on the Franking Account Balance (FAB) data – the most recent estimate is 0.51.
- The second approach involves dividend data and the latest estimate is 0.61.

In downgrading its reliance on the tax data, the AER has referred to its concerns about 'underlying data issues with the tax statistics,' and more pointedly to the ATO advice that

[101] In discussing the level of reliance that the AER has placed on tax statistics, the Explanatory Statement refers to 'some' reliance on p.399 and 'limited' reliance on p.439.

AER '*should not rely on the FAB data for undertaking a detailed macro-economic analysis of the Australian imputation system*.'[102] The AER has adopted this advice, appropriately in the Panel's view and now places '*no reliance on the utilisation rate estimate of 0.51 estimated from the FAB data*.'[103]

9.5.3 Implied market studies

The Explanatory Statement explains clearly the reasons for dismissing the dividend drop off studies as they are currently conducted and interpreted.

Lally has indicated that properly designed DDO studies could add value and should be investigated further. Lally argues that with appropriate adjustments '*dividend drop-off studies could give an estimate of a utilisation rate that is on a post-company pre-personal taxes and cost basis*.'[104] The AER has some reservations about the effectiveness of Lally's proposed adjustments.

In large part, the decision rests on the availability of a better alternative. If the AER feels confident in the ABS data relating to the equity ownership approach, then the need to explore an alternative is reduced. If on the other hand the AER is referring to the utilisation rate when it implies a lack of 'precision' in the estimates, then some effort is justified in finding an alternative or at least a complementary approach.

Finally, the Explanatory Statement refers to the fact that in determining the value of the utilisation rate:

> *[W]e have had particular regard to SFG's 2016 dividend drop-off study … which suggests a utilisation rate of 0.4 after making the adjustment suggested by Lally and Handley.*[105]

It is not clear how this statement informed an adopted estimate of the utilisation rate of 0.6.

RECOMMENDATION

The Explanatory Statement should explain more clearly how SFG's 2016 dividend drop-off study estimate of 0.4 (after the adjustment suggested by Lally and Handley) has informed the adopted utilisation rate estimate of 0.6.

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102 AER Minute of meeting between AER, ATO and ENA, June 2018

103 Explanatory Statement, p.446.

104 Explanatory Statement, p.448.

105 Explanatory Statement, p.450.

9.6 CHOOSING A VALUE FOR THE UTILISATION RATE

In arriving at a utilisation rate of 0.6, the AER has considered '*the body of utilisation rate estimates regarding its strengths and weaknesses*.'[106] We have summarised those sources above.

If the AER had no regard for ATO data and DDO studies, then the choice of the utilisation rate would be clear – the ABS data shows a range of 0.6 to 0.7 and the most recent estimate is 0.65. It is questionable whether the inclusion of two additional sources, each of which is described in the Explanatory Statement as deserving of lesser weight, is sufficient justification for choosing an estimate at the lower end of the range, especially when one of the lesser weight estimates (the DDO at 0.4) appears to be implausibly low compared to the preferred estimate (ABS).

RECOMMENDATION

The Explanatory Statement should explain more clearly why it has not considered an utilisation rate estimate higher than 0.6.

9.7 CHOOSING THE VALUE OF GAMMA

The Explanatory Statement sets out preferred estimates of F (0.88) and theta (0.6), implying a value of gamma of 0.528.

The Draft Guidelines and Explanatory Statement adopt a value of gamma of 0.5, by applying its pre-determined policy of rounding gamma to one decimal place.[107]

As a result of the interrelationships between the components of gamma (F and theta) and other elements or building blocks, the AER has subsequently adopted a value of the distribution rate of '0.83 to be internally consistent with a rounded gamma of 0.5 and our utilisation rate of 0.6.'[108]

The Panel considers that the Explanatory Statement should clarify this methodology to ensure that the approach is able to be replicated.

RECOMMENDATION

The Explanatory Statement should explain more clearly the rationale and methodology used to establish the set of values for gamma of 0.5, distribution rate of 0.83 and utilisation rate of 0.6.

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106 Explanatory Statement, p.439.

107 Explanatory Statement, p.388.

108 AER, Response to questions from the Independent Panel, 17 August 2018.

9.8 ROUNDING

The Panel is unconvinced about the practice of rounding the value of gamma to one decimal place. The Explanatory Statement states:

> *[G]iven the precision of the underlying data we consider rounding the value of imputation credits to one decimal place is appropriate.*[109]

The implication of this approach is that for a given value of theta of 0.6, the outcome (rounded gamma of 0.5) will be unchanged for values of the Distribution Rate (F) between 0.76 and 0.91.

The Panel makes two observations:

- That range may be consistent with the comment in the Explanatory Statement regarding 'precision', but if it is then it should be better explained.
- The practice of rounding effectively reduces the incentive to improve the precision of the estimates –why bother to improve precision when is a real possibility that it will be 'rounded' away?

Accordingly, the Panel recommends that AER reviews its rounding policy in relation to gamma. The options would appear to be to round to the nearest five per cent (0.45 or 0.50 or 0.55 for instance), or to round to two decimal places.

This issue of the use of rounding and judgement in the choice of parameter values is discussed in more detail in Chapter 10 (Conclusions).

RECOMMENDATION

The AER should review its rounding policy in relation to gamma, including considering whether to round to the nearest five per cent or to round to two decimal places.

[109] Explanatory Statement, p.388.

10. Conclusions

10.1 BACKGROUND

As specified by the AER, the Panel is required to address the following question:

> *In the Panel's view, is the draft guideline supported by sound reasoning based on the available information such that it is capable of promoting achievement of the national gas and electricity objectives?*

The Panel is also required to have regard to the following factors:

- the impact of the guideline as a whole rather than an issue-by-issue analysis
- the revenue and pricing principles in the National Electricity Law and National Gas Law
- the rate of return provisions in the National Electricity Regulations and National Gas Regulations [110]
- the impact of COAG Energy Council's ongoing reforms to implement a binding rate of return instrument.
- whether the AER has had regard to relevant information in reaching its conclusions
- whether there is a clear link between the AER's conclusions and the information on which it relied
- whether, in the Panel's view, the methodology set out in the draft guideline will allow stakeholders to replicate the AER's estimate at a point in time
- interactions with other building block components and the relevant rules impacting estimation of those components.[111]

This Chapter has three main purposes:

- We summarise our overall evaluation of the Draft Guidelines' overall quality, based on the four criteria to which we have had regard.

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[110] AER, *Positions Paper,* Chapter 3, Attachment 1, 28 November 2017.

[111] The AER provided the Panel with further guidance in relation to this requirement in correspondence dated 25 July 2018. The advice confirmed that the Panel was expected to examine both the inter-relationships between various rate of return parameters as well as the inter-relationships with other building block components.

- We identify and discuss a general concern about sufficiency in the Draft Guidelines' explanations, particularly where the AER has exercised judgement to move from a range of values to a point value.
- We address the question whether the Draft Guidelines are capable of promoting the national objectives.

10.2 THE DRAFT GUIDELINES' OVERALL QUALITY

In the preceding chapters, the Panel has assessed the Draft Guidelines and discussion in the Explanatory Statement in relation to each of the rate of return parameters, and the value of imputation credits.

We have assessed the extent to which the determination of those parameters is supported by sound reasoning based on the available information such that it is capable of promoting achievement of the national gas and electricity objectives. In doing so, we have had regard to the various factors outlined above including in relation to the consideration of available, relevant information; sound reasoning and explanation; replicability and the interactions among components.

Overall, we consider that the AER has undertaken an extensive consultation and engagement process. It has considered a significant amount of information, data and views to assist in developing its approach as set out in the Draft Guidelines and has demonstrated consideration of the range of submissions from practitioners, academics, and stakeholders. It has also sought to link its conclusions to the information provided using logical reasoning plainly expressed.[112]

However, we have identified a number of areas where the explanation and reasoning supporting its approach to various issues needs to be clarified. We have listed our recommendations in the Executive Summary and throughout the report. These are the actions that we consider the AER needs to take to ensure that the Draft Guidelines are supported by sound reasoning and based on the available information, such that it is capable of promoting achievement of the national gas and electricity objectives.

The Panel also recommends that the final Explanatory Statement be self-contained, clearly setting out all the relevant reasoning, evidence and calculations, rather than relying on other documents to provide some aspects of reasoning. Where including a full explanation

[112] One Panel member, with over three decades' experience as a regulatory litigator, advisor and expert witness, adds that he has never seen, in his country, a treatment of any issue more careful, more evidence-based, more analytical, and more deserving of replication by other regulatory bodies than the AER's Explanatory Statement. Having said that, he agrees fully with all of this Report and its recommendations.

would be too technical or long-winded, the Panel recommends that the Explanatory Statement should provide clear and specific references to other relevant documents that are in the public domain. A diligent reader should be able understand the Explanatory Statement without prior knowledge of the 2013 Guidelines or submissions by stakeholders in the past five years.

10.3 REPLICABILITY

The Panel has been asked to consider whether the methodology set out in the Draft Guidelines will allow stakeholders to replicate the AER's estimate at a point in time. The AER explained this criterion was important because:

> *[We] consider stakeholders should be able to read the guideline and then replicate to a reasonable degree of accuracy our estimates at a point in time. This is important for transparency and predictability. Stakeholders signaled at the pre-issues paper forum that this an important requirement to have confidence in the process.*[113]

As discussed in Chapter 5 (Risk Free Rate). the Panel considers that there is an issue where the AER's proposed approach precludes the replicability of the methodology by stakeholders other than the regulated entity. This issue relates to the proposed approach of allowing the service providers to maintain the confidentiality of the averaging period used to determine the risk free rate and the return on debt, even after the period has passed.

The Explanatory Statement does not spell out why confidentiality is sought by providers, or why confidentiality is otherwise required. The AER has explained to the Panel:

> *The reason for not publishing average periods once complete has been some service providers have used the same averaging periods from year to year and disclosure of prior periods could disclose future periods due to this practice.*[114]

The Panel is unpersuaded by this reasoning. It is concerned that maintaining the confidentiality of the averaging period even after the period has passed prevents replicability of the AER's estimate of the risk free rate or return on debt, to the extent that market rates vary over that period.

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113 AER, Review of the rate of return guidelines – process for the guideline review, Position Paper, November 2017, pp.15-16.

114 AER, Response to questions from the Independent Panel, 28 August 2018.

10.4 JUDGEMENTS THAT LACK SUFFICIENT EXPLANATION

The regulation of economic performance is not a science. There is no single, provable, correct rate of return. The number chosen is always an estimate. The methodologies are inevitably imprecise, requiring judgement. But while judgement is unavoidable, it must be credible. Judgement without principle, judgement without explanation, risks being idiosyncratic, arbitrary, unpredictable and non-replicable. It undermines trust in the regulatory process. Loss of trust discourages investment.

In the Explanatory Statement, this concern arises at several key points; especially where a judgement is made, but where the explanation of that judgement is missing or insufficiently detailed. The Panel has identified several distinct examples of where the AER has identified a range of values for relevant parameters, but then when choosing a final point exercised its judgement without sufficient explanation. Specific examples include methodology switching and rounding.

10.4.1 Methodology switching

The Panel has identified examples where the AER has used one methodology to establish a range, and then used another methodology to pick a point within the range. Switching methodologies is not necessarily wrong, but to do so without a full explanation of how the alternative methodology informs the choice within the range risks misunderstanding or arbitrariness.

For example, in relation to the setting of the equity beta:

- The AER's decision on equity beta involved two separate lines of reasoning. First, the AER (a) decided on a set of comparable regulated entities, (b) calculated betas for subsets of this set over different time periods and then (c) gave 'most weight to estimates from the longest estimation period.'[115] The estimates are 0.51 for all subsets and 0.57 for the whole set,[116] which suggests a beta estimate below 0.6 (say 0.55). The AER then made a further decision to limit the reduction in beta from 2013 to 2018 to at most 0.1— apparently to 'promote stability.' This step results in a final estimate of 0.7 – 0.1 = 0.6.[117]
- The second step appears to be based on the AER valuing stability in cost of capital estimates and is therefore averse to large changes from 2013 to 2018. The context however is that the AER has diminished confidence in the Black model which in the 2013 Guidelines played a major role in the choice of 0.7 for the beta estimate. The Panel agrees that the Black model or bias demonstrated by that model have

115 Explanatory Statement, p.51.
116 Explanatory Statement pp.51-53.
117 Explanatory Statement pp.298 and 244.

nothing to do with estimating beta. Given that the role of the Black model in the choice of the beta estimate in 2013 was not appropriate, it is not at all clear that limiting the change of estimate from the 2013 Guidelines is justifiable.

- The concern with stability regarding beta also seems inconsistent. Stability is invoked only in the estimation of beta. But if it considers that stability is worthwhile, why does the AER apply this approach only to the estimation of beta? The Draft Guidelines also reduced the MRP by 0.5 per cent, from 6.5 per cent in 2013 to 6 per cent in 2018. Is 0.5 per cent too large a discontinuity? The Explanatory Statement does not address this question.
- If discontinuity is a concern, then the concern logically applies to the equity risk premium itself, not to just one of its components. In 2013, the equity risk premium was $\beta \times MRP = 0.7 \times 0.065 = 4.55$ per cent. In the 2018 Draft Guidelines, the equity risk premium is $\beta \times MRP = 0.6 \times 0.06 = 3.60$ per cent, a reduction of 95 basis points. If the AER values stability, it should explain why it is acceptable to have a 95 basis point discontinuity in the equity risk premium.

The Panel notes that the expert group consulted by the AER commented about the methodology switching and the way that judgement has been applied by the AER. [118]

10.4.2 Rounding

Rounding is a second area where the AER has exercised judgement without sufficient explanation.

Rounding involves two straightforward steps:

- It involves choosing a level of precision, in terms of number of digits or decimals points with which a value will be expressed.
- Then it involves converting a calculated number into a number with the chosen number of decimal points, either up or down according to a chosen rounding principle.

Thus, if the common practice is to state return on equity with two decimal points, and the calculated return (perhaps an arithmetic average of 10 samples) is 6.543 per cent, it would be reasonable to 'round' the number to 6.54. The key judgement is to choose a rounding policy consistent with the quality of the inputs.

A prime example of our concern arises in the determination of gamma. The Explanatory Statement states:

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[118] Cambridge Economic Policy Associates, Rate of Return Guideline – Facilitation of Concurrent Expert Evidence, Expert Joint Report, 21 April 2018, p.7.

> *[G]iven the imprecision of the underlying data, we consider rounding the value of imputation credits to one decimal place is appropriate.*[119]

However, the Explanatory Statement does not elaborate further. The implication of this approach is that for a given value of theta of 0.6, the outcome (rounded gamma of 0.5) will be unchanged for values of the distribution rate (F) between 0.76 and 0.91. It is possible that the range may be consistent with the preceding comment regarding 'precision,' but this possibility should be better explained. If 'precision' is not the reason, then what has been highlighted is a tendency to 'over rounding', the unintended outcome of which may be to effectively reduce the incentive to improve the quality of the inputs.

The broader point relates to consistency and rationale. It is not clear why some variables are rounded to one decimal point and others to two decimal points. Again, to take gamma as an example of the two input variables (F and theta): The first is rounded up to two decimal points and the second to one decimal point. The resultant gamma estimate is then rounded to one decimal point.

In the context of this Draft Guidelines, it appears that the effect of some of these judgements is to increase the estimates for some parameter values in one direction, and to influence other parameter values in the other direction. Overall, it appears that these directional effects are likely to offset each other. As a result, the application of these judgements is unlikely to adversely affect the achievement of the AER's objectives.

However, in other circumstances, adopting this approach could cause a directional bias. It is important for the AER to be alert to the impact that the exercise of its judgement may have on the overall result, and to explain how it has assured itself that the combination of different methodologies provides an overall robust estimate.

10.5 THE RISK-PRICE TRADEOFF

Another area deserving fuller explanation is in the tradeoff between risk and cost. The Explanatory Statement summarises different points of view about how to address uncertainty and the resulting risks on pages 27 to 29.

Submissions to the AER focused on a specific risk – the effect on investment incentives of over or underestimating the rate of return. Since estimating the rate or return involves uncertainties, there is a 50 per cent chance that the decisions on each of the components is higher than the efficient level and a 50 per cent chance that they are lower than the efficient level.

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[119] Explanatory Statement, p.388.

Results that differ from the efficient level cause significant costs. If the result is lower than the efficient level, then investment may be lower than is efficient; whereas a result higher than the efficient level will cause consumers to pay a higher price than is efficient. Such a price might suppress consumption of the relevant services, resulting in an unwarranted transfer of wealth from consumers to service providers. Importantly, a higher than efficient price would likely incentivise investment that does not provide benefits for consumers commensurate with the cost recouped from consumers.

In discussing risk, the Explanatory Statement first observes:

> *This review has been undertaken in an environment of heightened consumer concern about increasing energy costs and relatively large (and in some cases underutilised) investment in regulated assets over recent years.*[120]
>
> *[C]onsumers point to declining demand, declining network utilisation, declining age of assets, a positive trend in network performance and the positive option value that can be realised by deferring network investment. As such consumers submit that the balance of risk has shifted. There is little risk from under investment because there is unutilised capacity present in each of the network systems. … When put in the context of the NEO and NGO, consumer representatives have clearly indicated, during this consultation process, a willingness to accept a higher level of risk in respect of the rate of return and the investment it is intended to promote in exchange for lower prices.*[121]

The AER indicates that it accepts the above perspectives but notes:

> *However, we also accept the submissions made by service providers and investors that we should exercise our judgement with care. There is an ongoing need for investment to replace existing assets, to address locational peak demand and to reconfigure networks in response to changes in the mix of generators. Continued investor confidence is important in achieving these investment outcomes. We are conscious that the rate of return should be set in a manner that is sufficient to attract capital on a long-term sustainable basis, given opportunity costs, if we are to achieve the NEO and NGO.*[122]

The AER concludes its summary of positions as follows:

> *Ultimately we are seeking to reach a decision that will promote efficiency in the long term interests of consumers. We consider this requires a degree of caution when exercising our judgement. Nevertheless, we are cognisant of the cumulative*

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120 Explanatory Statement, p.27.

121 Explanatory Statement, p.28.

122 Explanatory Statement, p.29.

> *effect of choosing high parameter estimates from a reasonable range of estimates and the risks that might follow.*
>
> *Overall, we accept that these propositions, as highlighted by both consumers and industry representatives, are important considerations. They are relevant factors to be considered in the context of the RPPs and our assessment of how best to achieve the balance of factors set out in the NEO and NGO.*[123]

In the Panel's view, the AER appears to have based its decisions leading to the rate of return parameters on methodology – as evidenced by the detail of the methodological explanations throughout the nearly 500 pages of the Explanatory Statement. There is no indication in the Explanatory Statement that the AER has based its decisions on consumers' willingness to accept higher risk in return for lower price as distinct from methodological considerations.

The Panel considers that the risk-cost tradeoff should be examined after the component by component analysis. This consideration should appropriately be centered on consideration of the national objectives.

10.6 ACHIEVING THE NATIONAL OBJECTIVES

In the preceding technical chapters, the Panel has assessed the Draft Guidelines' components individually. The Panel is also tasked to address their combined effects by answering these questions:

> *Is the Guideline consistent with the revenue and pricing principles in the NEL/NGL?*
>
> *Is the Guideline consistent with the rate of return provisions in the NER and NGR?*
>
> *Is the Guideline consistent with the COAG Energy Council's ongoing reforms to implement a binding rate of return instrument?*
>
> *Overall, is the Guideline consistent with, and capable of promoting, achievement of the objectives of the NEL and NGL?*

The Panel has not identified anything in the Draft Guidelines that appears to be inconsistent with the revenue and pricing principles in the NEL/NGL, the NER and NGR, and COAG Energy Council's ongoing reforms as reflected in the legislative amendments introduced into the South Australian Parliament on 2 August 2018.

About promoting achievement of the national objectives, the Draft Guidelines aim to produce a rate of return reflecting a 'benchmark efficient entity.' A benchmark efficient utility, by definition, is an efficient utility carries out its service responsibilities, as defined

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123 Explanatory Statement, p.29.

by the regulator, efficiently. It raises capital efficiently, it operates and spends money efficiently, it plans capital expenditures program efficiently, and it carries out that capital expenditures program efficiently. An industry whose members perform that way is an industry that achieves the national objectives.

At a theoretical level, then, a rate of return that satisfies the criterion of 'benchmark efficient utility', and properly considers the risk-cost tradeoff discussed above, is necessarily capable of meeting the national objectives – *to the extent the rate of return itself contributes to those objectives*.

This last phrase reflects the fact that the rate of return contributes only one part of the revenue stream that flows to a regulated company. Thus, the rate of return is only one contributor to the national objective. The other contributors are the other building blocks. So, the regulator must place in those building blocks amounts sufficient to allow an efficient company to recover its actual operating expenses and capital expenditures.

If the regulator does so, then the rate of return in conjunction with these other revenue flows will, by definition, be able to attract the voluntary debt capital and equity capital sufficient to satisfy the aspects of the national objectives that depend on capital. However, the national objectives also include consumption efficiency, which needs to be addressed as well. In achieving the national objectives, attracting capital is necessary but not sufficient.

There is a broader point to make. A particular rate of return does not achieve the national objectives just because finance theory says it should. The national objectives are achieved not by finance theory but by the rational, informed actions of the firms and individuals who comprise the regulated industries: debt investors, equity investors, the managers and employees of regulated firms, consumers large and small, and the practitioners who represent their interests before regulatory tribunals. The Draft Guidelines will be capable of promoting the national objectives only if it wins the trust of, and induces the efficient conduct of, all those parties.

The Panel's comments in this Chapter thus far have focused on whether the Draft Guidelines, taken as a whole, are capable of achieving the national objectives. While the Explanatory Statement addresses each technical step in the rate or return calculation, it does not sufficiently consider or demonstrate how each of the decisions about individual parameters, when taken together to produce a final estimate of the rate of return and value of imputation credits, will contribute to the achievement of the national objectives.[124]

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[124] This issue was also raised by the expert group – who suggested that some form of sensitivity analysis or overall tests of reasonableness may be appropriate to address issues of whether parameter estimates had been chosen from the upper end of the plausible ranges. See Cambridge Economic Policy Associates, Rate of Return Guideline – Facilitation of Concurrent Expert Evidence, Expert Joint Report, 21 April 2018, p.7-8.

The AER should explain more clearly how the Final Guidelines promote the achievement of the national objectives, including why the AER is confident that the value that it has adopted results in an outcome that is neither too high or too low.

The Draft Guidelines can win trust and induce efficient conduct if they are more fully explained, with the risk-cost tradeoff being appropriately considered. In the preceding technical chapters, the Panel has cited examples of where fuller explanation is necessary to provide confidence that the approach to estimating the rate of return is soundly based and appropriately reflects the available evidence. If the AER follows these recommendations and addresses the risk-cost tradeoff appropriately, then in the Panel's view the resulting Guidelines will be capable of promoting the national objectives.

RECOMMENDATION

The AER should explain more clearly how the Final Guidelines promote achievement of the national objectives, including why it is confident that the rate of return methodology it has determined results in an outcome that is neither too high nor too low having regard to the risk-cost tradeoff involved.

Appendix A Members of the Independent Panel

The AER appointed an independent panel comprising five members to review its Draft Guidelines and Explanatory Statement and to report on whether it is supported by sound reasoning based on the available information such that it is capable of promoting achievement of the national gas and electricity objectives.

The Panel members were selected by the AER from nominations provided by a range of stakeholders. The Panel members have diverse backgrounds and areas of expertise including regulatory, legal, economic, finance, consumer perspectives and institutional investment. A summary of each of the Panel member's credentials is provided below.

Natalia Southern (Chair)

Natalia Southern is an experienced public sector senior executive and economist with more than 25 years' experience working in Commonwealth and State public policy, regulatory and oversight bodies. She has extensive experience in economic and regulatory policy, stakeholder engagement and independent investigations and inquiries across a broad range of issues and sectors.

In her most recent senior executive role, Natalia was the Deputy Secretary, Energy and Resources (and subsequently Resources) in the Victorian Department of Economic Development, Jobs, Transport and Resources. She was responsible for the policy and legislative program, and the earth resources regulator. She advised the Minister for Resources and represented Victoria at the COAG Energy Council Senior Committee of Officials.

Natalia has extensive experience in economic regulation. She held senior roles at the Victorian Essential Services Commission overseeing advice and reports on economic regulatory issues in infrastructure industries and government businesses – predominantly across energy, water and transport. She coordinated the 2001-05 Victorian Electricity Distribution Price Review and the 2003 Victorian Gas Distribution Price Review. She also established the foundation frameworks for independent economic regulation of the Victorian water sector and led the state's first ever independent review of water pricing and setting of regulatory asset values.

Natalia was the Assistant Auditor General, Performance Audit at the Victorian Auditor-General's Office successfully managing the largest performance audit program across all States and Territories. She advised the Auditor-General on strategic audit priorities and oversaw more than 100 performance audits assessing the efficiency and effectiveness of various aspects of the Victorian public sector. She regularly briefed the Public Accounts and Estimates Committee and Members of Parliament.

Natalia commenced her career at the Industry Commission and later Productivity Commission and has also held senior positions at the National Competition Council and Victorian Department of Treasury and Finance.

As a consultant, Natalia provides advice to both government and private sector clients on policy and regulatory matters particularly in the energy, water and transport sectors. She has advised and supported several inquiries including the Victorian Legislative Council inquiry examining the proposed Port of Melbourne lease and an Independent review of Goulburn-Murray Water.

She is currently Director, Economic and Financial Consulting of FTI Consulting.

Pat Duignan

Pat Duignan is a Finance and Economics Expert lay member of the New Zealand High Court under the Commerce Act 1986, appointed in April 2016. Appeals against New Zealand Commerce Commission determinations are heard by a judge and at least one lay member. A panel of lay members allows for conflicts of interest resulting from roles as expert advisors.

Pat served as a Commissioner at the New Zealand Commerce Commission from 2010 to 2015, having earlier been an Associate Commissioner. The Commission is responsible for regulation of utilities (i.e. electricity, gas and telecommunication networks) and the three major airports, in addition to competition regulation and consumer protection regulation. Pat played a major role in implementation of the New Zealand Building Blocks utility regulation framework (Part 4 of the Commerce Act) legislated in 2008. Pat also served on divisions determining merger applications and enforcing anti-trust law. As a Commissioner, Pat was responsible for both governance of the Commission and for the decisions of divisions on which he served.

Pat has been an expert member of the New Zealand Accident Compensation Corporation (ACC) Investment Committee for 14 years, during which excellent returns have been achieved. The Investment Committee is a sub-Committee of the ACC Board comprising both Board members and two expert members. The Committee is responsible for oversight of the management of the NZ$35B portfolio that finances the future costs of past accident claims.

Pat formed Taylor Duignan Barry Limited (now TDB Advisory) in 2002 to offer to a wide range of clients his expertise in economic policy, corporate finance, treasury and investment management. Pat has undertaken a wide range of financial and economic analyses in both the public and private sectors. Pat has also provided expert opinions regarding regulatory, taxation and Takeovers Code issues. Pat resigned from TDB in 2013 to avoid conflicts with his Commerce Commission role. He now undertakes advisory mandates through Munro Duignan Limited.

Prior to 2001, Pat managed the corporate finance, treasury and taxation areas as General Manager Finance for Telecom Corporation of New Zealand Ltd (Telecom). Pat led the

analysis of major corporate finance decisions including Telecom's $1B share buyback and later issue of equity and quasi-equity (under changed circumstances). His team raised NZ$3.5B in term debt, maintained commercial paper outstandings of over NZ$2B and arranged a variety of standby facilities. Working with others, they secured project financing for the US$1.2B Southern Cross cable project.

Earlier, Pat was responsible for management of New Zealand's public debt (at that time totaling NZ$46B) as Head of the New Zealand Debt Management Office (NZDM"). In addition, he has experience as an Investment Banker (with Credit Suisse First Boston NZ) and as Director of Policy Coordination and Development for the Treasury. Pat's service with the Treasury included macroeconomic forecasting, development of the framework for the Reserve Bank's independent management of monetary policy and development of state owned enterprise and regulatory policy.

Pat played a significant role as a policy adviser in New Zealand's economic reforms from 1984 after returning from serving as First Secretary Economic at the New Zealand High Commission, London, including representing New Zealand at the OECD.

Pat is a chartered member of the New Zealand Institute of Directors.

Geoff Frankish

Geoff Frankish has extensive experience in financial markets and public policy spanning over 40 years. During this time he has participated in a number of different roles – as an investor, a sell-side adviser, a public policy adviser and representing the interests of an owner and seller of assets. His areas of major focus have been infrastructure, utilities, energy resources and transport. Among the areas of public policy involvement has been a strong interest in and contribution to the development of economic regulation, particularly related to energy and transport following the surge in privatisation in those sectors.

Most recently Geoff was part of the equities investment team at Goldman Sachs Australia, responsible for valuation and stock selection in the infrastructure, utilities and energy sectors across a range of funds. Geoff was also portfolio manager two dedicated infrastructure funds, one focusing on Australian assets, the other with a mandate to invest in global infrastructure and utility assets.

Prior to that Geoff worked on the sell-side at Credit Suisse, covering the infrastructure, utilities and resources sectors. This was at a time when numerous of the previously publicly-owned assets were privatized and listed on the ASX, which resulted in a rapid expansion of the market capitalization of the sector.

The genesis of this interest in infrastructure and utilities was a long period (1983-96) working for the Victorian Government in a range of roles in Treasury (including the Office of State Owned Enterprises) and in operating departments, primarily those concerned with energy and transport. The roles involved development of public policy dealing with the structure, commercialization, privatization, pricing and regulation.

Geoff began his career as an economist and econometrician in industry, with roles at CSR and Telstra, as well as a short period of academic work with the Institute of Applied Economic and Social Research at the University of Melbourne.

Scott Hempling

Scott Hempling is a United States attorney, expert witness and teacher. As an attorney, he has assisted clients from all industry sectors—regulators, utilities, consumer organizations, independent competitors and environmental organizations. As an expert witness, he has testified numerous times before state commissions and before committees of the United States Congress and the legislatures of Arkansas, California, Maryland, Minnesota, Nevada, North Carolina, South Carolina, Vermont, and Virginia. As a teacher and seminar presenter, he has taught public utility law and policy to a generation of regulators and practitioners, appearing throughout the United States and in Canada, Central America, Germany, India, Iran. Italy, Jamaica, Mexico, New Zealand, Nigeria and Peru.

Hempling is the author of two books: a legal treatise, Regulating Public Utility Performance: The Law of Market Structure, Pricing and Jurisdiction (American Bar Association 2013); and a book of essays, Preside or Lead? The Attributes and Actions of Effective Regulators (2013). He is completing a book on mergers in the U.S. electricity industry. His articles have appeared in the Energy Bar Journal, the Electricity Journal, Energy Regulation Quarterly, Public Utilities Fortnightly, ElectricityPolicy.com, publications of the American Bar Association, and other professional publications. His writings cover such topics as mergers and acquisitions, the introduction of competition into formerly monopolistic markets, corporate restructuring, ratemaking, utility investments in nonutility businesses, transmission planning, renewable energy and state–federal jurisdictional issues. From 2006 to 2011, he was the Executive Director of the National Regulatory Research Institute.

Hempling is an adjunct professor at the Georgetown University Law Center. He received a B.A. *cum laude* in (1) Economics and Political Science and (2) Music from Yale University, where he was awarded a Continental Grain Fellowship and a Patterson research grant. He received a J.D. *magna cum laude* from Georgetown University Law Center, where he was the recipient of an *American Jurisprudence* award for Constitutional Law. More detail is available at www.scotthemplinglaw.com.

Stewart Myers

Stewart C. Myers is Professor of Financial Economics at MIT Sloan School of Management. Professor Myers is past President of the American Finance Association, a Research Associate at the National Bureau of Economic Research and a Principal of the Brattle Group, Inc. His textbook *Principles of Corporate Finance* (12th ed., with Richard Brealey and Franklin Allen) is known as the "bible" of financial management. His research focuses on the valuation of real and financial assets, corporate finance and financial aspects of government regulation of business. He introduced both the tradeoff and pecking order theories of capital structure and was the first to recognize the importance of real options in corporate finance. He is the author of influential research papers on many topics, including adjusted present value (APV), rate of return regulation, capital allocation and risk management in banking and insurance, real options, payout policy, and moral hazard, information and agency issues in financing decisions. He has had an active career as expert witness and financial consultant. He has served as a Director of Entergy Corporation and CAT Ltd. and as a Manager of the Cambridge Endowment for Research in Finance. He is currently a Director of Syntax LLC, an ETF trust.

Professor Myers received an AB degree from Williams College and MBA and Ph.D. degrees from Stanford University.