Consumer Challenge Panel

Submission to the Australian Energy Regulator (AER)

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Submission to the AER on its Rate of Return Guideline Issues Paper

Sub-Panel CCP16

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1.   Executive Summary

In response to the questions raised by the AER in its Issues Paper, the following are the key issues that CCP16 would like to raise, which are covered in more detail in later sections of this report.

Fundamental issues:

Instead of being 'ultra-conservative', the AER should look at ranges with rigorous analysis to determine where in the range each ROR component should be set. More detail on this is to be found in later sections of this submission in answers to specific questions in the Issues Paper.

When the 2013 Guideline was being developed, the investment environment was still significantly affected by the Global Financial Crisis (GFC) of 2007-08. An increase in the MRP may have been appropriate at that time. Now that we are further from the GFC, the investment environment is more stable, and this needs to be reflected in the 2018 Guideline.

There are many discussions being had about risks to networks, including customers going off-grid. These are largely distractions in the setting of an appropriate ROR. The appropriate risk that should be assessed in setting the ROR is the risk that network businesses will not achieve their expected ROR. The RPP insulate the networks from write-down risk. Once assets are put in the RAB they are not removed. The capital base is protected. Once approved, capital never becomes 'inefficient'. The networks do not face risks of impairments from asset obsolescence through technology changes or competitive advances.

Given this and the ARORO, the risk that network businesses will not achieve their expected ROR is very low. The network businesses have very steady cashflows, so returns to investors are highly predictable.

The removal of limited merits review (LMR) will also decrease risk by making the AER's rulings less open to challenge, and a binding guideline will also remove risk of uncertainty in regard to how the AER will interpret the Rules in any given regulatory determination.

Any comments that CCP16 makes in these submissions concerning choices between options is conditional on the details of the requirements and powers to make a binding guideline and the accompanying changes to the NER. In the absence of these, it is not possible to determine what may be feasible or what may not.

Outcomes of the current approach:

The test for the fair rate of return is the reasonable long-term expectations of investors, given the risks related to the investment. The challenge for the AER is that these expectations cannot be observed directly – they must be inferred from a range of data and models that are to varying degrees imperfect and incomplete. Furthermore, the relevant expectations are the **long-term** expectations of investors.

While CCP16 supports the framework and the AER's approach, it is concerned that the assumptions on individual parameters may err on the high-side resulting in an overall ROR that is significantly higher than required under the NEO and ARORO.

Role of profitability measures in the determination of the WACC and ROE:

Comparisons of profitability and RAB multiples provide relevant information on the relative profitability of energy networks that should be used in assessing outcomes against the NEO/NGO and ARORO. These measures provide directly observable evidence on whether the outcomes for the allowed rate of return based on the economic/finance models meet, but do not exceed, in practice the reasonable expectations of investors and the requirements of the NEO/NGO and ARORO. It follows that since such measures can help the AER assess whether previously determined rates of return meet the requirements of the NEO/NGO and ARORO these measures should also be considered in future determinations of the ROR and ROE.

Financeability tests and sensitivity tests of the likely ROE under a range of scenarios can be used to test the financial sustainability of a proposed determination, but should not be used to directly determine the ROE or ROR allowed.

These recommendations would better align AER's approach with best practice of other regulators.

Benchmark gearing and term:

CCP16 submits that the AER should continue to observe the actual gearing of the regulated utilities, as far as possible. If it finds systematic changes in the level of gearing it may signal a need to reconsider the benchmark gearing.

CCP16 is not aware of any evidence of a shift to shorter debt financing periods that would support a lowering of the 10-year benchmark term. We recommend that the AER continue to monitor the average debt term at issuance of the networks against the 10-year benchmark term.

Prescription in setting averaging periods:

CCP16 supports the AER continuing to specify the 10-year yield on CGS in the guideline.

CCP16 supports the periods, once chosen, being made mechanistic. This could be done by specifying that the averaging period would be the period finishing, say, 20 working days prior to the due date for the release of the final decision.

An average over the year as a whole would be more stable and consistent with the principles of a trailing average, and common practice in calculating annual average rates. Accordingly, CCP16 would support the AER specifying a yearly average for the debt data series.

Return on debt:

The AER should continue to apply its current transitioning approach as this approach best achieves the objective of maintaining revenue neutrality over the life of the regulated assets.

CCP16 considers that there should be a high bar to changing current methodologies in the interests of regulatory consistency and confidence of investors and consumers in regulatory outcomes . This is particularly important in assessing the AER's transition process that has now been endorsed by two recent Tribunal decisions.

The Tribunal's decision in the case of the NSW networks raised important points that the AER has now addressed. CCP16 questions whether the NSW's Tribunal decision to reject transition is now relevant to the processes in the new Guideline.

The AER's approach to transitioning has now been endorsed by two Tribunals based on the AER's reasoning that the transition is necessary to achieve revenue neutrality over the life of the assets. In the absence of a transition period the objective of revenue neutrality could only be achieved by reverting to the on-the-day approach. CCP16 considers this would be a less favourable outcome for network investors and consumers.

CCP16 sees no evidence to support the claims made by some networks that the networks are unable to recover their actual costs of debt under the AER's approach of transitioning to the trailing average.

As the transition process continues the refinancing and interest mismatch risks facing the networks will decline. This reduced risk should be reflected in the AER's decisions on the forward looking equity beta and/or in the credit rating of the businesses.

Changing the AER's trailing average with transition approach to the ROD at this stage would introduce unacceptable risks to the businesses and to confidence in the regulatory processes.

There are significant difficulties in applying a trailing average without transition given the limitations of the historical bond data set. It would not be appropriate for the AER to rely on the only available historical series, the RBA series, given the approach to estimating forward looking ROD using at least two series.

Consumers have expressed considerable concern with the AER's approach. The AER's approach is conservative in its assumptions of an average 10- year BBB range bond and this should be taken into account when reviewing the approach for the new Guideline.

Currently there is no third party debt data series that produces yield curves that are specifically relevant to assessing the return on debt for a BEE. CCP16 therefore considers there is some value in the AER continuing to monitor the performance of other data series such as the Thomson-Reuters (TR) bond yield curve. However, at this stage the TR curve appears very similar to the Bloomberg BVAL curve in terms of the 'strengths and weaknesses' of the data in the context of the ROD for a BEE. Therefore, CCP16 would not recommend simply adding the TR curve to its current assessment based on the average of two curves, the RBA and BVAL. Simply adding in the TR curve would not address the current 'gaps' and would diminish the role of the RBA yield curve that has some strong benefits not present in the BVAL or TR curves.

A compromise may be that the RBA curve is weighted 50% and the TR and BVAL weighted 25% each. The limitations of this approach however will arise if the AER considers adding a fourth curve such as the S&P curve. More complex decisions on weighting and practical issues around defining 'contingencies' may become too significant.

Given these complexities the AER should exercise considerable caution in moving beyond the simple averaging approach – there must be very clear benefits in terms of reducing volatility and biases. The AER's sample selection criteria are a useful starting point in this process. It would be also valuable for the AER to develop its own data series using bonds that more closely reflect the BEE than the commercial series. The ERA approach is a useful starting point for this process.

CCP16 endorses the AER's approach of establishing a set of implementation rules and selection criteria to allow a more systematic approach to considering a new bond series. To be included, a new series should add new information and demonstrate that it improves the accuracy and stability of the yield estimates compared to the simpler two bond series approach.

The AER's selection of a broad BBB credit rating band is conservative given the average BBB+ credit ratings observed for the regulated networks. In addition, there is evidence that for utilities in general (including regulated networks), the relationship between credit ratings and the bond yields are more complex than suggested by the simple reliance on the average market relationship. It is opportune for the AER to investigate this further as part of the development of the new Guideline.

A new bond series must be consistent with the requirement for the AER to automatically update the ROD each year and to predefine a set of contingencies to deal with changes in the available series.

There is a benefit in the AER developing its own data set of bond yields, particularly for bonds issued by firms that relate more closely to the BEE. While these may not be determinative, they provide useful information for the AER to evaluate its current approach and to respond to consumer concerns about the AER's 'conservative on conservative' assumptions in the ROR.

CCP16 recommends that the AER consider the approach adopted by the ERA. The ERA has developed its own bond sample and yield curve and has used this in a similar context, namely to estimate the yield on 10-year bonds for a BEE and apply this in the context of a trailing average with transition and annual updating of the ROD. CCP16 understands that the Tribunal has accepted the ENA's approach in the past.

The processes of interpolation and extrapolation of the yield curves are areas of risk in the use of third party commercial data series particularly where there is limited transparency in the approach used. CCP16 suggests that the AER continue to investigate options to minimise these risks including testing the outcomes against actual industry bonds that more closely match the BEE.

There is strong evidence from overseas that the relationship between credit ratings and actual yields for bonds issued by entities closer to the BEE is complex and reliance on credit ratings may result in overestimating the ROD. CCP16 encourages the AER to explore these issues further during the development of the new Guideline.

Return on equity:

As noted above, CCP16 considers that the current approach, as applied by the AER, has resulted in an allowed ROR that has been higher than necessary to meet the requirements of the NEO/NGO and ARORO. This can be addressed by broadening the range of information considered in setting the ROR to include comparisons of profitability with other sectors and consideration of RAB multiples in setting the ROR and ROE, and reviewing specific parameters such as the MRP, beta and the benchmarks for the cost of debt.

CCP16 considers that the AER's current approach is fundamentally sound. However, within this framework the AER should:

- be clear that there are merits in stability of the beta and a high burden of proof would be required;

- give less weight to the Black CAPM given its limited use in practice and give greater weight to the practice of advisors and investment analysts; and
- consider measures of profitability and RAB multiples in assessing the overall ROE and feed this back into the decision on beta.

In summary, DGM estimates contain information that can be relevant to the determination of the ROE, but need to be used cautiously because of the difficulty of 'sorting out the signal from the noise'. Absolute values derived from the DGM need to be considered carefully due to the potential biases, while short-term changes in levels also need to be considered carefully. Changes in DGM estimates may indicate a change in the expected MRP or reflect the many other factors affecting investor sentiment and driving equity market volatility.

While DGM estimates are relevant to the estimation of the ROE and ROR, the weight to be given to DGM estimates cannot be fixed in advance. It is possible, however, to specify the conditions when it would be likely that greater or lesser weight could be given to DGM estimates. Specifically, weight may be given to the DGM estimates where there is consistency between these estimates and the index of investment climate/uncertainty proposed above. But less weight – or no weight – should be given to changes that are contrary to investment fundamentals.

Imputation credits:

CCP16 supports the AER's current approach to assessment of the value of imputation credits as part of the overall building block approach and in the context of the post-tax revenue model. However, we encourage the AER to consider imputation credits more holistically as part of a tax/imputation credits package that impact on the overall returns to the investor and to the receiver of the credits. As a starting point CCP16 recommends that the AER to collect a more comprehensive data base on the actual practices with respect to tax and imputation credits, particularly of entities that are close to the BEE but also embracing the infrastructure sector more generally.

In supporting the AER's current approach, CCP16 considers that following the decision in May 2017 by the Full Federal Court on the meaning of the 'value of imputation credits' (as used in the rules) this central issue is now settled. As a result, market based studies such as the dividend drop-off studies should play little or no part in the AER's new Guideline. The AER's focus on equity ownership and tax statistics is appropriate and is therefore supported by CCP16.

The AER's task now is to develop a consistent framework and data set for the assessment of the value of imputation credits based on the equity ownership and tax returns data. The tax return data should be particularly useful for estimating both the dividend payout ratio and the utilisation rate. CCP16 would encourage the AER to continue to seek refinement of this data.

Following the decision of the Full Federal Court, CCP16 considers that there is limited if any role for the market based studies of the 'value of imputation credits' in the context of the building block regulatory regime.

Consumers are rightfully concerned that the AER's current allowance for taxation does not reflect the actual taxation rates that are paid by the network businesses. While this is a complex topic, the AER should respond to this concern and begin the process of collecting and evaluating the assumption that a BEE would typically pay tax at the statutory rate.

CCP16 considers that the AER should collect relevant data on taxation and imputation policies of the relevant businesses with particularly reference to infrastructure businesses.

Expected inflation/interaction between the allowed rate of return and inflation:

CCP11 supports the AER's current approach to estimating expected inflation and the focus on a real rate of return on an indexed RAB. These issues should not be a priority for this review.

2. Background

The AER established the Consumer Challenge Panel (CCP) in July 2013 as part of its Better Regulation reforms. These reforms aimed to deliver an improved regulatory framework focused on the long-term interests of consumers.

The CCP assists the AER to make better regulatory determinations by providing input on issues of importance to consumers. The expert members of the CCP bring consumer perspectives to the AER to better balance the range of views considered as part of the AER's decisions.[1]

The author of this submission is CCP16, a sub-panel of the AER's Consumer Challenge Panel that the AER has established to focus specifically on this review. The views expressed in this paper are the views of the members of CCP16: David Prins (chair), Louise Benjamin, Eric Groom, and Bev Hughson.

On 31 July 2017, the AER announced[2] that it was initiating a review of the Rate of Return Guideline to apply to electricity and gas distribution and transmission businesses.[3]

CCP16 has responded to a Consultation Paper on a process for the review. CCP16 also attended and participated in a public forum in Sydney on 18 September 2017.

On 31 October 2017, the AER published an Issues Paper, requesting submissions from interested parties. This submission is in response to the AER's Issues Paper. It focuses on the fundamental issues of concern to CCP16 in the review, as well as addressing each individual question asked in the AER's Issues Paper.

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[1] Detailed information on the CCP is available on the AER website at https://www.aer.gov.au/about-us/consumer-challenge-panel
[2] The announcement of the initiation of the review is available on the AER website at https://www.aer.gov.au/communication/aer-kicks-off-its-review-of-rate-of-return-guideline
[3] Documentation on the current project to undertake the review is being made available to stakeholders on the AER website at https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/review-of-rate-of-return-guideline

3. Fundamental issues

Later sections of this report provide responses to the questions in the Issues Paper. This section discusses some fundamental points that are not specifically covered in the AER's questions.

3.1. Consequences of a rate of return that is set 'too high'

When estimating the components of an appropriate ROR, there is often a range of values at which each of the components could realistically be set. In the past, the AER took the view that one of the most important features of the ROR was that it needed to be set at a high enough level to encourage investment in the network businesses. When faced with a range of possible values, the AER set the values at the 'conservative' end of the range, making for a higher ROR. When two components that are both estimated at the 'conservative' end of the scale are multiplied together, the result is 'ultra-conservative', and results in a ROR that has extremely strong likelihood of being higher than it ought to be.

In contrast, the network businesses get better rates for bond issues, have low cost of capital and pay little tax.

> Instead of being 'ultra-conservative', the AER should look at ranges with rigorous analysis to determine where in the range each ROR component should be set. More detail on this is to be found in later sections of this submission in answers to specific questions in the Issues Paper.

One of the consequences of setting the ROR too high is that it tends to encourage over-investment in assets. Over-investment causes the RAB to be higher than it ought to be. The assets in question have long depreciation periods, so the effects of a RAB that is higher than it ought to be are felt by current and future generations of consumers. This is particularly so, since overinvestment cannot be addressed through stranding of assets.

While interest rates are currently at all-time low levels, they may increase in future. If as a result, network prices are set too high, it impacts strongly on electricity and gas affordability, and may encourage investments in off-grid connections that are not economically efficient and would not be made if the ROR had been set at a more appropriate level.

This is not in the long-term interests of consumers. What is in the long-term interests of consumers is for the ROR to be set at a level that encourages efficient investment, and no higher.

3.2. Investment environment is more stable than when the 2013 Guideline is developed

> When the 2013 Guideline was being developed, the investment environment was still significantly affected by the Global Financial Crisis (GFC) of 2007-08. An increase in the MRP may have been appropriate at that time. Now that we are further from the GFC, the investment environment is more stable, and this needs to be reflected in the 2018 Guideline.

3.3.   Treatment of risk

There are many discussions being had about risks to networks, including customers going off-grid. These are largely distractions in the setting of an appropriate ROR. The appropriate risk that should be assessed in setting the ROR is the risk that network businesses will not achieve their expected ROR. The RPP insulate the networks from write-down risk. Once assets are put in the RAB they are not removed. The capital base is protected. Once approved, capital never becomes 'inefficient'. The networks do not face risks of impairments from asset obsolescence through technology changes or competitive advances.

Given this and the ARORO, the risk that network businesses will not achieve their expected ROR is very low. The network businesses have very steady cashflows, so returns to investors are highly predictable.

The removal of limited merits review (LMR) will also decrease risk by making the AER's rulings less open to challenge, and a binding guideline will also remove risk of uncertainty in regard to how the AER will interpret the Rules in any given regulatory determination.

3.4.   Meaning and implication of a 'binding' guideline

The COAG Energy Council Senior Committee of Official (SCO) has set out in a bulletin[4] that bills will be developed to make amendments to the national energy laws to give effect to the COAG Energy Council's decision to implement a binding guideline for the ROR components of the AER's regulatory determinations for electricity and gas. The Bulletin refers to a mechanistic approach for the AER to determine the rate of return and the value of imputation credits (i.e. gamma) for economic regulatory determinations.

However, at this stage we have not seen drafting instruction or proposed draft wording for the bills, let alone final wording. We do not know the details of the nature of the binding guideline, the powers it will give to the AER and the changes to the NER and NGR that will result. The recommendations and proposals in this submission are conditional on a legal framework that is not known at present.

CCP16 therefore cautions that it may have further comments consequential on the wording of the changes being made to legislation when that is finalised.

The rationale for moving to a binding guideline was described by SCO as:

> "*This move to a binding rate of return guideline, developed through an industry-wide process, will improve the transparency and certainty of the regulators' decisions, reduce the regulatory burden for all stakeholders, and provide a more robust process for the development of the rate of return.*"[5]

In order to achieve these objectives, substantive and process issues are identified by the SCO Bulletin to be included in the legislative amendments which collectively will contribute to the binding nature of the guideline. The substantive issues include:

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[4] Binding Rate of Return Guideline, COAG Energy Council SCO Bulletin, October 2017
[5] SCO Guideline at p1

- The AER is to be given power to make a legislative instrument that specifies a mechanistic approach that it must apply when determining ROR and gamma.
- Once made, the legislative instrument will be binding on the AER as well as the network businesses.
- The revised guideline will apply to determinations started before the legislation changes.

It is not clear what is meant by 'legislative instrument' other than the revised guideline. It is also not clear how long the guidelines will be binding for. Currently clause 6.5.2(m) of the NER requires the AER to make and publish ROR guidelines which must set out the methodologies and estimation methods that the AER proposes to use when determining a ROE and ROD when making determinations. The shift to a mechanistic approach will require changes to the rules, which on occasion require the AER to consider current market conditions. If the guideline is to include a trigger i.e. it can be reviewed where there is a significant change in market conditions, there is the potential for disagreement between the AER and the businesses. As we discuss below when discussing the MRP, if a review can be triggered during the life of the guideline, consumers will not be well served if the disputes between the AER and network businesses move from the parameters of the WACC (such as the debt transition and gamma) to the appropriate exercise of the trigger. Then all that would have been achieved is a different way of networks challenging the ROR.

For these reasons, CCP16 cautions the AER to be very wary of ambiguous trigger points or a low threshold for trigger points. In many cases, protections are built in by using long range averaging periods when considering the individual WACC parameters. Where a review is triggered for one parameter, say the MRP, the AER should specify that other parameters will not be reopened.

Another trade-off is between the length of the guidelines and their binding nature. The 2013 guideline will have been in place for five years when it is replaced. CCP16 believes it would be desirable for the revised guidelines to be binding for at least four years to minimise the frequency of reviews. Where reviews of individual parameters are triggered within the term of the guidelines due to a change in circumstances, the AER will need to include a mechanism for that reviewed term to remain binding for a sufficient period of time following the review. If it is to exceed the length of the original term of the guideline, this highlights another issue with triggers. If there are parameters of the guideline with different end times, requiring reviews at different dates then this might increase the administrative burden on the AER. For this reason, CCP16 is cautious about the use of triggers which may necessitate a shorter term for the guideline.

Any comments that CCP16 makes in these submissions concerning choices between options is conditional on the details of the requirements and powers to make a binding guideline and the accompanying changes to the NER. In the absence of these, it is not possible to determine what may be feasible or what may not.

4. Questions asked by the AER in its Issues Paper

The AER asks the following questions in its Issues Paper:

1. In your view, to what extent has the current approach to setting the allowed rate of return achieved the National Electricity Objective (NEO) and National Gas Objective (NGO), the Allowed Rate of Return Objective (ARORO), and the related revenue and pricing principles (RPPs)?
2. Should information on profitability, asset sales, financeability and any other financial information be used when assessing outcomes against the NEO and NGO, ARORO, and the related RPPs? If so, how?
3. Is the current approach to setting the benchmark term and level of gearing appropriate?
4. Should the conditions and process for setting averaging periods be refined?
5. To what extent are changes required to the current approach of transitioning from an on-the-day rate to a trailing average?
6. Is it appropriate for us to review the return on debt implementation approach by performing a review of the four third party debt data series currently available to us? Please also explain if you think there is further valuing in broadening this scope of debt implementation issues and why you hold this view?
7. Would a more prescriptive approach to setting the equity risk premium be appropriate? If the Guideline has a more prescriptive approach to estimating equity risk premium, what set of conditions for reopening the Guideline would best achieve the national gas and electricity objectives and the allowed rate of return objective?
8. Is the theory underlying the Black CAPM still appropriate for informing an equity beta point estimate? In its place, should alternative information to guide the selection of an equity beta point estimate?
9. What is the appropriate role of dividend growth models (DGMs) in setting the allowed return on equity?
10. Is it appropriate to limit the review of the valuation of imputation credits to updating the empirical analysis? Are there any particular issues we should take into account when updating empirical analysis?
11. Should expected inflation and its interaction with the allowed rate of return be a priority under the Guideline review?

This submission addresses each of these questions.

5. Allowed rate of return

5.1. Outcomes of the current approach

AER question 1: In your view, to what extent has the current approach to setting the allowed rate of return achieved the National Electricity Objective (NEO) and National Gas Objective (NGO), the Allowed Rate of Return Objective (ARORO), and the related revenue and pricing principles (RPPs)?

Both the NEL and NER require that the allowed rate of return:[6]

- Provides investors with the opportunity to earn a fair return on investment and that this is consistent with the long-term interests of consumers;
- Is determined with reference to a benchmark efficient entity; and
- Is determined having regard to all relevant evidence.

> The test for the fair rate of return is the reasonable long-term expectations of investors, given the risks related to the investment. The challenge for the AER is that these expectations cannot be observed directly – they must be inferred from a range of data and models that are to varying degrees imperfect and incomplete. Furthermore, the relevant expectations are the **long-term** expectations of investors.

The AER's approach to determining the ROE provides a structured framework for the consideration of a wide range of information. Some information is given greater weight – e.g. the AER's foundation model with a stable MRP. Other information – such as the estimates of the ROE and the implied MRP – is given less weight. Some information – such as the theoretical implications of the Black CAPM – is considered qualitatively. The weight given to the various categories of information is based on an assessment of the quality of the information. This approach is quite transparent and is set out in detail in the AER Rate of Return Guideline. The approach has been further clarified in the worked example in the Rate of Return Guideline and in subsequent decisions.

> While CCP16 supports the framework and the AER's approach, it is concerned that the assumptions on individual parameters may err on the high-side resulting in an overall ROR that is significantly higher than required under the NEO and ARORO.

Examples of these elevated assumptions include:

1. Beta being at the top of the range;
2. Allowed debt costs based on conservative benchmarks; and
3. The MRP still being above the long-term average despite the passage of time from the GFC and other indicators of the investment climate returning to normal levels.

MRP and the ROE

It is clear from the guidelines and subsequent decisions that the AER has given greater weight to the long-term historic average for the MRP than the most recent implied estimates from the DGM. In each of these decisions, the AER has considered the question of the MRP and ROE and whether an

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[6] In answer to question 1, this submission draws on submissions made by CCP9 to the AER in response to proposals from TransGrid for a revenue reset for 2018-19 to 2022-23 dated 12 May 2017

adjustment (other than an updating of the RFR) is required in light of the most recent relevant information, including updated estimates of the MRP using the DGM. Having considered this information, the AER has maintained its estimate of the MRP at 6.5%.

Subject to the concerns expressed above about the MRP remaining above the long-term average, CCP16 supports the AER's approach and the relatively greater weight it has given to the historical realised MRP in framing investor expectations for the future. For the reasons discussed below we conclude that the AER's approach, although not always the application of that approach, has achieved the NEO, the NGO, the ARORO and the RPPs.

From time to time, utilities argue for a higher MRP. In this analysis we draw on the recent example of TransGrid which proposed an increase in the MRP for its 2019-2023 revenue proposal from 6.5% to 7.5% (the TransGrid proposal). This was not supported by CCP9 or by the AER in its draft decision.[7] TransGrid justified its request for the higher MRP by drawing heavily on the report by Frontier Economics which concluded that:

> "*In summary, we have identified the considerations that the AER applied when selecting its Guideline MRP of 6.5%. If we apply those same sorts of considerations to the current evidence that the AER has compiled, the result is an estimate of approximately 7.5%.*
>
> *An allowed MRP of 7.5% is an outcome that lies between:*
>
> *– The view that the MRP is constant overall market conditions such that the required return on equity rises and falls one-for-one with changes in the risk-free rate; and*
>
> *– The view that the required return on equity has remained stable over the period since the Guideline.*
>
> *In our [Frontier Economics] view, 7.5% is a reasonable estimate of the MRP in light of the weight of evidence set out above – which supports the notion that the required return on equity has not declined materially since the Guideline.*"[8]

Ultimately, the AER accepted the views of CCP9 and rejected TransGrid's request for a higher MRP.

> "*TransGrid proposed a higher market risk premium than that of our draft decision. This proposal appears to be based on a mischaracterised (and mechanistic) application of our WACC Guideline. We consider the appropriate value for the market risk premium is 6.5 per cent. Our decision aligns with the position of CCP 9 which submitted that we should not accept TransGrid's proposed market risk premium.*"[9]

CCP16 agrees with the views of CCP9 and the AER's conclusion in rejecting TransGrid's request.

In reaching its conclusion to support the AER's current approach CCP16 has considered three questions:

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[7] AER Draft decision TransGrid transmission determination 2018 to 2023 September 2017
[8] TransGrid, *Revenue Proposal 2018/19-2022/23,* January 2017 at p181
[9] AER Draft decision TransGrid transmission determination 2018 to 2023 September 2017 at p22

1. Is there evidence that decisions on the RoE using the current approach have not met the NEO and ARORO?
2. Is there evidence supporting a reduction in the required expected RoE since 2013?
3. Do investment fundamentals and market evidence support maintaining the current risk premium between returns on equity investments and the RFR?

Question 1: Is there evidence that decisions under the current approach have not met the NEO and ARORO?

Market evidence on the attractiveness of the sector for investors suggests that the current approach, as implemented by the AER has more than met the requirements under the NEO and ARORO to provide the utility with the opportunity to earn a fair return. In particular:

- Acquisition values do not support the view that the allowed ROR is less than fair for investors – indeed they are more likely to be consistent with the allowed return exceeding investor expectations;
- Commentaries from brokers and rating agencies provide a positive assessment of the regulatory regime for investment; and
- Existing investors do not appear to be seeking, on balance, to reduce their exposure to the sector.

Acquisition values

The three most recent electricity network transactions are the long-term leases of the TransGrid network (2015), the Ausgrid network (2016) and the Endeavour network (2017). The winning bidders paid 1.6, 1.4 and 1.58 respectively times the RAB. These multiples are significantly above the RAB multiples commonly seen internationally (see discussion below). The multiples are also above the RAB multiple of 1.15 paid for the Sydney Desalination Plant.

As discussed in response to question 2 below, acquisition or market values need to be treated with caution. There can be good reasons for a premium that are not inconsistent with the long-term interests of consumers or indicative of an overly generous regulatory regime. But this does not mean that RAB multiples do not have some information content. CCP16 considers that a very conservative interpretation of the RAB multiples in the acquisitions of TransGrid, Ausgrid and Endeavour is that they provide strong evidence that the combined allowances for the cost of capital and tax under the AER's current framework and recent decisions are not too low. Indeed, given the magnitude of the multiples in absolute terms and relative to multiples in other regulatory jurisdictions, one could conclude that it provides evidence that the allowances are more likely to have exceeded investors' expectations for the required return on investment.

In the case of TransGrid, the consortium stated that "*the quality of the TransGrid network, the stable regulated operating environment and the consortium's ability to run the network more efficiently made the deal compelling. The consortium is betting TransGrid's two unregulated business units — a telecoms arm and connecting renewable energy to the grid — can provide growth opportunities to warrant the high price.*" It is also likely that the bidder who makes the most optimistic assessment of these opportunities will be the likely winner and this will be reflected in its bid, adding to the systematic premiums above the RAB.

Credit Suisse took into account the opportunities to improve earnings through efficiency and growth in unregulated income in developing an estimate of the value of TransGrid. It also took into account the tax benefits available. Using rate of return parameters in line with, or below,[10] those used by the AER in its decisions Credit Suisse concluded that *"Our DCF sum-of-the-parts valuation yields an estimated FY15 value of $9.394bn which is appreciably below the $10,392mn paid by Spark's consortium. … This is based on what we believe are quite generous assumptions including an initial 35% CAGR for un-regulated revenues to FY18."*[11]

There are examples in other jurisdictions of regulators taking RAB multiples into account.[12]

In summary, the information value of market valuations is recognised by other regulators who consider such information in undertaking a 'sense-check' of recommended rates of return. The persistence of high RAB multiples across several transactions and the analysis of individual transactions, such as the TransGrid transactions, strongly suggest that the allowed ROR have exceeded the ROR required by investors, given the level of risk.

Third-party Assessments

Brokers and rating agencies appear to regard the regulatory regime and the rates of return offered as positive features of the investment environment.

For example, in its report on Hastings Infrastructure Fund after the purchase of TransGrid, Credit Suisse commented that TransGrid was *"governed by a generous regulatory regime which still by design errs on the side of over-incentivising."*[13]

In its presentation for investors Jemena noted that both Moody's and Standard and Poor's referenced the maturity and strength of the regulatory regimes in providing the underpinning for the regulated businesses cash flows.

Existing Investors responses

If the ROR offered were less than fair, one would expect to see investors seeking to reduce their exposure to the sector. This could occur though an increase in gearing as the investor converts equity into debt.   From the evidence available to CCP16, there is no sign of an increase in gearing. For example, the Frontier Economics study on beta did not suggest any significant change in gearing was occurring:

> *"We note that the average leverage is reduced by the inclusion of AGL and Alinta – both of which had maintained low leverage in order to preserve borrowing capacity to enable them to acquire assets during a time of industry consolidation. But for these two firms, the mean leverage is again very close to the 60% gearing assumption adopted by the AER."* [14]

This apparent stability in gearing is occurring at a time when the RABs continue to increase – see for example the proposed 17% increase in TransGrid's RAB in the TransGrid proposal. The generally

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[10] Credit Suisse used a MRP of 6.0% rather than 6.5%

[11] Credit Suisse, *Spark Infrastructure Group, Equity Research*, 25 November 2015

[12] See the Attachment to this submission – *Regulatory precedents for the use of RAB multiples*

[13] Credit Suisse, *Spark Infrastructure Group, Equity Research,* 25 November 2015 at p1

[14] Jemena Electricity Networks (Vic) Ltd 2016-20 Electricity Distribution Price Review Regulatory Proposal Revocation and substitution submission, Attachment 6-6 Frontier Economics - Estimating the equity beta for the benchmark efficient entity at p10

moderate levels of debt of the regulated utilities and sound credit ratings do not suggest that this increase in equity exposure to the sector is due to a lack of capacity to borrow more. For example, SGSPAA has a rating of Moody's: A3 (Stable) / Standard & Poor's: BBB+ (Stable), has maintained a stable gearing of around 50%, which is below the metric for maintaining investment grade debt of 65%, while its RAB is increasing (for example, SGSPAA projected increases in the RAB for its Electricity and Gas networks in Victoria of 6.6% p.a. and 3.7% p.a., respectively, over 2015-2020).[15]

Question 2: Is there evidence supporting a reduction in the required expected ROE since 2013?

There are additional indicators of investment climate that can put the trends in the allowed ROR and assumptions on individual parameters in context. The allowed ROR has been declining but this is quite reasonable in the context of market trends.

For example, the chart below shows the forward price/earnings ratio for Australian stocks since 2000.[16] This is the ratio of stock prices relative to forecast earnings. As expected, it fell substantially during the GFC, and then went through a period of instability. However, since 2012 the forward price earnings ratio has returned to previous levels and recently been relatively stable.

Figure 1: Forward price/earnings ratio for Australian stocks since 2000

Sources: Bloomberg; MSCI; Thomson Reuters

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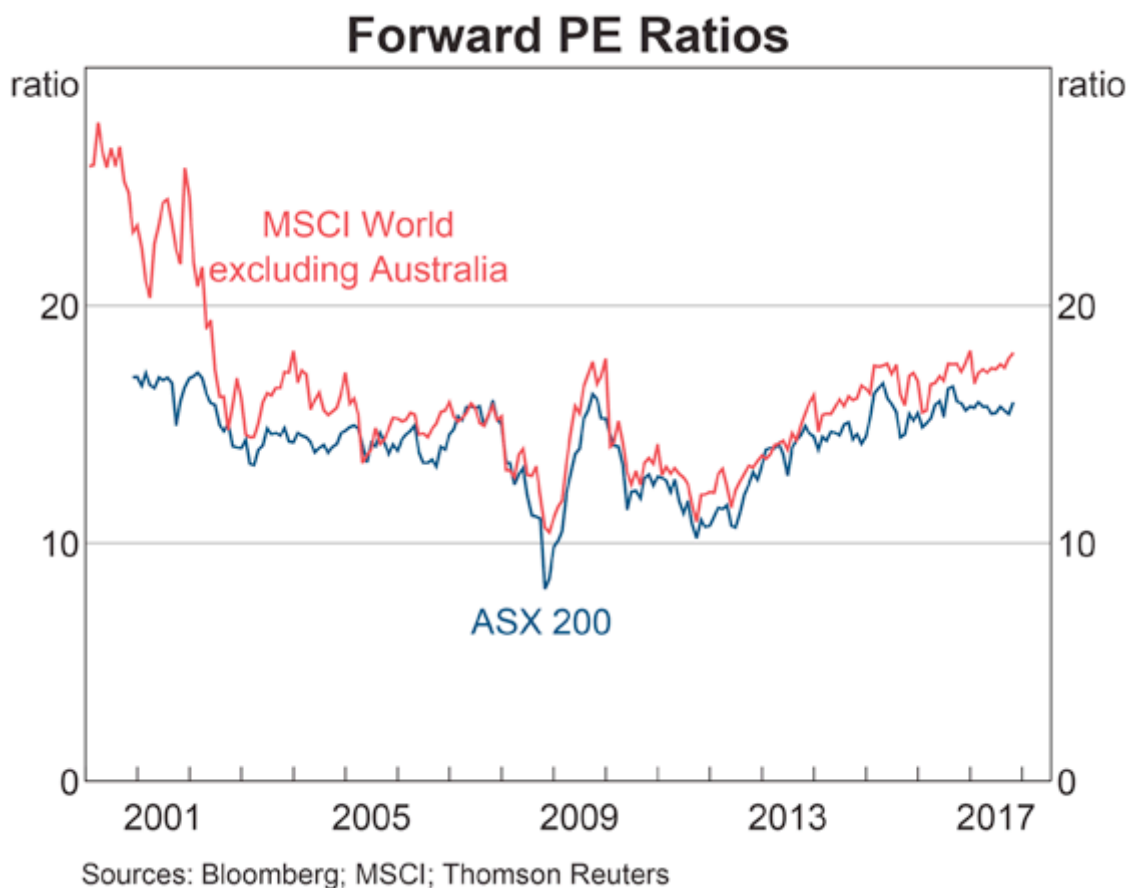
[15] Jemena, *Investor Update,* June 2016, downloaded from: www.jemena.com.au/getattachment/About/investors/investor-information/SGSPAA-Investor-Presentation-June-16-Roadshow.pdf

[16] Reserve Bank of Australia, *Chart Pack*, December 2017 accessed at www.rba.gov.au

Like the DGM, the forward P/E ratio is a measure of the relationship of the asset's price and the expected earnings[17]. In principle, the P/E ratio would rise (other things being equal) with a fall in the required return on equity, which is the sum of the RFR and the MRP.

Through changes in other assumptions – such as expected long-term growth rates – a higher P/E ratio can be reconciled with a higher required rate of return under the DGM. However, the rise in the P/E ratio is more likely to reflect a decline in the ROE. Hence, it is important to examine the fundamental drivers of risk and return in considering the evidence put forward of a higher MRP.

In its advice to TransGrid for the Power Sydney's Future RIT-T, Houston Kemp commented:

> "*TransGrid Australia's RIT-T Handbook (July 2011) recommends that a commercial discount rate of 10 per cent (real pre-tax) be adopted in any RIT-T assessment unless there is compelling evidence to adopt a different rate. In this section, we identify that financial conditions have changed since Grid Australia recommended a 10 per cent commercial discount rate, with rates on both risk free and risky assets falling since July 2011.*"[18]

In estimating the indicative mid-point commercial discount rate Houston Kemp assumed a ROE (with a beta of one) of 8.4% "*within the AER's Capital Asset Pricing Model*"(p.8). While Houston Kemp was obliged to use regulated returns to establish the low range for the discount rate, they were not obliged to do so in estimating the mid-point indicative return – as shown by the use of a market average gearing of 28%.

Question 3: Do investment fundamentals and market evidence support maintaining the current risk premium between returns on equity investments and the RFR?

Other indicators also indicate an improving climate for investment that would support the reduction in the ROR and a reduction in the market risk premium to roll-back the increase in 2013.

First, it should be noted that a component of the reduction in the yield on 10-year CGS (the RFR) has been due to a decline in inflation a reduction in the real risk-free rate. Between December 2013 and September 2017 nominal bond yields fell by 1.5% and inflation expectations implied from the difference between nominal and indexed bond yields fell by 0.8%.

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[17] Indeed, with stable returns the DGM model can be expressed in regard to the P/E and the growth rate
[18] Appendix C of TransGrid, Powering Sydney's Future, PADR, May 2017, Houston Kemp, The Commercial Discount Rate to be used in the RIT-T Test, September 2016 at p5

Table 1: Government bond yields and implied inflation expectations

	10-year Govt Bond Yields	Implied Inflation expectations[1]
December, 2013	4.24	2.6
December, 2014	2.96	2.3
December, 2015	2.85	2.2
December, 2016	2.79	2.0
September 2017	2.70	1.8

1. Average annual inflation rate implied by the difference between 10-year nominal bond yield and 10-year inflation indexed bond yield; End-quarter observation

Source: RBA Statistics, Tables on Inflation expectations and monthly Government interest rates

The question then is whether one would in principle expect that the expected ROE would similarly fall or the MRP increase. Under "the Wright approach" it is the real RoE that is assumed constant over the long term.

> "*Mason, Miles & Wright (2003, hereafter MMR) proposed a methodology in which the real market cost of equity (that is, the expected real return on investments in the equities of a firm with a CAPM β of precisely one), should be assumed constant, and set in the light of realised historic real returns over long samples*".[19]

Hence, the relevant change in question is the 0.7% real reduction in the RFR. This requires consideration of whether investment fundamentals and other information support the DGM estimates and an increase in the MRP relative to the previous decisions of the AER, or whether in fact the investment fundamentals support a reduction in the MRP.

Professor Damodaran similarly adopts a fundamentals approach when examining the market risk premium and the latest evidence from the DGM models and other information.[20] The MRP is the additional return for holding an asset with the average market risk rather than a MRP and should reflect a level of market uncertainty and risks. Damodaran lists the following factors that should determine the market risk premium:

1. risk aversion and consumption preferences
2. economic risk
3. information and volatility of returns
4. liquidity and funds management
5. catastrophic factors
6. government policy changes
7. monetary policy

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[19] S Wright and A Smithers, *The Cost of Equity Capital for Regulated Companies: A Review for Ofgem* at p3
[20] A Damodaran, *Equity Risk Premiums (ERP): Determinants, Estimation and Implications – The 2016 Edition Updated: March 2016* at pp10-21

8. the behavioural/irrational component

The most relevant factors in the period since 2013 are 2, 3, and 4 – the broadly defined economic conditions. Except for the last factor, the others have been broadly stable. The last – the behavioural/irrational component – is important as it acts as a caution against putting too much weight on short term movements.

CCP16 suggests that a careful consideration of these investment fundamentals would not support any increase in the MRP. Indeed, these factors support a reduction in the MRP. The period since 2013 has been a period of sluggish but relatively stable growth. Typical measures of market and economic uncertainty – or conditioning variables – are interest spreads and the VIX index have seen some degree of volatility but not to the degree of the preceding period. Furthermore, overall market conditions do not appear markedly different to conditions in 2013. This is supported by evidence on the conditioning variables presented by Frontier Economics in their report for the TransGrid proposal. For example:

- Dividend yields shown in Figure 14 of the Frontier Economics Report have not been significantly more variable in the period since 2012-13 than in periods prior to the GFC, nor are the recent yields shown substantially higher than in 2012-13.
- Figure 15 shows that while there have been some periods of increased volatilities in stock options in the period since 2012-12, these have been limited and the overall picture is one of lower volatility over the period. Volatility at the end of the period covered by the Figure was similar to that in 2012-13. The VIX index published by Standard and Poor's shows further reductions since then to levels of volatility at or near 10-year lows.
- Bond spreads (Figure 16 in the Frontier Economics report) spiked in 2016, but more recent data shows a return to levels comparable to, or below, 2012-13 – see Figure 2 below – a point that again highlights the risk of placing too much weight on short term movements in data.

Figure 2: Average corporate bond spreads

Australian Corporate Bond Spreads*
Spread over government yields

* Swap spreads are for 3-year maturity; corporate bond spreads are a weighted average of senior bonds with remaining maturities of 1 to 5 years, including financial and non-financial corporations

Sources: Bloomberg; RBA; UBS AG, Australia Branch
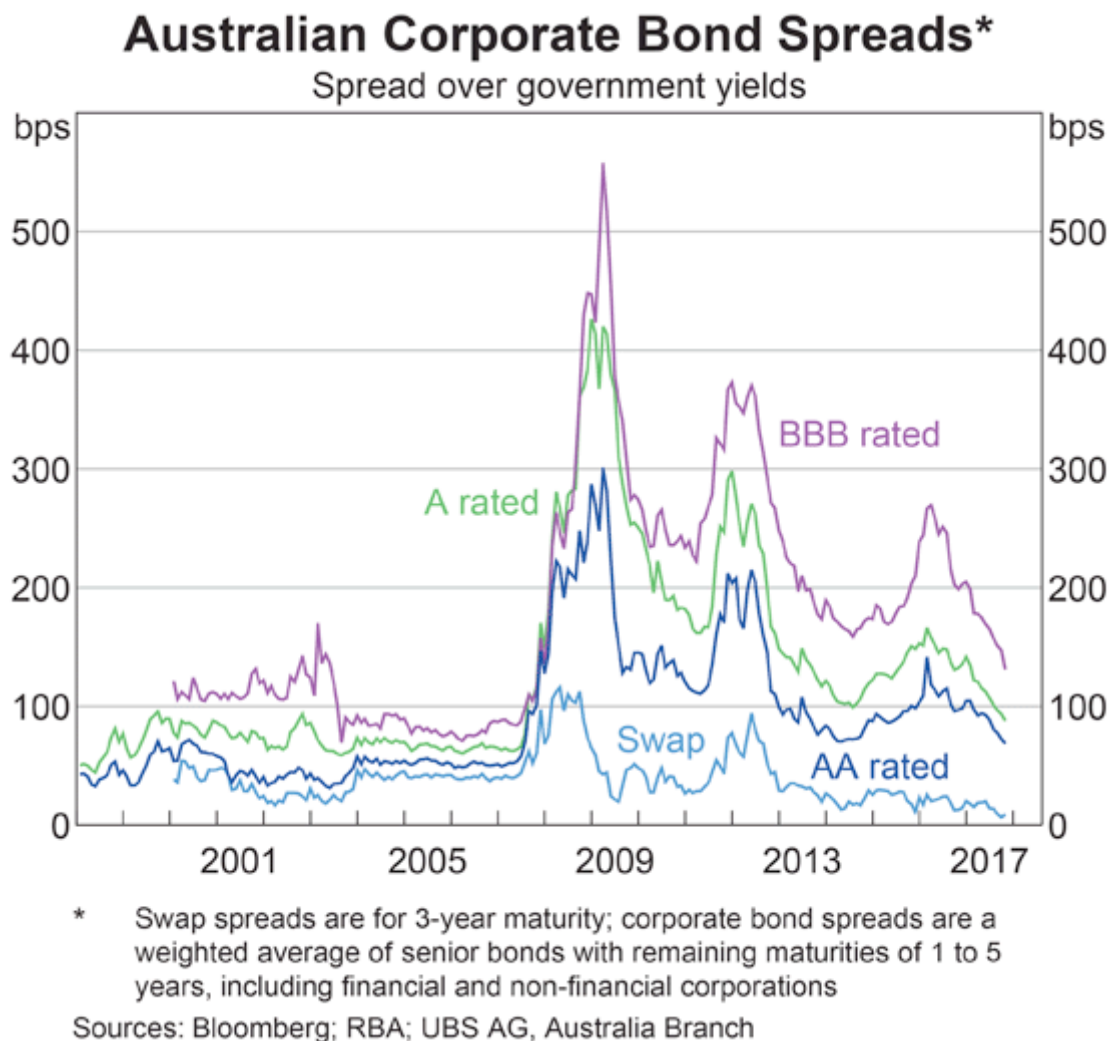
Source: RBA Chart Pack, December 2017

5.2. Role of profitability measures in the determination of the WACC and ROE

AER question 2: Should information on profitability, asset sales, financeability and any other financial information be used when assessing outcomes against the NEO and NGO, ARORO, and the related RPPs? If so, how?

5.2.1. Summary of Response

Comparisons of profitability and RAB multiples provide relevant information on the relative profitability of energy networks that should be used in assessing outcomes against the NEO/NGO and ARORO. These measures provide directly observable evidence on whether the outcomes for the allowed rate of return based on the economic/finance models meet, but do not exceed, in practice the reasonable expectations of investors and the requirements of the NEO/NGO and ARORO. It follows that since such measures can help the AER assess whether previously determined rates of return meet the requirements of the NEO/NGO and ARORO these measures should also be considered in future determinations of the ROR and ROE.

Financeability tests and sensitivity tests of the likely ROE under a range of scenarios can be used to test the financial sustainability of a proposed determination, but should not be used to directly determine the ROE or ROR allowed.

These recommendations would better align AER's approach with best practice of other regulators.

The CCP submission to the AER's current review of "Profitability measures for regulated gas and electricity network businesses" provides more detail.[21]

5.2.2. Approach to the use of information in determining the rate of return

Determining the rate of return is an exercise in decision-making under uncertainty. There is not a single perfect model or set of information on the expectations for rates of return. Rather there are a range of models/information that need to be considered by the regulator in determining the expected rate of return to be incorporated in the cost building blocks. Stakeholders can expect that the regulator will consider all relevant information, but that not all information will be considered with equal weight. There must be a transparent process by which the strength and relevance of the information is assessed and weighted (qualitatively or quantitatively) in the decision process. This framework for considering underpins the AER's current approach to the determination of the ROR.

In framing the questions in regard to the use of profitability measures, the Issues Paper[22] raises doubts as to the suitability of the measures including:

- 'financeability analysis typically employs a range of assumptions and qualitative judgements which limits its usefulness';
- 'transaction multiples do not provide a definitive answer to the specific return investors require'; and
- 'differences in estimated regulatory return… could be due to a range of factors'.

These observations are correct, but it does not then follow that the measures do not have relevant substantive information. Such criticisms could be made of all the models and information available to the AER in determining the ROR. The regulator needs to assess the information in the measures and determine from this analysis whether the information is relevant and should be considered and, if so, what weight is to be given to the information. In undertaking such an assessment, the regulator

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[21] See www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/profitability-measures-for-regulated-electricity-and-gas-network-businesses

[22] at pp16-17

is able to call on the practice of other regulators including the ACCC in its recent investigation of returns on gas pipelines. The AER could also use its extensive information gathering powers to expand the type and relevance of the data collected from the businesses.

5.2.3. Role of profitability measures

Customers understand that the utilities should be able to earn a profit appropriate for the level of risk, and they expect that the regulator will ensure that utilities do not earn monopoly profits. From this perspective, it may appear obvious that the practical consideration of the level of profits and the comparison with the profitability of other businesses should be an integral part of the assessment of the reasonable level of profits that should be 'allowed'.[23] Indeed, a regulatory framework that persistently 'allowed' profits for regulated utilities to significantly exceed those of comparable businesses would lose its legitimacy and would not be sustainable. The inevitable pressures to change the regulatory rules would be irresistible. As noted above, consumer groups and the CCP have previously raised precisely these concerns: that in practice the profits of the regulated businesses seem high compared to other businesses.

However, regulation in Australia has taken a highly theoretical approach to determining the rate of return that has not considered profitability in practice. As the Profitability Measures discussion paper states:

> "*This approach does not consider profitability when setting annual revenue requirements for regulated businesses and we note that the NER and NGR **do not require** profitability to be considered.*"[24] [Emphasis added]

While the NER and NGR do not require the consideration of profitability, they do not prohibit the use of profitability comparisons. Furthermore, consideration of profitability measures is consistent with the emphasis in the rule change on the Economic Regulation of Network Service Providers (November 2012) which emphasised the need to consider a range of models and sources of information in determining the rate of return and that the rate of return should reflect conditions in the financial markets. This would also be more consistent with the practice of other regulators. The recent emphasis in the decisions of the Tribunals and the Courts that regulation of monopolies is designed to replicate the outcomes of a 'workably competitive market' is further indication that profitability is a relevant measure to assess the quality of the regulator's decisions.

Hence, CCP16 supports the AER's exploration of profitability measures. However, it is important to understand how the measures of profitability could be used.

Profitability measures could help address three questions:

1. Are actual returns higher than allowed? If so why, and is a regulatory response required? This can help shed light on whether the utilities consistently out-perform targets. If they do, the issue

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[23] It is important to note that incentive based regulation, as implemented by the building block approach, does not 'allow' a particular level of profitability. It incorporates a return on capital as part of the building blocks. Actual profitability will depend on the performance of the utility relative to the allowances set by the regulator.

[24] AER Discussion Paper, *Profitability measures for regulated gas and electricity network business,* November 2017 at p3

is whether the AER should tighten the targets or take comfort that the incentives are working and the outcomes will be in the long term interests of consumers

2. Are actual returns higher than in comparable businesses? If so why, and is a regulatory response required? For example, does it suggest a possible tightening of the allowed ROR, recognising that the higher profits may be because the utility is responding to incentives

3. Is the allowed return higher that the investors' expectations? If so why, and is a response required. This question goes directly to how the AER sets the ROR.

All measures of profitability are likely to be imperfect in some ways and better suited for some purposes than others. Consequently, it will be necessary to consider a range of measures, with some being given more weight for some purposes, and less weight for other purposes. For example, the ratio of market value to RAB provides information on the relativity of the allowed ROR to the expected rate of return necessary for investors. While the latter is unobservable, a range for the required ROR can be derived by peeling away estimates of the other sources of value. In contrast, the other measures of profitability provide more indirect indicators of the relativity of allowed and expected returns.

Profitability measures can help inform decisions on the ROR, but cannot be used mechanically. Once the relative profitability is observed, it is important to ask why it is what it is. An EBIT/RAB that is higher than the allowed ROR may not necessarily signal a problem with the regulation. Instead it may signal that regulation is working in the long-term interests of consumers by encouraging sustainable efficiency gains that reveal lower costs on which to base future prices. Or it may be encouraging improvements in service levels that consumers value more than the cost of achieving them. However, higher profits may also signal opportunities to improve regulation. For example, if across multiple decisions utilities spend significantly less on capex than was expected, does this indicate a larger-than-expected scope for efficiency improvement, or a bias in the estimation of efficient capex requirements? If the latter, it may stimulate a review of the approach to estimating efficient capex. If across multiple decisions utilities earn service incentive rewards (i.e. customers pay more for better measured service standards), does it indicate that consumers are getting better value for money? The regulator should first ensure that it does not reflect a bias in performance measurement or the setting of targets. The regulators should also ensure that the outcomes are consistent with customer preferences, and that the incentives to use efficiency gains to reduce costs or prices reflect those preferences. A consistent message from the consumer engagement by the NSW electricity networks with their customers as part of the 2019-2024 reset, is that consumers do not want to pay more for higher service standards. If so, would customers prefer that efficiency gains be used to set a lower cost base for the next reset with the current service standards, or improve the quality of service within the current cost envelope?

A comparison of performance against different measures of profitability can also provide insights. For example, if across multiple decisions the EBIT/RAB ratio is comparable to the allowed WACC but the return on equity is significantly above the ROE within the allowed ROR it may suggest either:

a) The tax allowed is higher than the actual tax paid;

b) Actual gearing levels are significantly different from the assumed level; and/or

c) Actual debt costs are significantly below the benchmark debt costs assumed. Lower actual debt costs could be because the utilities have better credit ratings than assumed, or because lenders perceive that regulated utilities have lower business risks that are not fully reflected in the ratings and are willing to lend at lower rates than the benchmark rates for comparable businesses. This is also discussed in response to Question 6 below.

5.2.4. Proposed measures of profitability

The McGrathNicol report for the AER[25] examined 14 measures which can be grouped into measures of:

1. the overall profitability or return on assets or capital employed;
2. the return on equity;
3. operating margin; or
4. firm value and expected returns.

The McGrathNicol report recommended the use of Return on Assets (EBIT) and consideration of the use of:

1. Return on Equity (net profit after tax/equity);
2. operating profit per customer; and
3. economic profit (EBIT – pre-tax WACC*RAB)

In the CCP's separate submission to the AER's discussion paper on Profitability measures for regulated gas and electricity network businesses (the AER profitability discussion paper) , the CCP supported the use of these measures plus RAB multiples. CCP16 submits that most weight should be given to RAB multiples, EBIT/RAB measures, Return on Equity (especially in comparison to EBIT/RAB and the respective regulatory allowances). None of these measures is perfect, and each requires further analysis and interpretation to extract the most relevant information.

The advantage of EBIT/RAB is that it is:

* relatively simple to calculate;
* widely used; and
* less sensitive to business-specific factors like gearing and asset intensity.

The key problem with the measure is that it does not appear to include the other source of return for the owner of the regulated networks – the capital appreciation due to the indexation of the RAB. This does not provide income now, but it provides wealth and the promise of income in the future. The absence of explicit consideration of this highlights an important weakness of the McGrathNicol report that flows through to the AER profitability discussion paper. It does not draw out the possible implications of comparing businesses that by virtue of the regulatory framework operate under a current cost accounting framework (with real financial capital maintenance), with unregulated businesses that are still operating in a historic cost accounting world (with nominal financial capital maintenance). It should be noted, however, that this concern applies to all the measures of return on assets or ROE proposed.

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[25] McGrathNicol *Review of measures of financial performance that could be applied to the Electricity and Gas businesses the AER regulates – Final Report* – 15 June 2017

The same issues that arise in the comparison of EBIT/RAB for energy networks with unregulated businesses also arise in the comparison of ROE. Additionally, the ROE is more sensitive to actual gearing levels, debt costs and risk. However, overall ROE is the most commonly used and most comprehensive measure of the profits available for owners in the current period (exclusive of capital appreciation). As noted above, comparisons of the relativity of ROE and EBIT/RAB can also highlight potential issues in the allowances for interest and tax.

RAB multiples (i.e. market value/RAB) should be included in the profitability measures considered by the AER. RAB multiples provide the most direct information available on the relativity of allowed and expected returns on capital or equity and are easily observed at the time of transactions. They are commonly used by other regulators and by investment advisors in examining transactions. Market value/RAB is the application to the regulated utilities of Tobin's q ratio, which is widely recognised in theory and investment practice. In particular, it has long been used as an indicator of market power. Importantly the Market Value/RAB takes into account the investors' perceptions of the risk for cash flows from all sources, including technological change.

The weakness of the RAB multiple measures is that further analysis is required to make the best use of the information on the relativity of expected and actual return. As such, it cannot be used in a mechanical manner. Such criticisms can also be applied to other measures of profitability when used to compare profitability across sectors and between regulated and unregulated businesses. While Tobin's q ratio is commonly used to compare profitability or investment value across businesses, it is not proposed that the AER use it for this purpose. The primary use would be as a benchmark for assessing the relativity of expected and allowed returns.

The McGrathNicol report does not recommend the use of RAB multiples, but its assessment (p35) is flawed in several respects:

1. It assumes that RAB multiples would be estimated continuously and for non-listed entities. This is neither practical nor the intention nor how other regulators have used RAB multiples. RAB multiples would be observed at the time of transactions or for listed regulated businesses where the energy networks are the dominant component of the business. This avoids many of the measurement problems highlighted by McGrathNicol. Some recent RAB multiples are discussed above.
2. It states that it is not a common measure of profitability. However, the RAB multiple is simply the application of Tobin's q ratio to regulated businesses. Tobin's q is widely used as a signal of excess profits/market power, and over or under-valuation of assets.
3. Its assessment does not draw on the relevant body of experience with the use of RAB multiples. RAB multiples are commonly used qualitatively by other regulators, and as a basis for analysis and decomposition of transaction values by investment advisors, but this is not referenced or discussed in the report.

Annex 1 of the CCP submission on profitability measures provides further information on the derivation of the RAB multiple as an application of Tobin's q ratio, the widespread use of Tobin's q as a practical high-level benchmark, and the use in practice of RAB multiples by other regulators. It also provides precedents for the decomposition of value sources to better highlight the information on the expected return on capital or equity that can be derived from RAB multiples.

5.2.5. Role of financeability analysis

Other regulators have made greater use of financeability tests than the AER. It is common practice among regulators in the UK[26], and is also used by other regulators such as IPART. It should be noted that the UK regulators have a financing duty, that is not explicitly present in the NEO/NGO and ARORO, in addition to the primary objective of the long-term interests of the consumer.

Such tests use the financing ratios commonly used by rating agencies, such as debt to equity and interest cover measures, to test the sustainability of the overall decision proposed to be made. The most common benchmark for sustainability is that the regulated business can at least maintain financial ratios consistent with a credit rating of BBB or BBB+.[27] Three key principles have been adopted in applying financeability tests:

1. It is a cross-check of the regulator's decision, not a driver of the decision.
2. The primary responsibility for addressing financing issues – including through equity injections - rests with the utility – as the utility is best placed to understand and manage these risks.
3. If a financeability adjustment is made, it must be transparent and revenue neutral.

These are important principles to ensure that financeability tests do not displace the current framework. In applying the tests regulators commonly assume benchmark gearing and opex and capex in line with the regulators' assumptions so that it does not provide cover for poor management.

More recently, Ofwat and Ofgem have adopted the approach of testing the impact of a range of scenarios on the likely outcome for the ROE. This is another potentially useful means of testing the sustainability of a regulatory decision.

In principle, there is merit in the AER considering the use of these benchmarks as a cross-check of the sustainability of the decision for the utility and customers rather than as a determinant of the ROR. From the consumers' perspective it is essential that:

1. The three principles set out immediately above be adopted; and
2. It should not be presumed that any adjustment should go in one direction – for the utility – only.

5.3. Benchmark gearing and term

AER question 3: Is the current approach to setting the benchmark term and level of gearing appropriate?

The AER's current position is that an efficient provider of energy network services would:

- Finance 40% of its capital with equity;
- Use debt to finance 60% of its capital; and
- Issue debt with a 10-year term to maturity.

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[26] See, for example, Ofgem and Ofwat, Financing Networks: A discussion paper, February 2006; Ofwat, Financeability and financing the asset base – a discussion paper, 2015; Ofgem, RIIO-GD1: Final Proposals - Finance and uncertainty supporting document, 2012; Joint Regulators Group (JRG), Cost of Capital and Financeability, March 2013

[27] The ratios are usually calculated using the benchmark gearing but IPART uses the actual gearing.

The AER's level of gearing (60:40 debt to equity) and term (10 years) has been generally well accepted are broadly consistent with common regulatory practice under incentive based regulation.

Gearing

While CCP16 is aware of some higher gearing ratios – closer to 70% - in the case of some wholly Government owned networks and recently privatised networks, CCP16 is not aware of utilities questioning the 60:40 gearing or 10-year term in recent revenue proposals to the AER.

> CCP16 submits that the AER should continue to observe the actual gearing of the regulated utilities, as far as possible. If it finds systematic changes in the level of gearing it may signal a need to reconsider the benchmark gearing.

The AER's assumptions on gearing are broadly consistent with UK regulatory practice. The following tables are extracted from a study of WACC and financeability, including gearing ratios, used by UK regulators.[28]

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[28] *Cost of Capital and Financeability* published by the Joint Regulators Group (JRG) March 2013 at pp23-27

Annex 2 Financing assumptions in recent price controls

Annex 2.1 CAA financing assumptions in recent price controls

Regulator	CAA			
	NATS	Heathrow	Gatwick	Stansted
Price Control	CP3/RP1	Q5	Q5	Q5
Period	2011-4	2008-2013 (extended to 2014)		2009 – 2014
Cost of equity				
Risk free rate	1.75%	2.5%	2.5%	2.0%
Equity beta	1.35	1.14	1.27	1.2
Asset beta	0.60	0.52*	0.57*	0.65*
Debt beta (for Ke only)	0.1	0.1	0.1	0.1
Equity risk premium	5.25%	4.24%*	4.24%*	4.67%*
Cost of Equity (post-tax)	8.8%	7.33%	7.86%	7.6%
Cost of debt				
Cost of debt (gross of tax shield)	3.6%	3.55%	3.55%	3.64%*
Notional gearing	60%	60%	60%	50%
Tax (NATS= forecast, Airports = statutory)	27%	28%	28%	28%
WACC				
Real pre-tax	7.0%			
Vanilla	5.7%	5.06%	5.28%	5.62%
Post tax	5.11%	4.46%	4.24%	5.11%
Other financial metrics				
Dividend yield on equity RAB	n/a	n/a	n/a	n/a
Cost of raising new equity	n/a	0	0	0
Amount of debt assumed index linked	n/a	50%	50%	50%
Key financial indicators				
Cash interest cover	4.9xmin	o/s	o/s	o/s
Adjusted interest cover ratio	1.71xmin	o/s	o/s	o/s
Funds from operations / debt	n/a	o/s	o/s	o/s
Retained cash flow / debt	n/a	o/s	o/s	o/s
Gearing (net debt / regulatory capital value)	66%max	60%	60%	50%

* Implied point estimates from the component ranges

Annex 2.2 Ofcom financing assumptions in recent price controls – all have been appealed

Regulator	Ofcom		
	BT Estimate for BT Group	Openreach	An efficient mobile operator
Price Control	WBA CC	WBA CC	MCT
Period	Set in July 2011	Set in July 2011	Set in January 2011
Cost of equity Risk free rate	1.4%	1.4%	1.5%
Asset beta	0.525	0.41-0.55	0.56
Equity beta	0.77 - 1.04	0.67-0.94	0.76
Equity risk premium	5%	5%	5%
Cost of Equity (post-tax)	8.3 - 9.6%	7.8%-9.1%	7.8%
Cost of debt Cost of debt (pre tax)	6.4 - 6.9%	6.4%	5.5%
Notional gearing	50%	50%	30%
WACC Real pre-tax	6.1%	5.6%	6.2%

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Annex 2.3 Ofgem financing assumptions in recent price controls

Regulator	Ofgem				
	Electricity Distribution	Gas Distribution	Electricity Transmission		
Price Control	**DPCR5**	**RIIO-GD1**	**RIIO-T1**		
			NGGT	NGET	SHETL/SPTL
Period	2010-2015	2013-2021	2013-2021	2013-2021	2013-2021
Cost of Equity					
Risk-free Rate	2.0%	2.0%	2.0%	2.0%	2.0%
Equity Beta	0.9	0.9	0.91	0.95	0.95
Equity Risk Premium	5.25%	5.25%	5.25%	5.25%	5.25%
Cost of Equity (post-tax)	6.7%	6.7%	6.8%	7.0%	7.0%
Cost of Debt					
Cost of Debt (gross of tax shield)[16]	3.60%	2.92%	2.92%	2.92%	2.92%
Notional Gearing	65%	65%	62.5%	60%	55.0%
WACC					
Real Pre-Tax	5.61%	4.95%	5.13%	5.38%	5.69%
Vanilla	4.69%	4.25%	4.37%	4.55%	4.75%
Post-Tax	4.04%	3.82%	3.95%	4.14%	4.38%
Other financial metrics					
Dividend yield on equity RAB	5%	5%	5%	5%	5%
Cost of raising new equity	n/a	5%	5%	2.5%	5%
Amount of debt assumed index linked	n/a	25%	25%	25%	0%
Key financial indicators					
Cash interest cover	3	2.5-3.0	2.5-3.0	2.5-3.0	2.5-3.0
Adjusted interested cover ratio		1.4-1.7	1.4-1.7	1.4-1.7	1.4-1.7
Funds from operations / debt		8-12%	8-12%	8-12%	8-12%
Retained cash flow / debt	9%	5-9%	5-9%	5-9%	5-9%
Gearing (net debt / regulatory capital value)	70%	65-80%	65-80%	60-70%	60-70%

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[16] Subject to annual indexation

Annex 2.4 Ofwat financing assumptions in recent price controls

Regulator	Ofwat
	Water
Price Control	PR09
Period	2010/11 - 2014/15
Cost of equity	
Risk free rate	2.0%
Equity beta	0.9
Equity risk premium	5.4%
Cost of Equity (post-tax)	7.1%
Cost of debt	
Cost of debt (gross of tax shield)	3.6%
Notional gearing	57.5%
WACC	
Real pre-tax	6.3%
Vanilla	5.1%
Post tax	4.5%
Other financial metrics	
Dividend yield on equity RAB and year in year growth	5.0% yield and 2.1% growth
Cost of raising new equity	5.0%
Amount of debt assumed index linked	30%
Key financial indicators – average over a CP	
Cash interest cover (finds from operations: net interest)	About 3.0 times
Adjusted interest cover ratio (funds from operations less capital charges; net interest)	About 1.6 times
Funds from operations / debt	About 13%
Retained cash flow / debt	About 8%
Gearing (net debt / regulatory capital value)	Below 65%

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Annex 2.5 ORR financing assumptions in recent price controls

Regulator	ORR
	Network Rail
Price Control	PR 08
Period	2009/10 - 2013/14
WACC Real pre-tax[17]	5.80%
Vanilla	4.75%
Post tax	4.18%
Key financial indicators – average over a CP	Forecast
Cash interest cover (finds from operations: net interest)	3.1
Adjusted interest cover ratio	1.7
Funds from operations / debt	13.3%
FFO / total debt	n/a
Retained cash flow / debt	9.1%
Gearing (net debt / regulatory capital value)	63.1% (70-75% is the limit in Network Rail's licence condition)

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[17] The ORR took a broad brush approach to the cost of capital for the investment framework in PR08 and used 6% as the cost of capital.

The UK Joint Regulators Group comprising several of the UK regulators observed: "*In estimating the WACC regulators have to estimate the cost of debt and determine the appropriate level of notional gearing. The Splice 1 group members have taken fairly consistent approaches to determining the cost of debt using a rate fixed for the duration of the price control period that reflects a mixture of historical benchmark yields and expected future yields over the period, using market evidence as*

appropriate. In general, the Splice 1 group also take into account that an efficiently financed company would have a debt portfolio built up over a number of years, some of which will be at a fixed rate."[29]

In the Issues Paper the AER proposes to reconsider the types of gearing measures that should be benchmarked, specifically whether market or book values should be used.[30] In its survey of European valuation experts Bancel and Mittoo observes less than half of the experts use the target market value gearing and a significant percentage use book value gearing (34%) and sector gearing (31%).[31] Bancel and Mittoo comment on this:

> "*Why book values are still popular with experts despite their limitations? It may be because the data are easily available. The comments of an expert we interviewed sheds some light on the prevalence of book values 'book value is a proxy that is far from perfect, but that may not be more 'false' than other measures.' This expert also mentioned that 'Considering the book value makes sense when the return on capital engaged is not far the WACC because, in that case, the book value of the firm equals its market value.'*"[32]

Benchmark term

Common commercial practice uses 5-10 year terms for bond maturity. A survey of 356 valuation experts across 10 European countries resulted in an equal number of those surveyed choosing a 5 year and a ten-year bond maturity. [33] It has been argued that because of the longer asset lives for regulated networks the regulator should choose a term at the higher end of the range used commercially. Choosing a longer term is consistent with the AER's approach to the current Guideline:

> "*Conceptually we consider that businesses will seek to issue longer-term debt. As the assets are long-lived the fewer times that the debt which funds them is required to be refinanced, the lesser is the rick. The risk consists of firstly, securing funding and secondly, with securing this funding at rates which do not vary considerably from the prevailing rates associated with financing that debt. Generally, the cost of longer term debt is higher than shorter term debt as debt holders require compensation for the risks associated with holding debt over a longer time period.*"[34]

By contrast, it has been argued by some, for example Professor Martin Lally and Prof Kevin Davis,[35] that a shorter term should be used to match the 5-year term of the AER's regulatory determinations. The argument is that this can preserve NPV neutrality and that, if the on-the-day rate is used a 5-year term means that it is easier to hedge interest rate risk. However, this argument has not been generally accepted and is no longer appropriate given the AER's shift to a trailing average. We agree with the AER's conclusion when making the current Guideline that: "*An assumption of NPV neutrality*

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[29] *Cost of Capital and Financeability* published by the Joint Regulators Group (JRG) March 2013 at p9
[30] AER Issues Paper at p18
[31] *The Gap between Theory and Practice of Firm Valuation: Survey of European Valuation Experts*, Franck Bancel, Usha Mittoo, March 2014, Figure 3.1 at p10-11
[32] Ibid at p11
[33] Ibid Figure 3.3 at p12
[34] AER *Better Regulation Explanatory Statement Rate of return Guideline* December 2013 at p136
[35] PIAC *submission to the AER 2013 draft guideline*, October 2013 at p 49

over a five-year regulatory period, may, on average, be unlikely to equal the firms' debt financing costs."[36]

The argument in favour of a 10-year term, rather than a shorter term, is that regulated energy assets are long term assets and that utilities would generally seek long term funding to better match the asset lives. Hence for longer term assets such as these one would expect practice to be at the higher end of the typical commercial range. While firms may want to finance over longer terms, such debt is not as readily available and more difficult for the regulator to observe rates leading to a lack of liquidity.

CCP16 is not aware of any evidence of a shift to shorter debt financing periods that would support a lowering of the 10-year benchmark term. We recommend that the AER continue to monitor the average debt term at issuance of the networks against the 10-year benchmark term.

5.4. Prescription in setting averaging periods

AER question 4: Should the conditions and process for setting averaging periods be refined?

CCP16 agrees with the AER that its current approach of using Commonwealth Government Security (CGS) yields for setting the risk free rate (RFR) used in the ROE is reasonable and is consistent with international regulatory practice. The Bancel and Mittoo survey of European valuation experts discussed above demonstrates acceptance of the use of a country's sovereign T-bill or T-bonds as a proxy for this rate, with most valuation experts using a 10-year maturity. One of the questions posed to those surveyed by Bancel and Mittoo concerning the estimation of the RFR was "*Which sovereign bond do you use*?" Approximately two-thirds of respondents use the country's sovereign bond to proxy risk-free rate.[37]

Bancel and Mittoo observe: "*The popularity of a 10-year bond maturity bond could be explained by its high liquidity and the proximity of its time horizon to long-term investment horizons.*"[38]

CCP16 supports the AER continuing to specify the 10-year yield on CGS in the guideline.

There are two separate relevant averaging periods: for the RFR and for debt.

Averaging and the RFR

The RFR is an 'on-the-day rate' with a short averaging period of 20 consecutive business days. Some averaging is needed to remove the effects of short-term volatility. The current approach used by the AER is clear. CCP16 submits that relevant issues are whether:

* there is merit in a longer-term average, rather than the 20-day averaging period. Options would range from extending the averaging period from 20 days to 40 days or up to 1 year. This is a quantitative question – to what extent would a slightly longer average period reduce the volatility (i.e. the effect of the specific averaging period chosen); and

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[36] AER *Better Regulation Explanatory Statement Rate of return Guideline* December 2013 at p147
[37] *The Gap between Theory and Practice of Firm Valuation: Survey of European Valuation Experts*, Bancel, F and Mittoo, U, March 2014 at p14
[38] Ibid Figure 4.1 at p14

- the term "*as close as practicably possible*" should be made more specific – e.g. by the AER specifying a fixed period prior to the due date of its decision, to avoid the administrative burden on the AER of considering alternative averaging periods.

CCP16 is aware that some networks may propose extending the averaging period for equity for up to 12 months. The argument in support of this extension is that using common pre-specified averaging periods for businesses in the same regulatory cycle would contribute to lowering the risk of '*lottery type outcomes*' for businesses and consumers. It is asserted that a common and longer averaging period would ensure all the customers of different utilities would face the same ROE and result in greater stability than the current approach.

CCP16 understands that the background to the shorter averaging period was that the objective was to use the 'current' or on-the-day rate on the basis that if markets are efficient the current rate contains the best information on current and future interest rates. The 20-day averaging period was consistent with common commercial practice and smoothed short-term volatilities. But it still creates some volatility - hence the ENA comment about the lottery.

A longer averaging period would further reduce volatility arising from the specific timing of the decision for both consumers and the utility. However, if the AER moved to longer average periods it would be a departure from the original idea behind using the current rate. We acknowledge that UK regulators have not been as keen to use on-the-day rates.

This involves a trade-off between the currency of the number and its volatility. The chart in the following figure illustrates this.

Figure 3: Average periods for 10 year bond rates
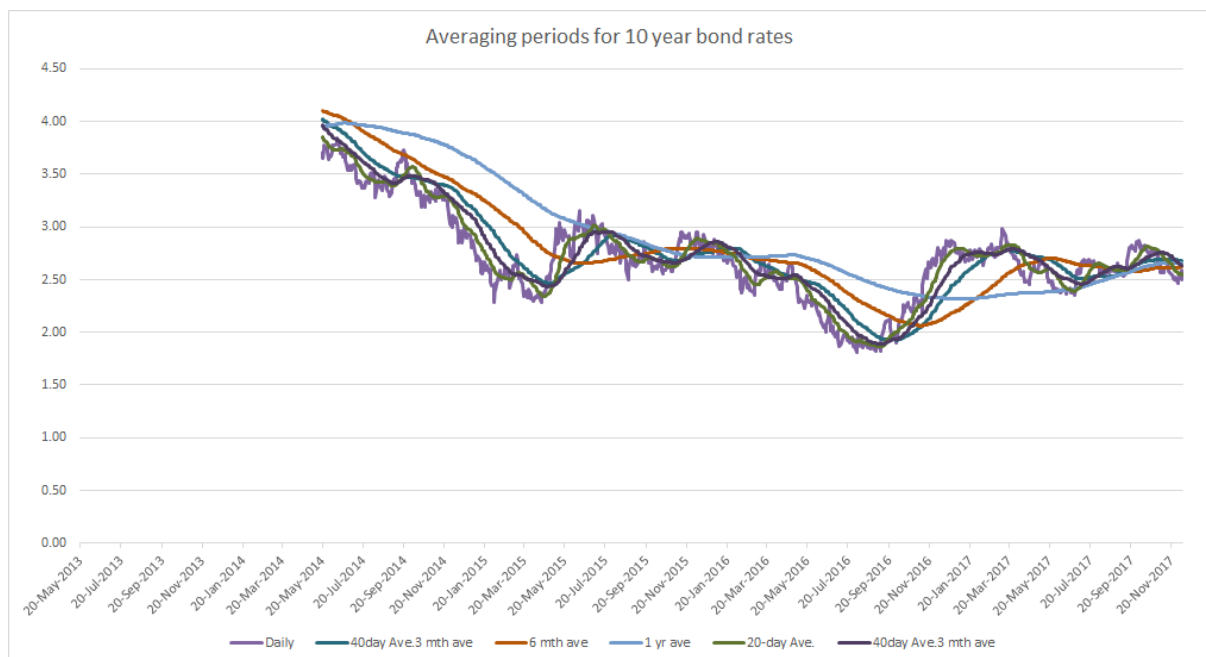
CCP16 supports the periods, once chosen, being made mechanistic. This could be done by specifying that the averaging period would be the period finishing, say, 20 working days prior to the due date for the release of the final decision.

Averaging and debt

The flexibility in the 2013 guideline in choice of average periods (from 10 or more consecutive days up to a maximum of 12 months) was designed to better match actual financing strategies. However, the difficulty with the flexibility is that it introduces a degree of variability in decisions made at the same time that may be difficult to explain to customers.

CCP16 agrees with the AER that it should specify a standard approach. This would have the benefit of reducing the administrative burden on the AER and would also result in more consistent decisions during similar regulatory periods.

The choice is between a shorter average period and an average over the whole year. The argument in favour of choosing a shorter average period is that it better matches financing strategies. This choice would be consistent with the fact that utilities – especially smaller ones – raise debt in smaller amounts less frequently. Hence, choosing an average period within the year may enable the utility to choose the financing strategy around this. However, CCP16 observes that choosing a shorter average period would pass on the risks of volatility of interest rates within the year onto consumers.

An average over the year as a whole would be more stable and consistent with the principles of a trailing average, and common practice in calculating annual average rates. Accordingly, CCP16 would support the AER specifying a yearly average for the debt data series.

While there is a 'neatness' in having the same averaging period for debt and equity, this is not necessary. Debt is based on the principle that under the trailing average approach the cost of debt will transition to a long-term average spanning 10 years. In contrast, under the current approach, the RFR for the cost of equity is intended to reflect current interest rates.

6. Return on debt

6.1. Transitioning from an on-the-day rate to a trailing average

AER question 5: To what extent are changes required to our current approach of transitioning from an on-the-day rate to a trailing average?

6.1.1. Summary

> The AER should continue to apply its current transitioning approach as this approach best achieves the objective of maintaining revenue neutrality over the life of the regulated assets.

The AEMC's rule changes provided three options that could be used to estimate the Return on Debt (ROD) for the Benchmark Efficient Entity (BEE): the existing 'on-the-day' method, an 'historical trailing average' method and a 'hybrid methodology' that combines elements of both.

The AEMC's rule change provide the AER with the discretion to select the methodology that best achieves the ARORO and to develop the associated measurement processes and the implementation details such as the option to annually update the return on debt (ROD) and employ a process that takes account of the potential impact of changing methodologies on investors and consumers.

The AER's decision was to adopt a 10-year trailing average based on 10-year BBB yield curves and with annual updating of the ROD. The risks to the networks and to pricing stability of introducing such a significant change to the prevailing ROD methodology was addressed through the implementation of a 10-year transition process where the first year was effectively the same as the current 'on-the-day' approach and then build up each year for 10 years to a full 10-year trailing average.

The AER's approach followed some 12 months of consultation with many stakeholders including a range of economic and financial experts, the network industry, investor organisations and consumer representatives. Stakeholders largely supported the adoption of a 10-year trailing average (TA) with annual updating of the ROD. Far more contentious were the AER's decisions on which third party data series to use in setting the ROD and the adoption of a 10-year transition processes to apply to all network decisions on the basis of adopting a single benchmark efficient entity (BEE).[39]

The choice of which third party data series to use is discussed in CCP16's response to Question 6. The AER's decision to apply a transition period to apply to all its decisions is discussed in this section. Understanding the different perspectives of the networks and the AER, and the decisions of the Tribunals and the Courts, is important to CCP16's analysis on whether the transition process should continue and if so, whether it should continue in its current form.

As stated elsewhere in this submission, CCP16's starting position with respect to any proposal to change an existing methodology is that there should be a high bar to making such changes. There are significant benefits for investors and consumers of having transparency about the process and predictability about the outcomes. This is particularly important for assessing the rate of return

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[39] Specifically, the transition would apply to all decisions over the next two regulatory cycles (of five years each) at which point the full TA would be in place

(WACC) and the components of the rate of return, the ROD and the return on equity (ROE) given the significance of the rate of return in the network's revenue allowance.

> CCP16 considers that there should be a high bar to changing current methodologies in the interests of regulatory consistency and confidence of investors and consumers in regulatory outcomes. This is particularly important in assessing the AER's transition process that has now been endorsed by two recent Tribunal decisions.

In addition, as highlighted above, many of the decisions of the AER, including the approach to the ROD, have been subject to merits review by the Australian Competition Tribunal (Tribunal). In most recent cases the Tribunal has accepted the AER's approach as reasonable and has concluded that the AER has properly considered all the relevant material in coming to its decision. Moreover, the AER's decisions very largely align with its 2013 rate of return Guideline that in turn was the outcome of the AER's extensive consultation with experts and other stakeholders referred to above.

However, CCP16 accepts that the components of the rate of return are not directly observable. Decisions must be made in the face of conflicting information and the absence of precise data. The AER has wide discretion in most areas but its decisions must inevitably draw on theoretical models of the market, 'dirty' data and practical constraints. This is one of the reasons why the AER established a set of transparent principles and criteria in the Guideline for assisting it in making its decisions between reasonable alternatives. The lack of observable and verifiable data is also one of the reasons why so many of the AER's rate of return decisions have been subject to a merits review by the Tribunal.

The estimation of the ROD is a case in point. There are multiple ways an efficient business might construct a portfolio of debt depending on many factors such as it's the relative price and liquidity of the debt and hedging markets, the firms gearing ratio, access to different debt sources in Australia and overseas, the size of the business, the nature of its assets, ownership structure and so on. However, having decided that its task is to estimate the ROD for a single conceptual BEE, the AER's decision is narrowed down to determining what an efficient portfolio of debt would look like for this particular BEE and how a **change in the way the ROD is estimated** by the regulator might impact on this BEE.

CCP16's conclusions and recommendations are set out in the next section. In brief, CCP16 does not consider it appropriate to change the AER's current methodology of implementing an historical 10-year trailing average using a 10-year transition period. CCP16 considers that the AER is correct in stating that a transition period is essential to achieving a 'revenue neutral' outcome over the life of the regulated assets and without a transition the only alternative to achieving the NEO/NGO is to revert to the on-the-day approach. CCP16, however considers this would be a drastic step now that the transition process is well underway and it would be difficult to see how 'reversing' the process could be done while maintaining the confidence of investors and consumers in the regulatory process.

6.1.2. Conclusions and Recommendations

CCP16 has concluded that, **on balance**, the AER's current approach to estimating the ROD is the appropriate way to proceed and should be incorporated into the next Rate of Return Guideline. This

includes maintaining all the elements of the current process of transition to the TA by updating 10% of the debt portfolio for each of the remaining years in the 10-year transition period. CCP16 comes to this conclusion for the following reasons:

- By the time the new Guideline is in place (2019), most networks will be in, or coming close to, the second regulatory period following the implementation of the TA with transition. Changing approach when the networks are already 3 to 5 years into the transition period would result in the networks having to reset their debt positions for the second time in 6 years at potentially significant costs to the networks and, ultimately, to the consumers. A period of stability in the fundamental elements of the rate of return is essential for investor and consumer confidence in the future.
- The corollary of this is that the benefits to consumers and network investors that were envisaged to occur under the move to a TA approach with annual updating are close to being realised; a change now would "throw out the baby <u>and</u> the bathwater".
- CCP16 notes that on appeal by NSW Networks, the NSW Tribunal rejected the AER's justification for a single transition process to apply to all networks. However, in this instance, the AER's case for transition rested strongly on assumptions about the efficient portfolio of debt and interest rate swaps that this single BEE would have had under the previous 'on-the-day' approach. The AER argued that this BEE would be financially disadvantaged if the AER were to adopt the TA immediately and without transition as it would have to unwind its hedging portfolio at some cost. The Tribunal rejected the AER's assessment that there was a single efficient portfolio for managing debt. Since then, the AER's reasoning for transition has changed (see below) and the NSW Tribunal decision is no longer particularly relevant to the AER's case for transition.

The Tribunal's decision in the case of the NSW networks raised important points that the AER has now addressed. CCP16 questions whether the NSW's Tribunal decision to reject transition is now relevant to the processes in the new Guideline.

- The SA and Victorian Tribunals have accepted the AER's revised reasoning for a transition period (the 'revenue neutral'/'NPV=zero' argument). CCP16 supports the AER's revised reasoning and notes that it reflects consumers' concerns that were raised during the Guideline development stage (and beyond). Consumers were concerned that a TA without transition would result in windfall gains to the networks. Moreover, this windfall gain related only to a change in methodology rather than financing efficiency and it would introduce a 'bias' that would not be compensated for over normal cycle of 'overs and that will occur over the life of the assets.

The AER's approach to transitioning has now been endorsed by two Tribunals based on the AER's reasoning that the transition is necessary to achieve revenue neutrality over the life of the assets. In the absence of a transition period the objective of revenue neutrality could only be achieved by reverting to the on-the-day approach. CCP16 considers this would be a less favourable outcome for network investors and consumers.

- The CCP also supports the AER's current position that the term "efficient financing costs" should reflect the prevailing cost of funds in the market; in this context, if a change in methodology is considered, it must be done in a way that maintains revenue neutrality when considered over the life of the assets (see above). Absent a transition, the revenue neutrality objective could only

be achieved by reverting to the 'on-the-day' approach. The AER's views have also been supported by recent Tribunal decisions.

- Examination of the financial status of the networks that are claiming disadvantage under the TA approach indicates that they are still able to recover their efficient debt costs with a transition period, albeit they may not make the 'supra-profits' they appeared to achieve in the previous regulatory period, 2009-10 to 2014-15 (2009-15). Allowances for debt (and equity) above the efficient cost of capital are not in the long term interests of consumers and do not satisfy the requirements of the ARORO or the Revenue and Pricing Principles (RPP) in the NEL and NGL.

> CCP16 sees no evidence to support the claims made by some networks that the networks are unable to recover their actual costs of debt under the AER's approach of transitioning to the trailing average.

- The transition process best satisfies the requirement in the rules that the AER must have regard to the impact of any changes in the methodology on the BEE network service provider. The networks' arguments for 'no transition' centre on the supposed risks to the networks of the transition but fail to discuss the risks to the customer as a result of the windfall profits the network will receive and which arise purely as a result of the change in methodology, not financial efficiency. It is demonstrably open to the AER under the rules for it to continue to apply its previous 'on-the-day' approach in which case the large networks would have to adapt and manage risk of the on-the-day approach as they have in the past. CCP16 does not see this as a good outcome but the alternative of a TA without transition violates the revenue neutrality principle and will not satisfy the NEO/NGO, the ARORO or the RPP all of which require efficient revenue outcomes.

With respect to the last two points, CCP16 agrees with the conclusions of the AER in its recent determinations that:[40]

> *"…we consider a change in methodology (to a trailing average approach) would not contribute to the achievement of the ARORO or meet the NEO/NGO unless it was revenue neutral (in present value terms) as this would result in incorrect ex-ante compensation."*

CCP16 observes that by the end of the 10-year transition period, the networks' re-financing and interest rate mismatch risks will be minimal and the volatility of cash flows reduced. This has consequences for the AER's assessment of the return on equity (ROE) and, in particular, the assessment of the regulatory beta. Given that the AER's approach is fundamentally about estimating the forward looking return on capital, it is important that this reduction in risk is recognised in some aspect of the WACC assessment. Partington and Satchell note a similar point in their April 2017 report to the AER.[41] The AER's summary of this report confirms that the TA approach reduces the risk of cash flow mismatch, which in turn and all other things being equal, reduce the need to enter hedging arrangements and therefore might lower the cost of financing. To quote:[42]

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[40] See for example, AER, *Final Decision APA VTS gas access arrangement 2018-22*, November 2017, at p3-325
[41] Partington G., Satchell S., *Report to the AER: Issues in relation to the cost of debt*, 9 April 2017
[42] See for example, AER, *Final Decision APA VTS gas access arrangement 2018-22*, November 2017, at pp3-325-326

"In the case of a switch to a TA, while the physical assets may remain unchanged, the expected cash flows from revenue are changed. Ceteris Paribus, the risks of the assets will fall and hence the required return will fall."

For instance, the AER could ensure that in its new Guideline, its point estimate of the forward-looking beta is at the mid to lower end (rather than the upper end) of the range of empirically derived equity betas. Alternatively, the AER could take the view that the credit rating of the BEE should be raised to A- or to the average of A and BBB curves. CCP16 would welcome further discussion on this important outcome.

> As the transition process continues the refinancing and interest mismatch risks facing the networks will decline. This reduced risk should be reflected in the AER's decisions on the forward looking equity beta and/or in the credit rating of the businesses.

CCP16 makes the following recommendations to the AER:

- The AER should continue to apply the single benchmark 10-year TA with 10-year transition as set out in the current Guideline, together with the annual updating of the ROD. CCP16 strongly opposes any significant change in approach and, in particular, opposes a change to the so-called 'menu' approach that allows networks to choose between multiple BEEs including the choice of whether to adopt a transition or not.
- At the completion of the 10-year transition process, the refinancing and interest rate mismatch risks facing the network businesses will be minimal. This change in risk profile should, in turn, be reflected in the forward-looking estimation of the equity beta for the BEE and/or the credit rating of the BEE. This adjustment is consistent with the rules that require the AER to consider interrelationships between the ROE and the ROD.
- When the AER re-makes the NSW/ACT 2015-19 decisions as directed by the NSW Tribunal, the AER might consider the option of re-making these decisions on the basis of a transition to the TA, but justify this transition period on the stronger revenue neutrality ('NPV=0') argument, rather than its initial single 'BEE/single debt portfolio' argument. Alternatively, the AER might consider reverting to the on-the-day approach and thereby remove the need for a transition period. Either of these approaches will achieve the ARORO although the first option is preferable given the current developments in the Tribunal and the passage of time.
- The AER pursue the collection of actual data on the performance of the regulated networks and their evolving financing strategies in response to the TA approach, in order to better understand the impacts of the ROD methodology selected by the AER. CCP16 considers the evidence does not support the networks' claims that the TA with transition approach does not allow them to recover their costs in violation of the RPP.

> Changing the AER's trailing average with transition approach to the ROD at this stage would introduce unacceptable risks to the businesses and to confidence in the regulatory processes.

The remainder of this section in CCP16's submission sets out some key aspects of the regulatory framework, the reasons for the AER's decision to adopt a TA with transition in the 2013 Guideline, and relevant decisions of the Tribunals and the Courts since the Guideline was published.

All of this material has contributed to CCP16's conclusions and recommendations described above and, in particular, to our conclusion that the AER should retain its current approach to the adoption of a TA with transition. The transition process is central to ensuring that the change in methodology is consistent with the long-term interests of consumers.

CCP16 also considers that this conclusion stands even if COAG decides that the Rate of Return Guideline will be a binding Guideline.

6.1.3. The regulatory framework

As part of the substantial changes that were made by the AEMC to the NER and NGR in 2012, the AEMC undertook an extensive review of the treatment of debt given the concerns of the AER and consumer organisations that the return on debt was delivering outcomes that were not in the long-term interests of consumers. The AEMC concluded that there were three general approaches that could be expected to achieve the ARORO depending on the circumstances and that there were also benefits in allowing the AER the option to include an annual update of the ROD. The AEMC also recognised that there could be negative financial impacts on the regulated networks, or on consumers, arising from any changes to the ROD assessment given that each network would have built up a portfolio of debt and hedging instruments to align with the 'on-the-day' approach that had applied prior to the 2012 changes. Thus, the amended NER rules state the following (note, these rules are replicated in the NGR):

"(i) The return on debt may be estimated using a methodology which results in either:

> *(1) the return on debt for each regulatory year in the regulatory control period being the same; or*

> *(2) the return on debt (and consequently the allowed rate of return) being, or potentially being, different for different regulatory years in the regulatory control period.[43]*

(j) Subject to paragraph (h), the methodology adopted to estimate the return on debt may, without limitation, be designed to result in the return on debt reflecting:

> *(1) the return that would be required by debt investors in a benchmark efficient entity if it raised debt a the time or shortly before the making of a [distribution] determination for the regulatory control period;*

> *(2) the average return that would have been required by debt investors in a benchmark efficient entity if it raised debt over an historical period prior to the commencement of a regulatory year in the regulatory control period; or*

> *(3) some combination of the returns referred to in paragraphs (1) and (2)."[44]*

The revised rules also direct the AER to consider various factors. In particular:

"(k) In estimating the return on debt under paragraph (h), regard must be had to the following factors:

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[43] NER, cls 6.5.2(i), 6A.5.2(i) and NGR r 87(9)
[44] NER cls 6.5.2(j), 6A.5.2(j) and NGR r 87(10)

(1) the desirability of minimising any difference between the return on debt and the return on debt of the benchmark efficient entity referred to in the allowed rate of return objective;

(2) the interrelationship between the return on equity and the return on debt;

(3) the incentives that the return on debt may provide in relation to capital expenditure over the regulatory control period, including as to the timing of any capital expenditure; and

(4) any impacts (including in relation to the costs of servicing debt across regulatory control periods) on a benchmark efficient entity referred to in the allowed rate of return objective that could arise as a result of changing the methodology that is used to estimate the return on debt from one regulatory control period to the next."[45]

The rules also specify that if the ROD is estimated such that it includes annual updating of the ROD during the regulatory control period (see (i) above), then this must be put into effect through the automatic application of a formula that is specified in the relevant determination.[46] This reflected the AEMC's concerns to avoid annual debates about the annual updating process as well as to minimise gaming opportunities within the regulatory period.

The AEMC's explanation of the additional requirement for the AER to have regard to the impacts on a BEE of changing methodology is of particular relevance to this 2017 review. For example, the AEMC stated that:

"the potential for consumers and service providers to face significant and unexpected change in costs or prices that may have negative effects on confidence in the predictability of the regulatory arrangements";[47] and

"…any significant costs and practical difficulties in moving from one approach to another is taken into account".[48]

Overall, the changes to the rules provided the AER with greater flexibility to develop its ROD approach that best reflects the circumstances of the day and to balance the different and sometimes competing factors that would best achieve the ARORO.

6.1.4. Options available to the AER under the 2012 rules

The AER first identified several options that could be consistent with the three approaches set out in the 2012 rules. These options were:

1. Continue the on-the-day approach
2. Start with an on-the-day approach for the first regulatory year and gradually transition into a trailing average approach over 10 years
3. Adopt a hybrid transition, which treated the risk-free component of the ROD differently from the debt risk component (DRP). As the risk free rate component could be reasonably hedged against interest rate risk, but not the DRP, then only this risk-free rate should be based on i a transition period to a 10-year trailing average; and

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[45] NER, cls 6.5.2(k) and 6A.5.2(k); NGR r 87(11)
[46] NER, cls 6.5.2(l) and 6A.5.2(l); NGR r 87(11)(d)
[47] AEMC, *Final rule change determination*, 29 November 2012 at p85
[48] Ibid

4. Adopt a backwards looking TA approach, without transition, for both the risk-free component and the DRP.

The AER undertook extensive stakeholder engagement on these options and it was apparent that while most stakeholders supported adopting the historical trailing average approach, the stakeholders varied in terms their views on the appropriate length of the historical averaging period (5 or 10 years), whether there should be a transition period and whether there should be a single or a 'menu' approach set out in the Guideline.

For example, the ENA favoured a 'menu' approach where each of the AER's four options and the associated implementation of each of the option were detailed in the Guideline.[49] Each individual network could then choose from one of these four options in its regulatory proposal in accordance with its existing debt management strategy.

The AER concluded that while various approaches may be consistent with the rules, the RPP and the ARORO, the approaches varied in their ability to satisfy other requirements in the rules. The AER therefore adopted the following approach which it set out in detail in the Guideline:

- A single ROD approach, to apply to all the regulated gas and electricity distribution and transmission NSPs.
- Given this decision on a single approach, Option 2 - the historical trailing average combined with a 10-year transition period, and with equal weights applied to each year – emerged as the AER's preferred approach.
- Option 2 would include the annual updating of the ROD with automatic update processes set out in the Guideline.

The AER's reasoning for selecting Option 2 (historical 10-year average with transition and annual updating) reflected the AER's view that:[50]

- Option 2 was the most consistent with the AER's decision to adopt a single benchmark across gas, electricity, transmission and distribution businesses for the BEE (i.e. for the 'pure play, regulated energy network business operating within Australia').
- The menu approach would provide greater opportunities for gaming by networks who could choose the approach that achieved the highest return at any one point in time (including changing approaches from one regulatory reset to another), irrespective of either their own practices or the efficient financing practices of a BEE.
- Option 2 was the most consistent with the requirement in the rules to have **regard to the impacts of the change in methodology** as it minimised the financial risks and pricing volatility that might otherwise arise from changing the methodology.
- As a result, Option 2 was the most consistent with the regulatory principles of providing certainty, transparency and confidence in the regulatory regime for investors and for consumers.
- Annual updating of the cost of debt would further minimise the mismatch risk for a regulated network business.

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[49] See, ENA, *Response to the AER's rate of return guidelines issues paper,* February 2013, pp27-29
[50] See also, AER, *Explanatory Statement, Rate of Return Guideline*, December 2013 at pp100-101

Further analysis of the debt raising practices of regulated energy networks confirmed that an efficient network would seek to manage the trade-off between the re-financing risks associated with a portfolio of shorter-term loans and the higher interest rates associated with longer-term loans. In addition, a regulated network would (uniquely) endeavour to manage this portfolio in a way that minimises the risks of a mismatch between the regulatory ROD allowance and its actual debt cost.

That is, the regulated networks - like most infrastructure businesses - would generally adopt a portfolio of debt instruments with different tenors and staggered maturity dates, such that they will be raising debt at intervals over time. This would minimise their refinancing risks. Hedging (or equivalent indexed bonds) would minimise their interest rate risks.

In addition, the prevailing 'on-the-day' approach under the rules meant that the ROD allowance for a regulated network was effectively 'locked in' for five years irrespective of the direction of interest rates during the period. As stated by the SA Tribunal in its decision on SA Power Networks (SAPN) appeal:[51]

> *"It is generally accepted that the debt financing practices of the regulated access provider will be influenced by specific features of regulation. This is because the regulatory approach will determine the allowed cost of debt, and resulting revenue implications based on its assumed financing method."*

The networks adopted different approaches to managing this additional 'regulatory' risk. SFG Consulting (SFG) provided examples of different approaches to managing this risk in its advice to the AEMC in 2012:[52]

- For many small to medium sized private networks, this interest rate risk was managed through purchasing interest rate swaps at the start of the regulatory period, although this addressed only a component of the ROD mismatch, namely the assumed risk free rate or base rate. The risk associated with the debt risk premium (DRP) component of the ROD could not be managed through interest rate swaps.
- Large businesses may not be able to efficiently 'lock-in' in interest rates using swap contracts immediately prior to the regulatory periods due to lack of liquidity in the swap market. Strategies to address the interest rate risk might include:
    - locking the in base interest rates in the swaps market over a much longer period (e.g 6-12 months) prior to the determination and accepting the residual mismatch risk that might arise; or
    - issuing fixed rate bonds well before the determination and 'parking' the proceeds until the determination. However, this approach was only feasible for government owned businesses raising funds through treasury corporations.
- Businesses that own a portfolio of assets, with regulatory determinations occurring at different points in time are able to use this portfolio benefit to access debt markets at favourable times rather than for specific determinations.

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[51] Australian Competition Tribunal, *Application by SA Power Networks [2016]* ACompT11, at 226
[52] See SFG Consulting, *Rule change proposals relating to the debt component of the regulated rate of return, Report for AEMC*, 21 August 2012

6.1.5. The AER's selection of a preferred approach

> There are significant difficulties in applying a trailing average without transition given the limitations of the historical bond data set. It would not be appropriate for the AER to rely on the only available historical series, the RBA series, given the approach to estimating forward looking ROD using at least two series.

The AER concluded from the analysis by SFG, and from other information and submissions, that the following practice was likely to constitute an efficient debt financing practice of the BEE under the prevailing 'on-the-day' approach:[53]

> *"Holding a debt portfolio with staggered maturity dates and using swap transactions to hedge interest rate exposure for the duration of the regulatory period."*

Having made this observation, it is clear that the 'on-the-day' approach to the ROD was consistent with the underlying regulatory principle of determining a forward-looking cost of debt (and equity). However, the 'on-the-day' had some significant practical limitations. The AER's task was then to balance its theoretical perspective on the rate of return on debt with other, more practical, considerations.

CCP16 regards these considerations by the AER that are listed below to be relevant to the decisions on the new Guidelines. The AER's concerns with the various options included:

- The on-the-day approach included an exposure, the DRP, that could not be hedged through interest rate swaps or equivalent and it was feasible the DRP could change over the course of a regulatory period.
- Large regulated networks faced a further risk under the on-the-day approach because it would be difficult to raise debt and purchase interest rate swaps in the quantum needed by a large business over a short period of time prior to the regulatory period.[54]
- The on-the-day approach tended to result in more volatile ROD and something of a timing 'lucky dip' that impacted on both investors and consumers.
- The limitations of the historical data sets available for 10-year BBB bond yields and on the consistency of the credit ratings[55] over the historical period (i.e. since 2005). These factors impact on the implementation of the hybrid approach and, more particularly, the backwards-looking TA approach with no transition. The AER summarised the practical difficulties with the use of historical data in the following Table 2. Figure 4 further illustrates these measurement issues.

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[53] AER, *Explanatory Statement, Rate of Return Guideline*, December 2013 at p107

[54] Note, that this was a theoretical difficulty. In fact the majority of the large networks were owned by Governments and received funding via state Treasury departments. While the Treasury charged its stated owned corporations (SOCs) on the basis of commercial interest rates for the deemed credit standing of the businesses and in accordance (at least in NSW) with the government policy directives and the agreed Annual Statement of Corporate Intent. The relevant NSW Government policy directives for its SOCs can be found at https://www.treasury.nsw.gov.au/information-public-entities/government-businesses/commercial-policy-framework

[55] For example, in its final determination on Ausgrid, the AER noted the changes in investment ratings for TransGrid (A rating by the ACCC in 2005) and similar issues arose with the credit ratings implied for the distribution networks by IPART. See discussion in AER, *Final Decision Ausgrid distribution determination Attachment 3,* April 2015 at p3-188

Table 2: Assessment of practical difficulties with the use of historical data

Option		Assessment
1	Maintain on-the-day	Yes
2	Gradually transition from on-the-day to trailing average	Yes
3	Hybrid transition	Yes: Base rate No: DRP
4	Backwards looking trailing average approach	No
Source: AER analysis		

Source: AER, *Final Decision Ausgrid distribution determination Attachment 3*, April 2015, Table 3-25 at p3-188

A further, and most important consideration, was that the backward looking TA approach also meant that any decisions on the ROD that relied on the yield on BBB bonds observed at the height of the Great Financial Crisis (GFC), would be distorted. As such, the 10-year TA would be a poor estimate of future BBB bond yields. Figure 4 below illustrates both the variation in the different data series and the limited availability of some of these measures in the historical series. Moreover, the overall spike in yields for the two years (2008-2009) has not been repeated either before or after the GFC period for BBB bonds.   While the chart is limited to the period 2001 to 2014, the lower 10-year bond yields have continued up to the end of December 2017.

Figure 4: Comparison of BBB rated return on debt series over time

Source: CBA Spectrum, Bloomberg, RBA, AER analysis
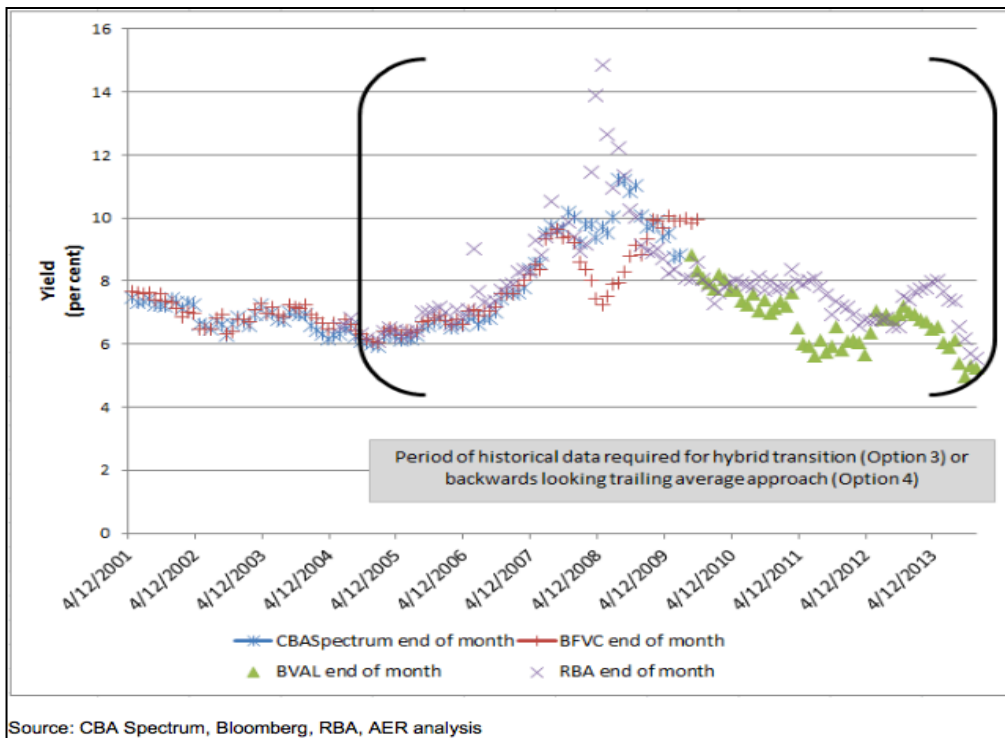
Source: AER, *Final Decision Ausgrid distribution determination Attachment 3,* April 2015, Figure 3-15 at p3-187

The chart also demonstrates the degree to which the networks and the AER might disagree on the appropriate data series to use over that historical period. For instance, the networks might argue that the only consistent historical series is the RBA series. Others might argue for some sort of estimation that blends all the series.

However, the AER's Option 1 (on-the-day) approach and Option 2 (transition to the historical TA) do not face this data difficulty. Instead, they can rely solely on the preferred approach of averaging the RBA and BVAL series at the start of the new regulatory period (see also CCP16 response to Question 6).

Having considered the benefits and risks of each of the four approaches, the AER concluded that it would adopt Option 2 with a 10-year transition to a 10-year TA and with annual updating of the cost of debt. This approach, and the detailed mechanisms relating to its calculation, included the automatic updating of the ROD each year. The annual update would be based on averaging periods set by the network prior to the commencement of the regulatory period – the later requirement being introduced to avoid gaming of the averaging period by the networks for the annual updates.

The following sections consider the response of consumers and of the networks to the AER's decision to use a single BEE and a single approach to estimating the return on debt including the transition period. At least some of the networks have continued to pursue their positions and tested the AER's reasoning in the Tribunals and in the Federal Court. The Tribunals' and the Court's decisions are discussed in greater detail in a subsequent section of this submission as they are relevant to CCP16's considerations and final recommendation to the AER to continue with its current approach to the TA including the continuation of the 10-year transition process.

6.1.6. Consumers' response to the AER's preferred approach in the 2013 Guideline

Consumers have expressed considerable concern with the AER's approach. The AER's approach is conservative in its assumptions of an average 10- year BBB range bond and this should be taken into account when reviewing the approach for the new Guideline.

Overall, consumers considered that the AER's approach in the 2013 Guideline was reasonable in the context of the BEE, although there was some support for proposals for a 5-year TA and 5-year transition period. This latter view of consumers was based on practical considerations and on the theoretical considerations provided by experts such as Lally, who, for instance, argued that a 5-year TA[56] and an associated 5-year transition would best meet the revenue neutral condition as the TA and the transition would match the regulatory period. The AER decided, however, that it would implement a 10-year transition and 10-year TA.[57] Its decision was based on maintaining consistency with the return on equity calculations and the view that the approach should also be consistent with the long life of assets.

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[56] Lally M., *Estimating the cost of debt of the benchmark efficient regulated energy network business*, 16 August 2013 at pp107-108. Cited in AER, *Explanatory Statement Rate of Return Guideline*, December 2013 at p146 and in the submissions by PIAC and others (e.g PIAC, *Submission the draft guideline*, October 2013 at p 49; MEU, *Submission the draft guideline*, October 2013 at p33-37.)

[57] Interestingly, the AER's initial proposal was to adopt a 7-year debt tenor, with corresponding 7 year TA and 7-year transition period. See:
https://www.aer.gov.au/system/files/AER%20Better%20Regulation%20factsheet%20-%20Draft%20rate%20of%20return%20guideline%20-%20August%202013_2.pdf

It is important to also acknowledge a strong push by some consumer representatives to:

- Calculate a different cost of debt for government owned and privately owned network companies given the perceived lower cost of debt for state government owned corporatised entities (SOCs) whose debt is backed by State Governments' AAA credit ratings. The view was that these SOCs were making extraordinary returns on equity despite higher operating costs and a large part of this was the AER's generous approach to the rate of return including the ROD estimation. [58]
- Assess the cost of debt based on actual debt costs of a network – effectively treating debt costs as a pass-through cost rather than basing the ROD on the theoretical BEE.

Both these options were rejected by the AER. While it was open to the AER to determine a different ROD for a sector such as government owned utilities, it was argued by the AEMC and the AER that the government owned utilities paid their state governments a debt guarantee fee that was based on the government's estimate of the difference between a 10-year Treasury bond and the prevailing commercial rate for 10-year BBB rated bonds.[59] The AER emphasised that the BEE makes no assumption on ownership structure. The AEMC, when faced with the same arguments, concluded that: "the most appropriate benchmark to use in the regulatory framework for all service providers, regardless of ownership in general, is the efficient private sector service provider".[60]

Evidence of excess profits of concern to consumers

The AEMC, and subsequently the AER, also rejected the notion of using actual debt costs as a pass-through cost, in large part because they believed such an approach was inconsistent with the incentive based regime established in Australia. Arguably, however, in making this decision the regulatory bodies appeared to also overlook the very real concerns of consumer bodies with the excess profits that they observed. In its application to the AEMC for a rule change in 2012, the Energy Users Rule Change Committee provided the following information to illustrate its concerns.

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[58] The Major Energy Users, Council of Small Business Australia and the Queensland Cane Growers Organisation strongly promoted this argument

[59] This is a simplification of the state government's policies. For example, for its SOC's the NSW requires an independent assessment of their credit ratings before setting the guarantee amount. The detail is available https://www.treasury.nsw.gov.au/information-public-entities/government-businesses/commercial-policy-framework

[60] AEMC, *Final rule change determination*, November 2012, at p72

Table 3: Quantification of the estimated profits from the return on debt in 2011

	2011 Regulatory Asset Base ($million)	Approx. Actual cost of debt (%)	Approx. allowed Return on debt (%)	Difference in allowed and actual cost of debt (%)	Difference in allowed revenue / pre-tax profits ($million)
Private distribution	$11,440	6.5%	9%	2.5%	$172
Government distribution	$37,028	5.6%	9%	3.4%	$755
Private transmisson	$4,083	6.5%	9%	2.5%	$61
Government transmission	$11,169	5.6%	9%	3.4%	$228
					$1,216 **TOTAL**

Source: Energy User Rule Change Committee, *Proposal to change the National Electricity Rules in respect of the calculation of the Return on Debt*, 17 October 2011, Table 4 at p21. The data for the government owned networks was extracted from the Auditor-General and the businesses annual reports. The estimates of the cost of debt for the government-owned businesses do not include the loan guarantee fees that can be argued to be part of the cost of debt.

The evidence that the CCP16 has examined supports the view that the networks that were promoting the immediate adoption of the TA (without transition) were continuing to receive a regulated ROD allowance that was above their actual costs of debt despite the AER's decision to impose a transition period (see below).

CCP16 also notes the more recent comments from previous CCP sub-panels that the ROD under the TA without transition continues to be significantly higher than the actual cost of debt observed in the public accounts of the parent companies (including government treasuries).[61]

Further evidence of the difference between the ROD calculated according to the AER's approach and the ROD with a 10-year TA, but no transition is set out in a separate section below that reviews the network's response to the AER's proposal and their associated claims that the transition process would not allow the networks to recover their efficient costs.

The single BEE versus multiple BEEs and the 'menu' approach
Another reason consumers generally supported the AER's adoption of a single approach of a 10-year TA with a 10-year transition period in the Guideline was that the proposed 'menu' approach offered significant opportunities for the networks to game the decision making process. The consumers and

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[61] For example, CCP5 noted in October 2016 that AusNet Services consolidated accounts revealed a cost of debt of around 5.22%, while the TA ROD without transition (which was first proposed by AusNet) was 7.56%. See CCP5, *Submission to the AER: Transmission for the Generations III, Response to: Revised revenue proposal by AusNet Services for Transmission Revenue Review 2017-22*, October 2016, p12. The AER reports that AusNet subsequently proposed to adopt the TA with transition

the AER's advisors also expressed concern about the complexities that would arise when the AER sought to define the 'rules' for multiple BEEs with multiple debt management strategies. In 2013, the REU explained the risks of a 'menu' approach as follows:[62]

> "Providing a choice ... to regulated businesses may not be appropriate. If the regulated businesses are given a choice, they most likely will choose the option that results in the highest total revenue and not the option that reflects their current efficient debt practices".

CCP16 shares these concerns and strongly cautions against allowing greater flexibility for networks to select their preferred methodologies in the new Guideline. The Regulatory Development Branch of the ACCC (now the REU) also considered the practical difficulties facing the regulator if a 'menu' approach was adopted. It stated:[63]

> "Currently, a regulator faces significant difficult in in estimating parameters for a single benchmark for a number of reasons. However, for every option allowed to a regulated firm in setting one parameter the number of benchmarks the regulator needs to determine doubles. Providing numerous choices will result in the regulator being placed in a difficult position of estimating many benchmarks.
>
> ...
>
> Providing options to regulated firms as to how a WACC parameter is set is a departure from the benchmarking approach. Moving towards the extreme case outlined above [where the number of benchmarks exceeds the number of regulated businesses], setting a benchmark becomes meaningless and firm's actual cost of capital forecast, set with reference to the firm's actual data becomes appealing. However, using actual data for setting the cost of capital inhibits the efficiency incentive and should therefore be rejected."

CCP16 again shares these views and considers they are most relevant to the development of the new Guideline. However, as stated elsewhere in this submission, CCP16 does encourage the AER to develop its own data set on the actual returns and interest costs of the regulated firms (despite the acknowledged difficulty of this) as such data is central to the AER understanding the relevance of its decisions.

The new Guideline should not adopt the 'menu' approach to setting the ROD that has been rejected in the past as this provides too many opportunities for gaming and increases the uncertainties around the outcome. The current approach, namely the one option of a trailing average with transition, should be adopted

6.1.7. Networks' response to the AER's preferred approach in the Guideline

While generally supporting the 10-year TA approach with annual updating, networks took issue with some aspects of the AER's current approach to the ROD. For example, the larger networks opposed the adoption of a single BEE. In parallel, they also took issue with the AER adopting a transition process to move from the on-the-day approach to the TA approach.

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[62] Regulatory Development Branch, ACCC, *Estimating the Cost of Debt*, April 2013 at p25
[63] ibid, at p26

These networks suggested that the AER could and should adopt multiple BEEs when assessing the ROD such as adopting a different BEE for 'small' service providers and for 'large' service providers. This proposal was based on the claim that the two groups faced sufficiently different financing risks that they required different approaches to the calculation of the ROD.[64] For example, a larger business would find it particularly difficult to refinance its entire debt portfolio (including any interest rate swaps) at a specific point in time, just prior to the start of the regulatory period.

In response, the AER noted the advice it received from its consultant Chairmont who concluded that although size is an important factor, it does not fundamentally change the financing practice of an efficient entity.[65]

The second leg of the networks' arguments arose from the AER's use of a single BEE. At least some of the larger networks, such as the NSW distribution businesses, contended that they did not need to adopt a transition period as they already had a staggered debt portfolio that was reasonably similar to the assume debt portfolio of the BEE, and that this type of portfolio would be typical for large networks.

Hence, while these networks had been subject to the on-the-day approach in the past, changing to the historical average would not have exposed them to the type of risks that faced smaller networks such as the need to unwind interest rate swaps. This is because larger networks did not typically use interest rate hedging in the manner assumed by the AER when it defined the efficient financing strategy of its single BEE. Therefore, these networks claimed that there was no need for a transition period to apply to them, and indeed, the transition process would expose these networks to unacceptable risk.

The large NSW distribution and transmission networks have subsequently appealed to the Tribunal following the AER's decisions on the ROD for the NSW networks. Other networks that at first were reasonably comfortable with the AER's TA with transition approach subsequently modified their proposals or their revised proposals to include a TA without transition, or a hybrid approach. For example, SAPN originally proposed the AER's approach but subsequently put forward a hybrid approach in which the risk free rate was transitioned to a TA, while the DRP was not. The AER rejected this approach and SAPN then appealed to the Tribunal. The Tribunal accepted the AER's decision (see also section 6.1.8 below).

What is the evidence to support a claim that the AER's ROD results in under-recovery of costs?

At the outset of this discussion, CCP16 observed that there is a very clear difference between a complaint that the regulator's decision set the ROD below the network's proposed ROD and a claim that the regulator's decision, therefore, would not allow recovery of efficient costs.

For convenience, the following discussion is centred around the largest NSW distribution company and covers the period when Ausgrid was still owned by the NSW Government. Ausgrid stated in its 2014-15 revised regulatory proposal the following:[66]

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[64] See for instance, TransGrid, *Revised regulatory proposal, 1 July 2014 to 30 June 2018*, January 2015 at pp118-119. The AER notes that TransGrid did not indicated what the boundaries between the small and large BEEs should be and CCP16 considers defining that boundary would be a complex and arbitrary task. See AER, *Final Decision Ausgrid distribution determination Attachment 3,* April 2015 at pp3-484 to 3-488

[65] Cited by the AER, in ibid at p3-486

The application of the AER's proposed debt transition is inconsistent with a number of the revenue and pricing principles in section 7A of the NEL. In particular, the AER's proposed transition would not, over the 2014-19 period, provide us with a reasonable opportunity to recover at least the efficient cost of debt finance, nor give rise to prices that would allow for a return commensurate with the regulatory and commercial risk involved in providing direct control network services.

The AER's proposed transition approach would not operate to minimise any difference between the allowed return on debt and the return on debt of the benchmark efficient entity with a similar degree of risk as that which applies to Ausgrid…

Ausgrid has historically issue debt on a benchmark efficient staggered portfolio basis and the AER's proposed transition would significantly under-compensate Ausgrid based on current estimates of yields on 10 year BBB corporate bonds prevailing over the period February to June 2014...

The clear implication of these claims by Ausgrid is that Ausgrid would under-recover its costs of debt with consequential impacts on investment and the long-term interests of consumers. Ausgrid also suggested that the 'mark-to-market' cost of refinancing its existing portfolio to match the portfolio assumed by the AER's transition mechanism would amount to some $1.02 billion.[67]

It is instructive therefore to assess these claims empirically before proceeding to the more theoretical assessment of Ausgrid's view that the AER should adopt at least two BEE models including the BEE who has already raised debt in an 'efficient' way by issuing a staggered portfolio of debt.

In 2009, the AER applied the on-the-day approach and allowed a ROD of some 8.82% for Ausgrid[68] reflecting the AER's assessment of the yield on 10-year commercial bond rates for BBB rated companies in the Australian market. This ROD would apply to each regulatory year over the 2009-14 regulatory period, as there was no annual updating of the ROD. The AER allowed similar RODs for the other NSW/ACT networks.

Following this decision on the ROD, Ausgrid commenced a record level of capital investment over the regulatory period while also providing record dividends to the state government and adding very substantial amounts to the companies' revaluation reserve.[69]

Figure 5 provides a clear indication of why Ausgrid (and the other NSW businesses) were in such a favourable position – consumers were paying for a cost of debt of 8.82% each year simply because of the 'lucky dip' of the timing of the regulatory decision during a very volatile economic period. This is also illustrated in the following chart from the AER's determination for the Queensland electricity

[66] Ausgrid, *Revised Regulatory Proposal (amended),* February 2015 at p175
[67] Ibid at p183
[68] This figure is the allowed ROD following the successful appeal by Ausgrid regarding the averaging period nominated by AusGrid, but rejected by the AER. The Tribunal's decision resulted in a significant increase in the allowance for debt and the prices to NSW consumers
[69] For example, in 2012-13, Ausgrid added $2 863.0 million to its revaluation reserve. See Ausgrid, *Annual Report 2012/13,* Statement of comprehensive income at p30

networks. Two years either side of the AER's Ausgrid determination, the allowed ROD would be quite different although Ausgrid's actual debt cost would change only marginally.[70]

Figure 5: Averaging period (selected by SFG) compared to the debt risk premium and the risk-free rate

Source: CBASpectrum, RBA, AER analysis.
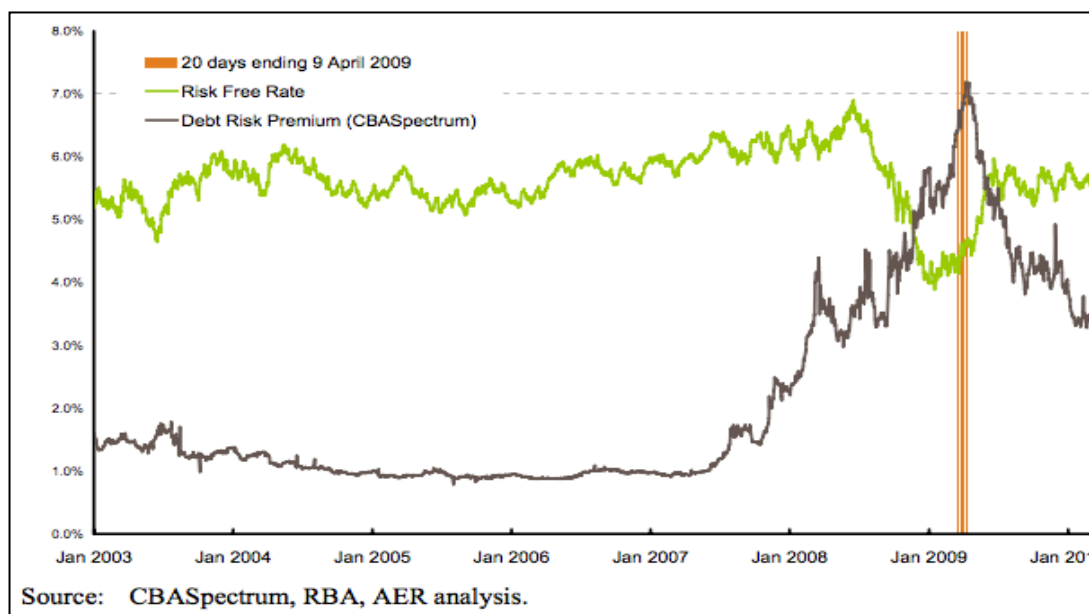
Source: AER, *Final Decision, Queensland distribution determination 2010-11 to 2014-15*, Figure 11.1 at p.259

Ausgrid also provided information on its 'effective interest rates' from outstanding TCorp loans in its annual reports, and this data is summarised in Table 4 for 2011-12 and 2012-13 being the two mid years of the 2009-14 regulatory period.[71]

Table 4: Ausgrid effective interest rates for 2011-12 and 2012-13

Source of Loan	2012-13	2011-12
TCorp short term accommodation	2.9%	3.6%
TCorp loans – AUD fixed rate	5.8%	5.9%
TCorp loans – AUD floating rate	2.9%	3.7%
TCorp loans – AUD inflation indexed	4.7%	5.6%

Source: Ausgrid, *Annual Report 2012/13* at p51. The notes to the Ausgrid table on effective interest rates state that the majority of TCorp debt is fixed rate loans and that non-current loans have maturity dates ranging from 2 to 26 years from the reporting date. 'Short term accommodation' provides liquidity to the business and in 2012-13 amounted to some $450 million in a 'come-and-go' facility provided by TCorp and charged at prevailing market rates (which would appear from the table to be TCorp's market rates). The estimates of the cost of debt for Ausgrid do not include the loan guarantee fees that can be argued to be part of the cost of debt.

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[70] Assuming that Ausgrid holds a staggered portfolio of debt with different tenor and different dates to maturity, as it claims

[71] This data is consistent with the information presented by the Energy Users Rule Change Committee to the AEMC and set out in Table 3. Unfortunately, Ausgrid does not appear to provide this information on the interest rate percentages in subsequent Annual Reports.

Since the 2009-14 regulatory period, yields on bonds for all investment grade Australian bonds have continued to decline, although stabilising somewhat after 2014. In the AER's final determination for Ausgrid for the period 2014-19 the AER applied the historical averaging methodology with transition. In effect, the ROD for the first regulatory year of the decision, being the first year of the 10-year transition process, was the same as if the AER had continued with the 'on-the-day' approach.

Ausgrid's proposed ROD for 2014-15 (the first year in the transition period) was 7.98% based on the 10-year historical average without transition. This proposal included the period of high yields particularly for 10-year BBB bonds as indicated above, and in Figure 6 below.

The AER's final ROD decision for Ausgrid's 2014-15 year was 6.51%. Both series are then updated annually in line with the AER's decision to allow an annual update of the return on debt and this yield would be expected to decline slightly over the following annual updates. Figure 6 illustrates the changes in 10-year BBB rated bonds over this regulatory period (up to November 2017) that will drive the TA with transition somewhat lower than 2014-15.

Figure 6: Yields on 10-year Commonwealth Government Securities and Corporate BBB yields (5 & 10 year)
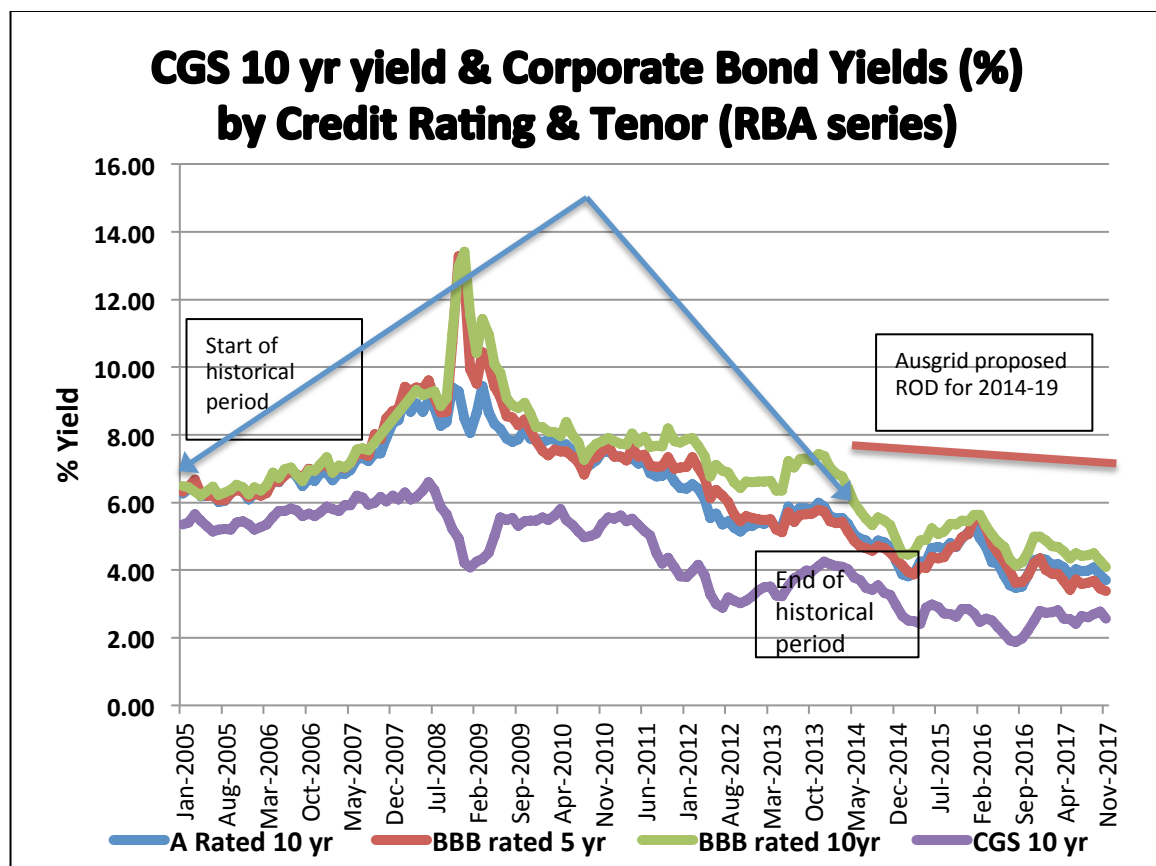
Source: RBA Statistics, F2 and F3 series, January 2005 to November 2017, accessed 12 December 2017

The implications for consumers over the regulatory period 2014-19 of this discrepancy are very significant. If, for instance, the AER remakes the Ausgrid decision on the basis of Ausgrid's proposal, then consumers will have to pay some $650 million in additional charges compared to the AER's

decision.[72] While Ausgrid states that this $650 million dollars addition reflects adjustment of the AER's 'under-compensation' for the ROD in the regulatory period 2014-19, consumers may reasonably argue that the AER's decision of 6.5% ROD actually overcompensates Ausgrid given their actual debt profile (as set out in Table 4 above), the existence of a state government guarantee[73] and the declining interest rate trend.

6.1.8. The decisions of the Tribunals and the Federal Courts

As noted above, the NSW distributors (Networks NSW), ActewAGL and Jemena Gas Networks appealed to the NSW Tribunal on various grounds including the AER's approach to determining the ROD. The core elements of the networks' appeals with respect to the AER's ROD decision were that:

- The AER has confirmed that a staggered portfolio of debt was an efficient debt financing strategy.
- The networks already have a staggered portfolio of debt and therefore, it follows that they do not require a transition period.
- There are various benchmark efficient strategies depending on factors such as the size of the network company.
- Given these factors, the AER should accept the proposed approach by the networks as efficient and consistent with the RPP and the ARORO.

The NSW Tribunal determined that the AER erred in its approach to the debt transition and remitted the determination on the TA approach back to the AER. The essence of the Tribunal's decision was that the AER erred because it relied on the view that there was a single BEE with a single efficient debt portfolio that would need to be unwound in the change in methodology from the 'on-the-day' approach to the TA approach *if there was no transition*. Rather, the Tribunal concluded that:[74]

> "...contrary to the AER's submission, [to the Tribunal] **an actual assessment must be made of the efficient (not just actual) financing costs of each DNSP** as it has responded in its [financing] methodology for estimating the return on debt for the prior regulatory period and **an actual assessment must be made of the impacts of those efficient financing costs of that DNSP by the changed methodology.**" (emphasis added)

Interestingly, however, the Tribunal appeared to add a caveat to its conclusions:[75]

> "If the changed methodology might produce benefits to a particular DNSP (as, it was suggested, might be the case because of some carry forward windfall arising from the previous methodology), it may be that s 16(1)(d) of the NEL in the case of the AER (or s 71P(2a) and (26) of the NEL in the case of the Tribunal) **would require some alternations to what would otherwise be an appropriate transition process.** This is a matter which was much debated in the course of submissions.

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[72] See Ausgrid, *Revised Regulatory Proposal (amended),* February 2015 at p182
[73] The State Guarantee minimises the risk of default from an investor's perspective
[74] Australian Competition Tribunal, *Applications by Public Interest Advocacy Centre Ltd and Ausgrid* [2016] ACompT1, 26 February 2016 at [935]
[75] Ibid, at [939] – [940]

As the Tribunal proposes to remit this matter to the AER, for reasons expanded upon later, it is not necessary or appropriate to explore these alternations in detail at present." [emphasis added]

The AER sought judicial review of the NSW Tribunal's decision to the Full Federal Court (FFC), including the Tribunal's decision on the AER's debt transition approach. The FFC rejected the AER's appeal.[76] However, it did so on rather narrow grounds that the BEE could not be characterised as either regulated or unregulated and therefore, the fundamental defence by the AER that a regulated BEE would have hedged its interest exposure under the 'on-the-day' approach failed.

The AER considered a similar issue in its determination on SAPN. In this instance, SAPN had including a hybrid approach in its revised proposal – the original proposal had adopted the AER's approach. The hybrid proposal sought a transition period for the risk-free interest component of the ROD (that could be hedged) and an immediate adoption of the TA for the DRP component.

The AER rejected this revised proposal on several grounds that did not involve the assumption that the BEE was a 'regulated' entity. The AER's emphasis was that the rules required the AER to consider the 'impact of a change on the BEE', and that this had a broad meaning. That is, the AER must consider the returns over the life of the asset and not just the periods immediately surrounding the change in regulatory approach. In the absence of a transition period, the network would (in this instance) receive more than the efficient costs of debt over the life of the asset, rather it would have captured a windfall gain that arose only because of the change in methodology and that this windfall gain would not be recovered through the normal cycle of 'wins and losses' in the regulatory process.

The SA Tribunal accepted that the AER did not err in reaching the conclusion that Option 2 was preferable on the grounds of the 'impact' of the change in methodology. The SA Tribunal states:[77]

"It [the AER] concludes, correctly in the view of the Tribunal, that Option 2 is preferable in that regard because it does not create windfall gains or losses in the current regulatory period."

However, SAPN has also appealed for judicial review to the Full Federal Court and the outcome of this appeal is still pending at the time of providing this submission.

Since the FFC's decision on Network NSW (et al), and further advice from various experts, the AER's reasoning has further evolved. The AER's position, which it has applied in all its determinations post May 2016, is summarised by the AER as follows:[78]

"The key change we made was we no longer considered efficient financing costs reflected the costs that came from efficient financing practices. In these decisions we found that in the context of the legislative scheme, efficient financing costs are an ex ante concept and reflect the prevailing cost of funds in the market. The prevailing rate in the market reflects the opportunity cost of funds in the capital market".

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[76] Federal Court of Australia, *Australian Energy Regulator v Australian Competition Tribunal (No 2)[2017]* FCAVC 79, May 2017
[77] Australian Competition Tribunal, *Application by SA Power Networks [2016]* ACompT 11 at [289]
[78] See for example, AER, *Final Decision, APA VTS gas access arrangement 2018-22*, November 2017 at pp 3-47 to 3-48

Following this, the AER also stressed that if a change in methodology to the TA occurs, it is important that it occurs in a way that is revenue neutral in order to achieve the correct compensation over the life of the investment and "thereby to not violate correct compensation in a present value sense and achieve the ARORO and NEO/NGO".[79]

Following the FFC decision on the NSW Tribunal (May 2017) the AER reconsidered its approach a second time. The AER stated that:[80]

- It no longer maintained that the BEE is itself a regulated entity but rather it is an entity that has a similar degree of risk as that which applies to the particular network
- Efficient financing costs should reflect the prevailing cost of funds in the market and
- A neutral transmission is required when changing debt estimation methodology in order to achieve the ARORO and NEO/NGO.

The AER's reasoning on the importance of a revenue neutral outcome when there is a change in methodology was appealed to the Tribunal by some distribution companies.[81] The Tribunal found in favour of the AER's reasoning that achieving a zero NPV condition is consistent with the NGL and the RPP. The Tribunal therefore supported the AER's decision to implement a full, revenue neutral debt transition when moving from the on-the-day methodology to a TA methodology for estimating the return on debt.

CCP16 concludes from this analysis that the AER has now found firm grounds in economics and law on which to defend the use of a transition to a TA. The outcome is consistent with the concerns raised by consumers since the development of the first Guideline that the change to a trailing average approach was only acceptable if it was accompanied by a transition process that ensured windfall gains were not captured twice, and outcome that would fail the fundamental test of the regulatory process to meet the long-term interests of consumers. Moreover, it would undermine the confidence of consumers in the ability of the regulator to act in accordance with the NEO/NGO. Consumers therefore appreciate the fact that the AER has maintained its approach even as it developed its reasoning.

6.2.   Review of the return on debt implementation approach

AER question 6: Is it appropriate for us to review the return on debt implementation approach by performing a review of the four third party debt data series currently available to us? Please also explain if you think there is further valuing in broadening this scope of debt implementation issues and why you hold this view?

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[79] See for example, AER, *Final Decision, APA VTS gas access arrangement 2018-22*, November 2017 at p 3-48
[80] See for example, AER, *Final Decision, APA VTS gas access arrangement 2018-22*, November 2017 at p 3-47
[81] Australian Competition Tribunal, *Application by ActewAGL Distribution [2017] ACompT2*, October 2017 and *Application by AusNet Electricity Services Pty Ltd [2017]* ACompT3, October 2017

6.2.1. Summary

Currently there is no third party debt data series that produces yield curves that are specifically relevant to assessing the return on debt for a BEE. CCP16 therefore considers there is some value in the AER continuing to monitor the performance of other data series such as the Thomson-Reuters (TR) bond yield curve. However, at this stage the TR curve appears very similar to the Bloomberg BVAL curve in terms of the 'strengths and weaknesses' of the data in the context of the ROD for a BEE. Therefore, CCP16 would not recommend simply adding the TR curve to its current assessment based on the average of two curves, the RBA and BVAL. Simply adding in the TR curve would not address the current 'gaps' and would diminish the role of the RBA yield curve that has some strong benefits not present in the BVAL or TR curves.

A compromise may be that the RBA curve is weighted 50% and the TR and BVAL weighted 25% each. The limitations of this approach however will arise if the AER considers adding a fourth curve such as the S&P curve. More complex decisions on weighting and practical issues around defining 'contingencies' may become too significant.

Given these complexities the AER should exercise considerable caution in moving beyond the simple averaging approach – there must be very clear benefits in terms of reducing volatility and biases. The AER's sample selection criteria are a useful starting point in this process. It would be also valuable for the AER to develop its own data series using bonds that more closely reflect the BEE than the commercial series. The ERA approach is a useful starting point for this process.

In responding to this question, CCP16 has considered the reasons set out in the AER's Rate of Return Guideline for moving to third party service providers, and the subsequent implementation of the approach of averaging two series, the Reserve Bank of Australia (RBA) 10-year broad BBB range bond yield series, and the Bloomberg Valuation Series (BVAL) 7-year broad BBB range bond yield series.

Having also considered the advice of both the ACCC Regulatory Economic Unit (REU) and Dr Lally, along with the decisions of the Tribunal, we agree that the averaging of the two series best meets the requirements of the ARORO, and is reasonably consistent with the features of the benchmark efficient entity (BEE). The RBA and the BVAL series have different strengths and weaknesses in the context of satisfying the ARORO, and the averaging of the two series is an appropriate response to this.

Nevertheless, for various reasons, several networks have proposed other approaches to estimating the return on debt, which can (in the main) be categorised as:

- Relying only on the RBA series to the exclusion of the BVAL series, or
- Including a new series, the Thomson-Reuters (TR) data series, and average the three series.

CCP16 supports the approach adopted by the AER of establishing a set of implementation rules and selection criteria. The systematic assessment of new series against these selection criteria provides an appropriate means of ensuring that decisions to change the current approach are only made after careful and objective review. New series should not be included just because they are there, the bar to change should be set high and the selection criteria and implementation rules are key to this process. To be included a new series should incorporate new information and/or new measurement

techniques that, when combined with the existing series, improve the accuracy and stability of the estimates.

> CCP16 endorses the AER's approach of establishing a set of implementation rules and selection criteria to allow a more systematic approach to considering a new bond series. To be included, a new series should add new information and demonstrate that it improves the accuracy and stability of the yield estimates compared to the simpler two bond series approach.

In responding to these proposals, CCP16 advises that it has only considered the three series, the RBA, BVAL and TR series. The AER's issues paper also refers to a fourth series published by Standard and Poor's (S&P). S&P is a credible and widely used international rating organisation. However, unfortunately CCP16 could find little information on this series and how it might be utilised in the regulatory context and this submission is therefore focused on the three identified series. Nevertheless, the principles discussed in this submission would be relevant considerations if the AER wishes to consider the S&P or any other new series.

6.2.2. Conclusions and Recommendations

The REU has helpfully reviewed the TR series in a report to the AER in April 2017. Based on this, it is accepted that the TR methodology is well accepted and used by central banks and others. Moreover, its assumptions and curve modelling are relatively transparent and consistently applied across countries and across its different curve formats.

It would appear, however, that on most of the important bond selection criteria the BVAL and TR series are very similar. For this reason, it does not appear that the TR series will add much to the overall estimation of a cost of debt for the BEE. That is, the same limitations that risk biasing the results, such as tenor of 7 years rather than the BEE 10-year tenor, apply to both the BVAL and TR. If both series were included and equally weighted at 33.3%, then the net effect would be to reduce the weight of the 10-year RBA series to one third. In addition, the TR series does not address the limitations of both the BVAL and TR series in using a broad BBB range for the selection of bonds.

CCP16 also raises questions about the AER's reliance on broad BBB yield curves to estimate the returns for the networks providing efficient regulated services in accordance with the definition of the BEE. The BEE is rated BBB+ so it should have a lower cost of debt than the broad class of corporations that fit within the BBB credit range. Relatively for the broad BBB class (which includes BBB-), the probability of default is small. CCP16 also considers that the available data suggests that gearing ratios and credit rating are not as closely related for the regulated entities as they might be for other companies.

> The AER's selection of a broad BBB credit rating band is conservative given the average BBB+ credit ratings observed for the regulated networks. In addition, there is evidence that for utilities in general (including regulated networks), the relationship between credit ratings and the bond yields are more complex than suggested by the simple reliance on the average market relationship. It is opportune for the AER to investigate this further as part of the development of the new Guideline.

Overall, CCP16 concludes that, on the evidence to date, there does not appear to be any significant value in adding a third series such as the TR series, particularly when the current approach has been accepted by the Tribunal as reasonable.[82] As noted above, third series such as the TR series will not address the 'gaps' in the AER's approach to estimating the return on debt such as the BBB broad rating issue.

Moreover, the NER and NGR require that if annual updating of the cost of debt is adopted along with the trailing average approach, then the process of updating the cost of debt must be 'automatic'.[83] Including a third series would add significantly to the complexity of defining the 'contingencies' to manage changes in individual series during a regulatory period (assuming the cost of debt is updated annually).

> A new bond series must be consistent with the requirement for the AER to automatically update the ROD each year and to predefine a set of contingencies to deal with changes in the available series.

Nevertheless, the TR series is well respected in the market and because it uses similar criteria and curve fitting methodologies across different markets it may prove to be more useful than the BVAL series, and/or add new information that warrants inclusion in the AER's approach. The fact that Thomson-Reuters uses similar criteria and methodologies internationally for developing the bond yield curves may prove to be a benefit to the AER's assessment.

CCP16 therefore recommends that the AER:

- Continues to progress its assessment of the TR series and the S&P series (on which we have little information on at this stage), with the aim of identifying whether and to what extent the additional series improve the overall estimates of the cost of debt, particularly if they address some of the gaps in in the existing series.
- Further investigates questions raised by the ACCC/REU in its April 2017 report regarding, for instance, the links between inclusion of financial bond data in the sample and inclusions of USD, Euro and other currencies (as per the RBA approach). There are open arguments that need to be resolved by further research, on whether the benefits of expanding the sample size by inclusion of this data offset the risk of moving further away from the concept of the efficient BEE.
- Considers whether the similarity between the BVAL and TR series mean that the additional information content in adding the TR series is significant enough and whether averaging the TR and BVAL series would reduce the volatility of the BVAL series alone. If so, the AER could consider adopting the three series but with a lower weight given to BVAL and TR series.[84]
- Considers the option of developing its own data base of bond yields similar to the approach adopted by the Economic Regulatory Authority (ERA). The Tribunal has accepted the ERA's approach as reasonable. While the AER may not use this data as determinative in the first

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[82] See for instance, Australian Competition Tribunal, *Applications by Public Interest Advocacy Centre Ltd and Ausgrid [2016]* ACompT 1, 26 February 2016

[83] NER cl 6.5.2 (l) and cl 6A.6.2 (l), NGR r 87(12)

[84] For example the RBA, BVAL and TR series could be given weights of 50:25:25, retaining the current weight for the RBA series and splitting the current weight for the BVAL between the BVAL and TR series. However, while this approach is intuitively reasonable, if further data series are added it may be difficult to implement and would raise more issues about the appropriate weighting of each series. These issues are not readily resolved.

instance, it will enable the AER to cross check its existing approach by reference to actual relevant bonds in the market place. The AER would also be in a better position to assess if there were consistent biases in its approach as claimed by consumer groups.

> There is a benefit in the AER developing its own data set of bond yields, particularly for bonds issued by firms that relate more closely to the BEE. While these may not be determinative, they provide useful information for the AER to evaluate its current approach and to respond to consumer concerns about the AER's 'conservative on conservative' assumptions in the ROR.
>
> CCP16 recommends that the AER consider the approach adopted by the ERA. The ERA has developed its own bond sample and yield curve and has used this in a similar context, namely to estimate the yield on 10-year bonds for a BEE and apply this in the context of a trailing average with transition and annual updating of the ROD. CCP10 understands that the Tribunal has accepted the ENA's approach in the past.

Further detail on these recommendations is included in the discussion below. CCP16 considers that these conclusions and recommendations remain relevant in the event that COAG decides that the Rate of Return Guideline should be a binding guideline.

6.2.3. Background to the AER's decisions on data series

The rather tortured history of estimating the efficient cost of debt for the BEE has highlighted both the difficulty of selecting the most appropriate method and the risks of over-reliance on third party series, despite their advantages such as independence from the regulatory processes. The problem is compounded when there is methodology used by the third party is proprietary and not readily accessible for assessment and comparison purposes.

The REU has provided the following chart of that sets out the yields from three third party series, namely the RBA, Bloomberg Fair Value (BFV) and the more recent Bloomberg BVAL series. The chart in Figure 7 illustrates the problems such as gaps in the data series, a problem that would be even greater for the 10-year yield curves that the AER specifies.

The chart also illustrates that there can be marked differences in the yield curves particularly during periods of economic stress and market volatility. These differences are difficult to explain, and this is exacerbated when there is limited transparency about the yield curve methodology. When the differences are as great as those observed in the period between 2008 and 2010, there is little point in averaging the two (or more) series.

Figure 7: Comparison of 7-year BBB yields by third party service providers
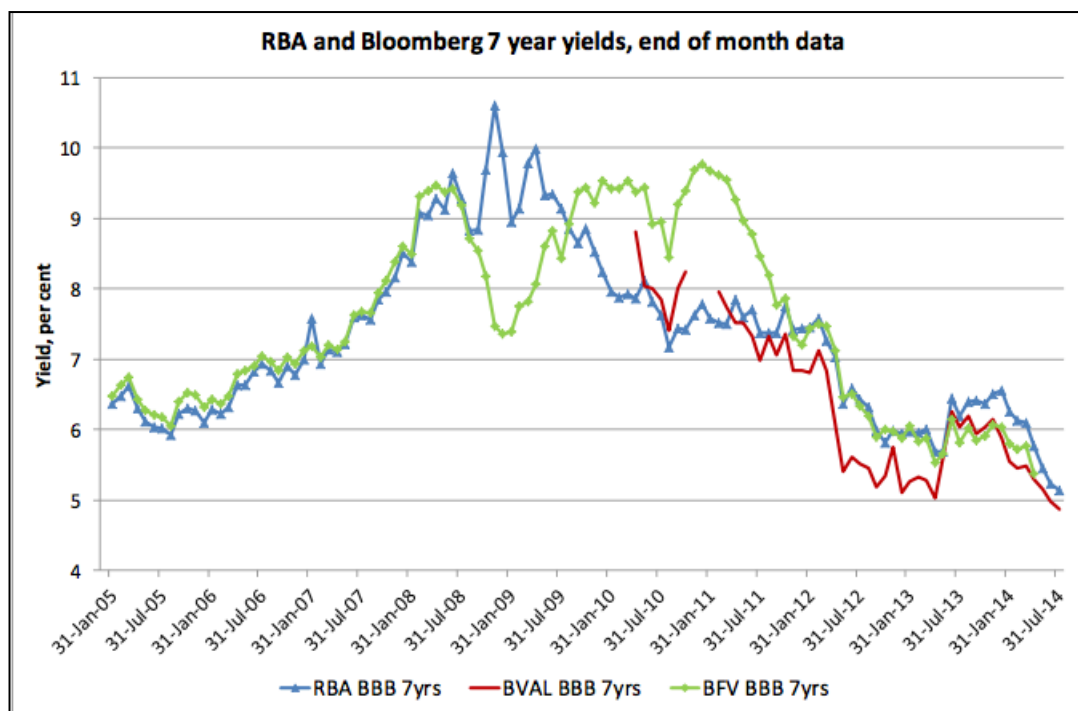
Source: ACCC REU, *Return on debt estimation, a review of the alternative third party data series – report for the AER*, August 2014, p 4. Note (1): The ACCCREU states that it is using the 7-year yields (rather than 10 years) to facilitate easier comparison of the series as the two Bloomberg series are not available for 10-year tenor bonds and need to be extrapolated from the 7-year yield curve. Note (2): For comparability with the RBA, the REU has also used end of month data rather than the full set of daily data available. The REU also notes that the BFV curve has been retired.

6.2.4. Development of the sample selection criteria

In developing its 2013 Guideline, the AER also recognised that there was no yield curve that perfectly matched the BEE. For instance, there was no industry specific curve for Australia, and thus the AER's process implicitly assumes that the debt costs for the regulated network businesses would be similar to the debt costs of businesses in general with a BBB+ rating and issuing long-term bonds. In the 2013 Guideline, the AER established certain 'rules' and criteria including the following:

- If the published yields do not reflect the assumed credit rating of BBB+ (or equivalent), the AER would publish yields that are the closest approximation of BBB+ credit rating; and
- Where the yield at a term to maturity of 10 years is not published by this third party, the AER would determine the method of extrapolation at each NSP's determination to convert the yields to equivalent yields of 10-year bonds (using various forms of curve fitting).

Other bond selection criteria set out by the AER in the 2013 Guideline, included:[85]
- Promote simple over complex approaches where appropriate;
- Implement in accordance with good practice, and supported by 'robust, transparent and replicable analysis that as derived from credible data sets;
- Based on quantitative modelling that is sufficiently robust as to not be unduly sensitive to errors in inputs estimation and which avoids arbitrary filtering or adjustment of data;

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[85] AER, *Better Regulation: Explanatory statement – Rate of return guideline*, December 2013, pp. 23-24

- Where market data and other information is used, this information is credible and verifiable, comparable and timely and clearly sourced; and
- Sufficiently flexible as to allow changing if circumstances change.

6.2.5. Current approach to estimating 10-year bond yields for BBB+ energy networks

As highlighted above, there is no 'perfect' fit curve available and even if the AER developed its own yield curves there would be uncertainties around the modelling and difficulties in obtaining wide-spread acceptance of the outcomes.

Since 2014, and in recognition of the problems with its past approaches, the AER has used the average of two third party providers of long bond yields for corporations with credit rating in the BBB range (BBB+ to BBB-). These are the RBA 10-year bond yield series and the 7-year BVAL yield series produced by Bloomberg. The BFV curve ceased publication by 2014 as it was recognised that its yield curves during and after the GFC were anomalous (see Figure 7 above)

Both series require interpolation (RBA) and extrapolation (RBA and BVAL) of data using recognised statistical techniques to develop an estimate of a 10-year bond yield curve for BBB+ credit rated corporations. The BVAL curve requires stronger statistical assumptions as it is derived from 7 year bond yields, thus increasing the risk of error in the fitting of the curve.

> The processes of interpolation and extrapolation of the yield curves are areas of risk in the use of third party commercial data series particularly where there is limited transparency in the approach used. CCP16 suggests that the AER continue to investigate options to minimise these risks including testing the outcomes against actual industry bonds that more closely match the BEE.

Neither series, however, matches perfectly to the BEE as defined by the AER, namely: '*a pure play, regulated energy network business operating within Australia*'[86] with a credit rating of BBB+ raising debt on the basis of bonds with a tenor of 10-year.[87] Nor are the RBA and BVAL series consistent in their approach to selecting bonds for inclusion in the series. These differences in bond selection criteria result in somewhat different outcomes for the cost of debt, particularly in times of 'stress' in the Australian economy that impacts on bond prices and yields for different sectors.

In reviewing the AER's proposed selection and averaging approach, the REU[88] and the AER's advisor, Lally,[89] confirmed that both series have strengths and weaknesses relative to each other. Lally agreed that given the limitations of each of the series, the averaging approach adopted by the AER minimised the mean square error of the estimation, and potentially modified the respective biases in each measure.

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[86] See AER, *Rate of return guideline*, December 2013 at p 6
[87] Since the ruling of the Full Federal Court in May 2017, the AER has modified its concept of the BEE. The AER no longer specifies the BEE as a 'regulated entity'. Rather, the AER states that the BEE must be efficient and must face "a similar degree of risk" as that which applies to the regulated service provider in relation to the provision of its reference services. For example, see AER, *Draft Decision, AusNet Services gas access arrangement 2018-22*, Attachment 3 at p 3-324
[88] ACCC, REU, *Return on debt estimation – a review of alternative third party data series*, August 2014
[89] See Lally M, Implementation Issues for the Cost of Debt, 20 November, 2014

The Tribunal has ruled that the AER did not err in assigning a credit rating of BBB+ for the BEE or in selecting and averaging the RBA and BVAL data series.[90] Nevertheless, various networks have continued to propose other approaches. Most recently, for instance, some networks have proposed using the RBA series only, or using the average of the RBA, BVAL and a third series, the TR series. Various reasons have been provided for adopting these different approaches, although none has found favour with the AER to date.

6.2.6. Approaches adopted by other regulators

While other regulators adopt an approach somewhat similar to the AER using third party data series, there are important differences that illustrate the complexity of the decision and its interaction with other aspects of the regulatory framework.

For example, prior to 2014 IPART relied on its own series of bond yields. Since 2014, however, IPART has relied on the RBA 10-year bond yield series to estimate the debt risk premium (DRP), noting that the RBA approach to selection of bonds was similar to IPART's approach. On the other hand, the ERA has developed and continues to rely on its own bond yield curve based on published long bonds that meet its particular bond selection criteria. The ERA uses a 10-year trailing average methodology to estimate the cost of debt with annual updating of the cost of debt.[91] This has been seen by the AER as something of a barrier to developing its own 10-year bond yield series given changes over time in the market. However, the ERA's approach has been endorsed by the Tribunal.

6.2.7. Assessment of alternative approaches – the Thomson-Reuters (TR) bond yield curve

Although in recent decisions the AER has rejected the proposals from some networks to include the TR series, the AER has left the door open for further consideration of the TR series. The AER acknowledged that the TR curve is published by an independent and widely respected body, and that TR has been publishing bond yield curves for different tenors, credit ratings, denominations and countries for some time. TR uses a consistent set of criteria for selecting bonds across these markets, allowing a degree of international comparability of yield curves, along with an ability to select curves for different credit ratings, amount outstanding, market of issue, and price sources used. As summarised by the REU in its recent report to the AER:[92]

> "Overall, the TR curve fitting methodology is well documented and based on academic research and is employed by market practitioners (central banks in particular)."

Given this, CCP16 agrees with the AER that the current review of the Rate of Return Guideline provides an opportunity to carefully consider whether this series will contribute to determining an efficient cost of debt for the BEE in accordance with the ARORO.

It is important to state, however, that the CCP in general considers that there must be good reasons for changing an established approach, particularly one that has been accepted by the Tribunal as reasonable. CCP16 has not seen a substantive case for change made by the proponents of inclusion

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[90] For example, see Australian Competition Tribunal, *Applications by Public Interest Advocacy Centre Ltd and Ausgrid [2016]* ACompT 1, 26 February 2016 at [993] and [983] respectively

[91] See for instance, ERA, *Final Decision on Proposed Revisions to the Access Arrangement for the Dampier to Bunbury Natural Gas Pipeline 2016-2020*, Appendix 4 Rate of Return at pp142-187, and Appendices 4B and 4C. The ERA uses the bond yield approach to calculate a debt risk premium rather than the cost of debt directly but the approach could be adapted to the more direct cost of debt approach used by the AER

[92] ACCC REU, *Thomson Reuters credit curve methodology – Note for the AER*, April 2017 at p25

of the TR series. The existence of a new series, per se, is not reason for including the series in the calculation of the return on debt, even though some utilities appear to consider that it creates an obligation on the AER to include it. In its current review of the cost of debt, IPART has explicitly rejected the need to include the TR and the Bloomberg series.[93]

Good reasons for including a new series would be:

1. Provides new information by using a methodology or data that were different to the existing series with different strengths and weaknesses, and/or
2. When considered with other estimates reduced the volatility of the combined series and improved its performance.[94]

But even if a new series were to be added it does not mean that all series should be given the same weight if the additional information value is not the same.

For this reason, we appreciate the recent report by the ACCC REU (April 2017) that carefully considers the TR series in the context of the ARORO and AER's existing averaging approach of the RBA and BVAL series.[95]

The REU 2017 report provides a summary of the bond selection criteria that TR applies in selecting the bonds used in construction of the BBB AUD credit curves. A summary of the key criteria for bond selection in the RBA, BVAL and TR bond series is set out in Table 5 below.[96]

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[93] IPART, *Draft report review of our WACC method*, October 2017 at p37
[94] This is the argument put by Dr Lally in supporting the averaging of the RBA and BVAL series
[95] ACCC REU, *Thomson Reuters credit curve methodology – Note for the AER*, April 2017
[96] For details, see Ibid, Table 1 at pp8-9

Table 5: Comparison of the RBA, BVAL and TR Bond selection criteria

Bond characteristics	RBA series	BVAL series	TR series
Size of issue/quality of pricing data (measures of liquidity and 'staleness')	At least A$100m (or equivalent) outstanding	Ratings and BVAL prices available at market close BVAL score of 6 or higher (measure of data quality/liquidity)	Only actively priced bonds At least A$150m outstanding
Residual terms to maturity (bonds close to maturity are traded less)	Over 1 year	At least 3 months	At least 1 month
Issuing entity	Non-financial corporations only Incorporated in Australia	Both financial and non-financial corporations. Australia is the country 'at risk'	Excludes sovereign and agency debt, bonds issued by charitable foundations, supranationals, universities/colleges, bonds guaranteed by sovereign governments. For the 'domestic' curve: Australian domiciled entity with Australia being the country at risk. For the main 'blended' curve, no restriction on ownership or country at risk
Secured/unsecured (risk of non-recovery of debt)	Both secured and unsecured bonds	Senior unsecured bonds only	Senior unsecured and unsecured bonds only
Credit rating	Broad BBB: S&P bond rating, if available, S&P issuer rating otherwise – for unsecured bonds only	Broad BBB: broad BBB Bloomberg composite bond rating, if available, broad BBB or equivalent from S&P, Moody's, and Fitch	Broad BBB credit rating by S&P, Moody's, Fitch, or DBRS; generally more weight on latest available ratings
Currency of issue	AUD, USD, Euro	AUD	AUD
Coupon Type	Fixed rate bonds only	Fixed rate bonds only	Plain vanilla fixed rate or zero coupon bonds
Embedded options	Both 'bullet bonds' [Note 1] and bonds with embedded options (callable, convertible and puttable)	Bullet bonds and bonds with make-whole call option. The latter are included even when they also have other types of embedded options	Bullet bonds and bonds with make-whole call option only

Bond characteristics	RBA series	BVAL series	TR series
Other restrictions	Excludes bonds with some form of duplication and credit wrapped securities The list of bonds in the sample is published once a month together with the data release	Prior to curve fitting, outliers are detected and removed. Once excluded the bond is only re-included in the sample following a review on a case by case basis	Only includes bonds issued into Australian bond market as a primary market Excludes private placements Excludes outliers using a 'z-spread' procedure which is transparent & recognised methodology

Note 1: Bullet bonds are bonds whose entire face value is paid at once on the maturity date. They are non-callable by the issuer and therefore cannot be redeemed early

It would appear that the TR bond sample criteria have greater similarity to the BVAL sample criteria than to the RBA sample selection criteria. In particular:

- The BVAL and TR samples include financial and non-financial corporate entities as the issuing entities; the RBA relies only on non-financial bonds in its sample. It is generally recognised that financial entities may have a higher cost of debt for the same credit rating than non-financial entities thus tending to overestimate the cost of debt (although this has not been clearly established for Australian financial bonds). Figures 8 and 9 below illustrate the differences for USD 10-year bonds (Broad BBB category).
- Figure 9 also illustrates that in the US at least, the spread between A rated utility sector and the BBB rated utility sector is smaller than for either the financial or industrial sectors suggesting that the relationship between credit rating and bond yields may be more complex than allowed for in the AER process. Figure 8 indicates that 10-year yields for broad BBB-rated utility bonds have been consistently lower than those for the equivalent bonds for non-financial corporations. This is also the case for BBB bonds for all maturities in Figure 9, but intriguingly utility bond yields are somewhat higher than those of non-financial corporations (at least in the US context).

As the ACCC REU 2017 report concludes:[97]

> "To the extent the evidence from the US and EURO market is informative, it suggests that 10 year yields of non-financial – and in particular, utility bonds in the broad BBB credit rating range tend to be lower than the corresponding yields on financial bonds post-GFC, and therefore, a curve that combines both financial and non-financial bonds would tend to overestimate the yield of non-financial and utility bonds with the same credit rating. Further evidence from the Australian corporate bond market would be desirable to confirm this observation."

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[97] Ibid, at p10. However, in its 2014 report to the AER, the REU advised that "*in our opinion, the issue of whether or not it is appropriate to treat BBB rated Australian financial bonds differently from non-financial bonds might still be open to debate*". See ACCC REU, *Return on debt estimation, a review of the alternative third party series – Report for the AER*, August 2014 at p21

Figure 8:   Comparison of USD US BBB+, BBB, BBB- 10 year BVAL curve yields for financial, nonfinancial and utility sectors

Source: ACCC REU, *Thomson Reuters credit curve methodology – Note for the AER* – April 2017, Figure 2 at p11. A similar curve is provided for EUR BBB range bonds

Figure 9: US Corporate Sector Spreads to US Treasuries (bp)
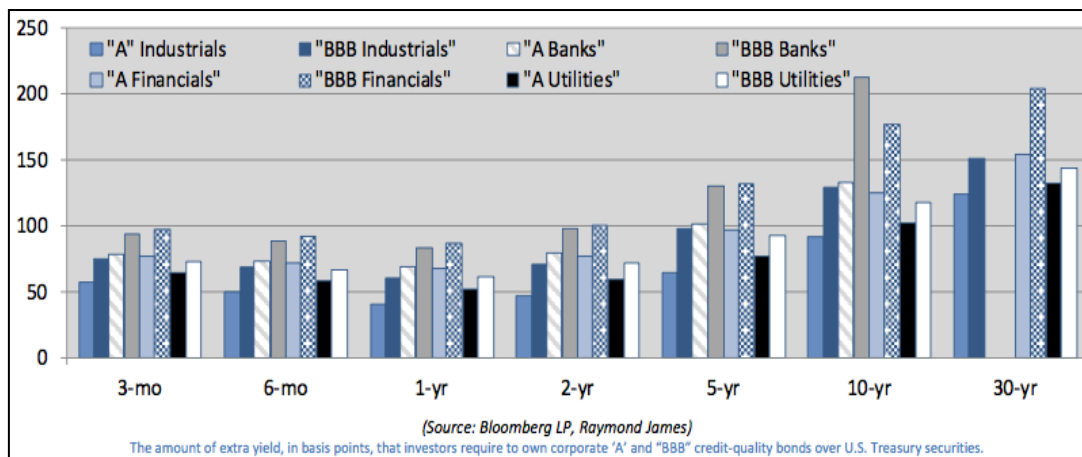
Source: Raymond James, Fixed Income Chartbook, as at 11/7/2016 at p2

- The BVAL and TR samples only select bonds where the currency of issue is AUD; the RBA selects bonds where the currency of issue is AUD, USD and Euro. The RBA must then convert the overseas currency bonds to AUD equivalents introducing strong assumptions to compare AUD bonds on a like-for-like basis.[98] However, as the majority of bonds issued by Australian corporates are issued overseas and denominated in USD, Euro and GBP, the restriction to AUD

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[98] See for instance, AER, *Final Decision – APA VTS gas access arrangement 2018-22,* Attachment 3 at p3-352

bonds significantly reduces the size of the bond sample, an observation that was central to the RBA's decision to include bonds denominated in AUD, USD and Euro.[99]

- The BVAL and TR samples exclude bonds with embedded options such as callable, convertible and puttable bonds; the RBA includes these types of bonds. It is generally viewed that including embedded options as the RBA does, will lead to higher yields because of the increased risk to the investor although this is difficult to quantify and to remove this effect requires strong assumptions and complex processes.[100]

- The BVAL and TR sample is subject to specific selection criteria such as removal of 'outliers' or 'stale bonds'. Notably, TR has an outlier detection and monitoring procedure which is documented and available to subscribers; the RBA series does not have such a systematic approach to excluding bonds which means that it has at times included bonds whose rating has not been reviewed recently.[101]

- The BVAL and TR samples provide daily yield data; the RBA series provides only end of month yield data thereby requiring the AER to interpolate end of month data to daily data, which may distort the cost of debt in a given determination. The AER notes that this means they only have 12 data points to produce a full year estimate while BVAL and TR provide around 20 times more data points in a year.[102]

- The BVAL and TR yield curves are reliable only up to a tenor of 7 years[103] and therefore these curves require some form of extrapolation from 7 years to 10 years; the RBA's sample is on average 8.5-9 years tenor, requiring considerably less extrapolation to achieve the benchmark 10-years bond yield.

There is strong evidence from overseas that the relationship between credit ratings and actual yields for bonds issued by entities closer to the BEE is complex and reliance on credit ratings may result in overestimating the ROD. CCP16 encourages the AER to explore these issues further during the development of the new Guideline.

A unique feature of the TR series is that it provides two types of credit curves, namely 'blended' and 'domestic' issued bonds. Blended bonds include bonds issued in Australia as a primary market independent of the country of risk or domicile of the issuing entity. The domestic bond sample represents a sub-set of those bonds issued only by Australian domiciled entities with Australia as the country at risk.[104]

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[99] For example, in its 2013 paper explaining the choice of bonds, the RBA stated that around three-quarters of Australian Non-financial corporates bond issuances had been in offshore markets and most of this had been denominated in $US, particularly for long bonds. See RBA, "New Measures of Australian Corporate Credit Spreads", RBA Bulletin, December Quarter 2013 at p15-16

[100] AER, *Final Decision – APA VTS gas access arrangement 2018-22,* Attachment 3 at p3-354

[101] The REU provides an example of the inclusion of the Adani Abbot Point Terminal bond in the RBA January and February samples. The bonds were rated by S&P as "BBB-" on issuance in 2014, but have not been re-rated by S&P even though the bonds which subsequently were rated to junk status (Ba2) by Moody's. See ibid, pp 20-21. Both BVAL series and TR series use ratings from S&P, Moody's, Fitch and Bloomberg or DBRS, and TR places additional weighting on the latest available ratings from these sources

[102] AER, *Final Decision – APA VTS gas access arrangement 2018-22,* Attachment 3 at p3-353

[103] More specifically, the TR yield curves for a given credit rating do not go beyond the longest bond yield data available for the period of interest. This means the AER would need an extrapolation method that deals with varying term to maturities

[104] ACCC REU, *Thomson Reuters credit curve methodology – Note for the AER*, April 2017 at pp11 – 14

The blended bond provides useful information and results in a significantly larger sample particularly at the 10-year tenor. On the other hand, it is arguably not as consistent with the AER's conceptual framework, the BEE and ARORO as the domestic only bond series. Again, the AER is faced with a choice of greater reliability in the curve fitting process versus reducing the sample of bonds to include only that that more closely resembles the BEE. Overall, as the REU suggests, if the AER were to adopt the TR data series, it would be better to use the domestic series and not utilise the blended series published by TR[105] - although this appears to be suggested by some networks.[106] The REU concludes that:[107]

> *"…all other things being equal, Australian-domiciled bond issuers/bond issuers with Australia being the country at risk would be closer comparators to the BEE than non-resident issuers. Thus, as was the case with bonds from financial institutions, the relevant consideration for the AER is whether including non-resident bonds in the bond sample [as in the TR main blended yield curve] would result in a smaller MSE [mean square error]. Similarly to our conclusion on financial bonds, however, we consider that the evidence at present does not allow us to quantify a possible effect on the MSE."*

Figure 10 below highlights several of these matters concerning the TR curve including the limitations of bond samples used to develop a reliable 10-year curve using 'domestic' bonds only, and the greater volatility in the domestic curve as illustrated in the five-year yield curves.

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[105] Ibid, at p14

[106] See for instance, Multinet Gas, *Rate of Return Overview* 16.1, December 2016 at p41. Multinet recommends using the TR curve that is the blended curve (although this is not stated, the reference "BBBAUDBMK" is the reference for the blended curve not the domestic curve). Multinet recognises that the BVAL and TR curves use similar criteria for selecting bonds but Multinet also states that there are periods when the results diverge usually due to the influence of a single bond and that this effect would be mitigated by inclusion of all three data series with equal weighting

[107] ACCC REU, *Thomson Reuters credit curve methodology – Note for the AER*, April 2017 at p14

Figure 10: Historical series for TR blended and domestic credit curves, 5 and 10-year par yields
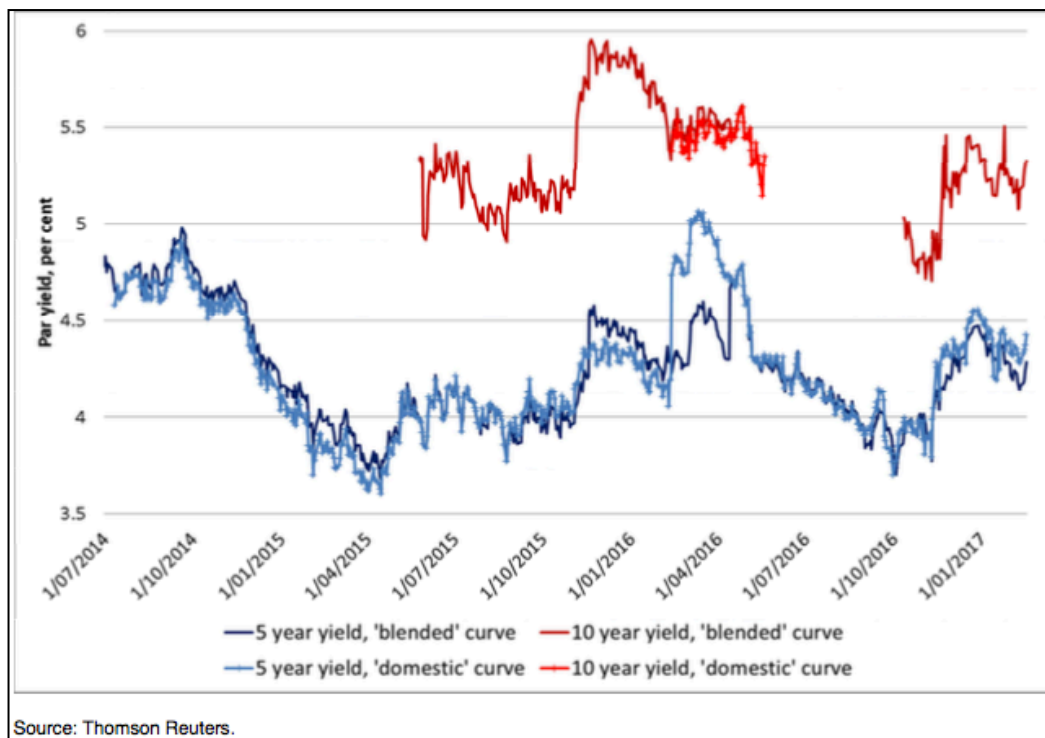
Source: Thomson Reuters.

Source: ACCC REU, *Thomson Reuters credit curve methodology – Note for the AER – April 2017*, Figure 2 at p14

6.2.8. Conclusions on the use of a third data series, the TR yield curve

CCP16 concludes from this assessment that there is clearly merit in the TR bond series and there is some argument to indicate that it is as good as or better than the BVAL series in representing the BEE and achieving the ARORO. However, CCP16 is cautious about recommending a change in the AER's current approach. The reasons for this conclusion are set out below:

- The AER's approach of averaging the RBA and BVAL series has been accepted by the Tribunal as 'reasonable', given the strengths and weaknesses of each of the series. Adopting a new series in the mix will raise new questions on such 'settled' matters as data manipulation, weighting each of the series in a composite measure and extrapolation approaches.

- The AER's approach to interpolation and extrapolation of the two curves has been largely accepted, but would need to be tested again with the introduction of a new series, assuming a consistent approach across all series is appropriate (which CCP16 considers it is). While this submission does not consider the technical issues around parametric and non-parametric extrapolation methodologies, the differences in the outcome of using different statistical methods when extrapolating the yield curve from 7 to 10 years can be substantial.

- There are no clear criteria for establishing a weighting of three bond series; in the absence of this, the assumption would be that each data series is weighted 33% but there is no evidence to date on whether this is appropriate. For example, Lally recommended averaging of the RBA and BVAL series to (inter alia) minimise the mean square error (MSE) of the estimator. However, as the AER suggests, it is not clear if adding a new series would satisfy this criteria without also introducing more bias (given the similarity of the BVAL and TR selection criteria).[108]

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[108] See detailed discussion in Ibid, at pp3-362 - 3-364.

- There are many similarities between the BVAL and TR assessment criteria and consequential bond samples. Therefore adding the TR curve to the existing two curves will add little additional 'information', but rather will add more weight to the BVAL 'view of the world'. For example, the potential bias in the BVAL series arising from the inclusion of financial bonds is somewhat ameliorated by the RBA's exclusion of these bonds. However, inclusion of the TR bond curve, which also includes financial bonds, would mean the BVAL 'view of the world' would then be weighted 66% rather than 50%. Similarly, the benefit of having a sample with bonds close to the 10-year tenor will be reduced as the RBA sample (which includes the longest bonds) would be reduced to 33% (assuming equal weighting).
- The AER has identified that in the 18 months to the end of 2016, the differences in the return on debt between the current method and the simplest case of including the TR curve (equal weighted average) appear to be "immaterial"[109] given the other issues associated with adding another series.
- There will be significant additional implementation issues such as the weighting of the different series and the options and permutations to consider in determining the appropriate contingency arrangements that could be applied automatically in the process of annually updating the return on debt.

Overall, CCP16 does not consider it useful to add another data series at this stage unless there is a clear case that it will improve the estimation of the cost of debt by minimising the MSE and counterbalancing the particular biases intrinsic to each of the three curves.

As suggested above, CCP16 is concerned that inclusion of the TR data series will over emphasise the biases that arise, for instance, from the need in both the BVAL and TR to undertake extensive extrapolation from 7-year bonds to 10-year bonds consistent with the BEE - a bias that would be expected to increase the estimated cost of debt.[110] Similarly, while the RBA relies on secured and unsecured bonds, both BVAL and TR bond samples include only senior unsecured bonds (BVAL) and senior unsecured and unsecured bonds (TR). The REU highlights that:[111]

> "A credit curve that is only based on a sample of unsecured bonds (and senior unsecured bonds) for a set of issuers is likely to over-estimate the cost of debt for those issuers …"

On the other hand, the TR series will not compensate for the gaps that might be common to both the BVAL and RBA curves such as the use of a broad BBB credit range rather than the BBB+ characteristic of the BEE. Given this, the average of the BVAL and RBA will most likely overestimate the cost of debt for the BEE with a BBB+ credit rating. Adding the TR series will not solve this problem, but simply reinforce it.

CCP16 also considers that in assessing the issue, the AER should take note of the information from the market that strongly supports the view that both the RBA and BVAL series are systematically overestimating the ROD for a network providing regulated services. As noted, including the TR series will not address this issue or correct the likely bias.

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[109] AER, *Final Decision – APA VTS gas access arrangement 2018-22,* Attachment 3, at p3-360
[110] This will depend on the curve fitting methodology used, however, it would appear that the yield curve is relatively flat between 7 and 10 years, at least in the current economic climate. The yield curve techniques may not capture this. The AER therefore would need to very carefully test the curve fitting methodologies for bias.
[111] ACCC REU, *Thomson Reuters credit curve methodology – note for the AER*, April 2017 at p19

CCP16 has provided some evidence in the sections above that this is likely to be the case for utilities in the US. However, there have been few studies of this in Australia. As further confirmation of this assumption, therefore, it is useful to look in detail at the credit and debt structures of the network in Australia that perhaps comes closest to the AER's definition of the BEE, namely Spark Infrastructure.

CCP16 provides a sample of relevant information from the published annual reports and reports to investors of Spark Infrastructure. Clearly, this is just a snapshot but one that CCP16 contends is a useful starting point for further investigation of this issue that is so important to consumers and their representatives and which supports the need for the AER to collect its own data set on bond yields.

6.2.9. Spark Infrastructure: An example

An excellent example of a 'pure play' investor in Australian networks is Spark Infrastructure (Spark). The majority of Sparks' income comes from its share of regulated electricity network assets in Victoria and South Australia. Spark reports that S&P has rated the Victorian and SA networks as A-.[112] In its most recent report to the AGM, Spark highlights the continued growth in total shareholder returns above the ASX.[113] Spark also states its continued commitment to a net debt to RAB of 75% for SAPN and VAPN [Victorian networks] and Baa2 rating (85% to 90% net debt to RAB) for TransGrid.[114] A summary of Spark's investment grade funding from its recent investor presentation is set out in Table 6 below.

Table 6: Spark Infrastructure - Investor Grade Funding Report (2017)

ISSUER	VICTORIA POWER NETWORKS	SA POWER NETWORKS	TRANSGRID
Weighted Average Maturity (Yrs)[1]	5.0 yrs	5.4 yrs	4.7 yrs
Net Debt at 30 June 2017 (31 December 2016)	$4.161bn ($4.152bn)	$2.884bn ($2.822bn)	$5.474bn ($5.554bn)
Net Debt/RAB at 30 June 2017 (31 December 2016)	72.4% (72.4%)	72.5% (71.4%)	87.1% (88.4%)
Credit Rating (S&P / Moody's)	A- / -	A-/A3	-/Baa2 (on USPP notes)

Source: Spark Infrastructure, *HY 2017 Investor Presentation*, 28 August 2017, at p16

Spark is a successful owner of regulated network assets in Australia and both the Victorian and South Australian electricity networks have registered high on the AER's efficiency benchmarking scorecard. Overall, however, these outcomes for Spark illustrate the complexity of too tightly linking the credit rating with the gearing ratio for efficient regulated utilities in Australia.

6.2.10. Recommendations

CCP16 believes that the following four recommendations will assist the AER in coming to a well-balanced conclusion in line with the ARORO on this important issue of selecting the appropriate measures for the cost of debt.

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[112] Spark Infrastructure, 2017 Investor presentation, August 2017 at p16.
[113] Presentation by Spark Infrastructure at its Annual General Meeting, Tuesday 23 May 2017 at p4
https://sparkinfrastructure.com/investor-centre/reports-and-presentations
[114] Ibid at p27

Recommendation 1: Continue to investigate the additional data series

The AER should continue to investigate the opportunities for inclusion of additional data series with the aim of addressing some of the limitations of the existing two series. There is an argument that, given the limitations of the two existing series, another properly constructed series that better matches the ARORO and the BEE will add value to the estimation of the return on debt. Moreover, it might be the case that one or other of the three series develops a utility specific bond curve for Australia as illustrated in Figures 8 and 9 above for the US and Euro zone.

Recommendation 2: Undertake further investigation into the questions raised in the ACCC/REU report of April 2017

The AER should further investigate questions raised by the ACCC/REU in their April 2017 report regarding, for instance, the links between inclusion of financial bond data in the sample and inclusions of USD, Euro and other currencies (as per the RBA approach). There are open arguments, which need to be resolved by further research, on whether the benefits of expanding the sample size by inclusion of this data offset the risk of moving further away from the concept of the efficient BEE.

Recommendation 3: Investigate the option of using an average of the RBA series and the averaged series of TR and BVAL series

The AER could consider whether the similarity between the BVAL and TR series means that the additional information content in adding the TR series is reduced and whether averaging the TR and BVAL series would reduce the volatility of the BVAL series alone. If so, the AER could consider including the three series but assign a lower weight to the BVAL and TR series. For example, the RBA, BVAL and TR series could be given weights of 50:25:25, retaining the current weight of the RBA series and splitting the current weight of the BVAL series between the BVAL and TR series. As part of this investigation, however, the AER would need to consider whether this approach is limited to managing three series. New and complex issues around weighting are likely to arise if a fourth or more series are included.

Recommendation 4: Undertake further investigation of actual bond yields and, in particular, the ERA's bond yield approach.

The AER should further investigate the approach adopted by the ERA of developing its own bond yield series based on bond selection criteria that better replicates the AER's BEE. While we have not had the opportunity to investigate the ERA's approach in detail at this point in time, at the very least, this type of analysis of real bonds has been accepted by the Tribunal as reasonable and provides a 'sense check' to the cost of debt calculated using the third-party bond series.

Moreover, developing a data base of actual bonds relevant to the BEE is consistent with the recommendations of consumer organisations such as PIAC, that have previously advised the AER that the use of broad BBB category will overstate the cost of debt for the BEE for two reasons.

First, as noted above, the BEE is rated BBB+ and therefore the broad BBB category that includes a sample of BBB- bonds will overstate the risk profile and therefore the yields on the notional BEE bonds. To date, there has been little objective testing of this proposition and it would be valuable for the AER to undertake a systematic approach to assessing this issue. Second, there is evidence available from international studies that utility bonds of the same credit rating have lower yields than

bonds from industrial or financial institutions, as illustrated in Figures 8 and 9 above. This makes sense when considered in the light of the complex links between credit rating and bond prices and yields.

As Chairmont Consulting noted in its 2012 report:[115]

> *"there are two components market practitioners consider when forming expectations about total credit risk, specifically, probability of default and the loss given the default"* and *"the ratings that [credit] Agencies publish are an indicator of the Probability of Default only"*

Arguably, the regulatory framework and stable cash flows that are well recognised as positive features by the community of long term investors provide assurance that even at gearing levels of 60%, the pure play regulated utility will have sufficient funds available from its ongoing operations (albeit under administration) to pay out the relevant secured and senior unsecured debt issuers. The example provided herein of Spark Infrastructure, with gearing levels over 70% and credit rating of A- for its established networks, also support this view.

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[115] Chairmont Consulting, *Debt risk premium expert report,* February 2012, at p10; cited in ACCC REU, *Return on debt estimation, a review of the alternative third party data series – report for the AER*, August 2014 at pp22-23

7.   Return on equity

7.1.   Approach to determining the Return on Equity

AER question 7: Would a more prescriptive approach to setting the equity risk premium be appropriate? If the Guideline has a more prescriptive approach to estimating equity risk premium, what set of conditions for reopening the Guideline would best achieve the national gas and electricity objectives and the allowed rate of return objective?

7.1.1.   Summary of Response

> As noted above, CCP16 considers that the current approach, as applied by the AER, has resulted in an allowed ROR that has been higher than necessary to meet the requirements of the NEO/NGO and ARORO. This can be addressed by broadening the range of information considered in setting the ROR to include comparisons of profitability with other sectors and consideration of RAB multiples in setting the ROR and ROE, and reviewing specific parameters such as the MRP, beta and the benchmarks for the cost of debt.

The AER's current approach to determining the ROE considers a wider range of information than previously and provides for the structured exercise of discretion. While allowing for the consideration of current market conditions, the outcomes have been highly predictable and consistent across decisions, in large part reflecting the AER's 'foundation model' approach which provides some certainty about the range within which any equity parameter (such as the MRP and beta) would sit. The current approach has also withstood appeals to the Tribunal. However, the MRP component has been a contentious issue at many reviews because the decision has to be made at each review, having regard to current market conditions.

The Issues Paper suggests that within a binding guideline the AER may either:

1. Set a value for the MRP that would be fixed and not reviewed or amended during the period of the guideline; or
2. Set a value for the MRP to be applied that would only be reviewed during the period of the guideline if specified triggers were breached.

Comments on the choice between these options are conditional on the details of the requirements and powers to make a binding guideline and the accompanying changes to the NER. In the absence of these, it is not possible to determine what may be feasible or what may not. For example, the first approach may not meet the requirements under the existing NER to have regard to current market conditions in setting the ROR. However, the second option opens the door to an extensive debate of the MRP in the event a trigger point is breached that would be likely to raises issues previously considered extensively.

The long-term average for the MRP may provide an anchor for current expectations for the MRP in future periods, but, as the AER's consultants have previously advised, the MRP can vary from this (up or down). This is most likely during periods of abnormal economic conditions. We consider that the second approach can be developed to provide a transparent means of reviewing and adjusting the MRP in periods where market conditions indicate that the expected MRP over the next 10 years may not be as firmly anchored to the long-term average. Building in a 'safety valve' that allows the MRP to be altered in defined abnormal conditions may reduce the probability of triggering an early

review of the guideline and may enable the guideline to have a longer planned duration (e.g. 5 years rather than 4 years).

The AER could construct an index from the conditioning variables, with a review triggered if it were outside a specified statistical range. If the value is below a specified bound, it may indicate conditions that were abnormally favourable when the 10-year expected MRP may be lower than the long-term average. Conversely when it is above a specified bound it may indicate conditions that were abnormally unfavourable where the 10-year expected MRP may be higher than normal.

However, it is important to emphasise that the objective is to set the value for the MRP that is based on expectations for the MRP on average over 10 years. As CCP15 argued in response to the review of inflation, the AER adopts a long-term horizon in setting all the rate of return parameters, and it should not be automatic that a 'trigger event' results in a change to the MRP. Rather, it is a signal to review the estimation and the context in which the trigger event occurs. For instance, is this event likely to reflect a step change in market sentiment or a shorter-term perturbation from the long term average that will be balanced out at some later point as part of the cyclical processes in the economy?

This approach by the AER is in contrast to, for instance, the approach adopted by the Economic Regulatory Authority (ERA) in WA. The ERA uses a five-year regulatory horizon for all the rate of return parameters. In this context, it is reasonable for ERA to adopt an MRP to be more sensitive to short term fluctuations in the market – and the impact of this is compensated in the S-L CAPM formula by the lower risk free rates on five year Commonwealth Government Securities (CGS).

7.1.2. Framework for determining the ROE

This section sets out the framework for determining the ROE and, in particular, whether expectations for the MRP are anchored to the historical average or vary through time.

While the discussion of WACC in regulation in Australia has become highly theoretical, the AER's challenge is a practical but difficult one – to come to a view on the reasonable expectations of the return for investors in network assets. Theory can provide guidance, but observation of practice and outcomes are equally important.

Under the CAPM, the expected market-wide return on equity is the sum of the risk free rate of return (RFR) and the expected Market Risk Premium (MRP). In the Sharpe-Lintner version (S-L CAPM) the interest rate on AAA-government debt is used as the proxy for risk-free rate of return; see the discussion in question 3 below. However, expectations for the ROE and the MRP cannot be observed directly. Accordingly, there are three broad approaches that make varying assumptions, which have been used to attempt to estimate the MRP and the expected ROE for the regulated businesses:

1. Assume long term expectations for the MRP are anchored to the long-term average realised MRP. This is the Foundation-model version of the S-L CAPM used by the AER. The ROE is the sum of the variable RFR and a fixed MRP.

2. Assume the long-term expectations for the ROE are stable over time and based on the long-term average realised real ROE. This is the "Wright model" under which the MRP is the difference between the stable real ROE and the variable real RFR.

3. Assume a long-term dividend growth rate (and shorter-term dividend forecasts) and rational well-informed investors to estimate the expected long-term ROE at a point in time as a function of current share prices and assumed dividends. This is the Dividend Growth Model (DGM).

All three models must make assumptions on parameters that cannot be directly observed in order to estimate the ROE and/or MRP. But the models have quite different implications under a binding ROR guideline. Both the first and second approaches can be implemented by fixing some values, and applying mechanical rules for other components. For example, under the first option the value for the MRP would be fixed, subject to possible review in specified abnormal conditions, and the RFR calculated mechanically. Given the uncertainty surrounding DGM (see section 7.3), it is difficult to see how the third option could be implemented within a binding rate of return guideline.

The AER's foundation model is based on a model of the formation of investor expectations that is consistent with observed behaviour. For example, investment advisors and broker reports widely use this approach in estimating the ROE. There is also empirical support for the proposition that the long-term average of the MRP is a better predictor of future returns.[116] However, the Bank of England (BOE) cites other studies that suggest that DGM models may be *"useful for forecasting"* and compared to *"a historical average benchmark forecast… offer economically and statistically significant forecast improvements"*[117]

The AER's guideline provides a structured approach to considering all three models and the information – or intuitions – that they provide, alongside other relevant market information. This is consistent with the intention of the 2012 rule change. The S-L CAPM with the MRP based on the long-term average for the MRP is the foundation model. A range of other information is used to test the foundation model and inform possible variation in the assumed MRP and ROE. Thus, while the MRP is not fixed to the long-term average under the current approach, it would be expected that variations from this would be muted and temporary.

It appears to be agreed between the consultants for AER and the utilities that:

1. The long-term expected MRP can vary with changing market conditions; and
2. There is no strong reason to expect an inverse relationship between changes in the MRP and changes in interest rates (that is long term expected ROE can also vary with changing market conditions).[118]

However, the AER's consultants have also highlighted the difficulties in reliably estimating the current long-term MRP at a point in time. (See discussion of DGM in section 7.3 below.)

Structural changes in the economy and financial markets may also result in long-term changes in the MRP. For example:

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[116] See G Partington and S Satchell, Report to the AER: Discussion of estimates of the Return on Equity, April 2017 at p24. See also IPART, WACC Methodology, interim Report, June 2013 at p26. *"Estimating the expected MRP using current market data is not conditional on an inverse relationship between the MRP and the risk-free rate. It is sufficient that the expected MRP is variable. The expected MRP changes over time since investors' risk aversions and perceptions about the average-risk investment change."*
[117] Michael Chin and Christopher Polk, A forecast evaluation of expected equity return Measures, Working Paper 520, Bank of England at p25
[118] G Partington and S Satchell, (2017) at pp14-15

"Our sympathies lie with the view that the tendency has been for the market risk premium to fall over time as diversification and risk management has got easier and cheaper, as individuals and populations have got wealthier and as volatility in equity markets has tended to be lower (although there have been relatively short periods of extreme volatility) and this is consistent with lower average realised risk premiums in equity markets from the 1970's onwards. … As a result of the foregoing factors, we consider it more likely than not that the historic equity risk premium in both Australia and the US overstates the current forward looking equity risk premium."[119]

A final point in considering long-term estimates of the MRP is the 'equity risk premium puzzle'. Measured estimates of the MRP are very substantially higher than can be explained by the traditional model of risk and investor behaviour. This led to two separate strands – testing and review of the estimation of the long-term MRP and a review of the models of risk aversion. While there have been criticisms of the initial estimations by Mehra and Prescott[120] (and some evidence that the average historical MRP may be closer to 4% than the 6% estimated by Mehra and Prescott), the quantitative puzzle persists. The second strand accepts the existence of the equity risk premium puzzle, and instead adapts (largely behavioural) theory to explain the equity risk premium. This appears to bridge at least some of the gap between the measured long-term average MRP and the models of investor behaviour. To the extent that the risk premium puzzle remains unresolved, it leaves open questions about the reliability of the measured historic returns and whether investor expectation may be lower than the apparent historic average return. This cautions against increases in the MRP.

7.1.3. Context for the development of the current approach

The current approaches to the determination of the ROR and ROE were developed in the context of the 2012 rule change which emphasised and provided for:

1. The need to consider a broader range of models and information;
2. That the ROR and ROE should reflect current market conditions; and
3. Non-binding guidelines to set the framework within which the ROR and ROE would be determined.

As noted in the response to Question 1, the current approach has withstood appeal to the Tribunal.

7.1.4. Setting the ROE and MRP within a Binding Guideline

The use of the current risk free rate (rather than the long-term average) appears to the broadly accepted and has not been raised as an issue in the Issues Paper. The use of a stable value of beta for at least the duration of the guidelines is consistent with regulatory and industry practice. The key issues are whether a stable value of the MRP can be set for the duration of the guidelines, what would be the conditions for a review, and what factors would be considered if a review were triggered. In that context, the relevant conclusions from above, and the discussion of DGM below, are:

1. The current approach provides a structured framework for considering relevant information and provides a stable, consistent value for the MRP that has been upheld on merits review. Hence, it

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[119] G Partington and S Satchell, (2017) at pp19-20

can provide a sound starting point for the methodology under a binding guideline (subject to review once the legal framework for the binding guideline is known).

2. There is support of the proposition that expectations for the MRP are anchored to the historical value for the MRP. CCP16 considers that market conditions and the elapse of time since the GFC would support a return to the historical average for the MRP in the review of parameters as part of the review of the guidelines.

3. Expectations for the long-term MRP can vary from the historical average but this is likely to be muted and most likely to occur during extended periods of abnormal market conditions.

4. Given the level of 'noise' in equity markets it is difficult to discern when the MRP has moved away from the long-term average and by how much and for how long. A broad range of information would need to be considered in reaching a decision to vary the MRP from the historical average.

The AER has indicated in the Issues Paper that it is considering the following options:

"*Under this approach, we may prescribe:*

- *An equity risk premium in the Guideline, which we would review each time we review the Guideline.*
- *A set of conditions, based on a number of information sources, that would lead us to re-open the estimation of the equity risk premium. This may involve a review of the Guideline for the purposes of the equity risk premium, earlier than the regularly schedule reviews of the Guideline. For example, our set of conditions that may trigger an early review of the Guideline and the equity risk premium could include one of the following events occurring:*
    - *A certain number, maybe all, of the conditioning variables that we currently use to inform our estimate of market risk premium falling outside of a pre-determined variance from their mean values.*
    - *Dividend growth model estimates of the market risk premium diverging from estimates of historical excess returns by a specified amount.*
    - *Significant divergences between other regulator estimates of equity risk premium and our own.*"[121]

CCP16 broadly supports this approach as a way forward. The key issues that are left open are:

1. What the framework will be for setting the MRP at each review of the guideline;
2. If an early review is triggered, whether the review is limited to the MRP, the ROE, or the guideline as a whole; and
3. What should be the condition for triggering an early review?

Triggering of a review does not mean that the MRP will necessarily change, but the AER would need to consider whether the 10-expectation for the MRP has changed given the available relevant information.

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[121] AER Issues Paper at pp27-28

7.1.5. Framework for setting the MRP at each review

The current framework for setting the MRP and ROE provides a sound basis for setting these key parameters of the ROR subject to:

1. Expanding the information considered to include an assessment of RAB multiples and profitability compared to un-regulated businesses and the allowed ROR;
2. To the extent DGM estimates are considered they should be considered in the context of the other information, such as conditioning variables, to assess whether the movements in DGM estimates are consistent with investment fundamentals; and
3. Clarifying the expectation that the MRP will, over multiple decisions, be centred on the historical average and the historical average would be given primary weight. Except in highly unusual market conditions the MRP would not be set outside the range for the historical average.

This would increase the level of transparency and certainty while providing scope to take into account the market conditions as relevant.

7.1.6. Scope of early review

The opportunity for early review is an essential safety valve in the event of major changes in economic conditions, such as the GFC. As noted above, the triggering of a review does not mean that the MRP would necessarily change. The review should be as quick and limited in scope as possible. The AER is constantly undertaking reviews and making decisions. With reviews of guidelines at fixed intervals, it is clear which guidelines will apply to which decisions, providing certainty to stakeholders and helping AER's management of reviews.[122] Hence, early reviews can be disruptive and costly for all concerned and should ideally be rare. If an early review was triggered, outstanding issues include whether:

1. The review would be a review of the guideline in entirety or just the MRP and ROE components?
2. The revised guideline would apply for the remaining period of the guideline or for a new four-year period (assuming the guidelines have a standard life of four years)?

In practice, the MRP and ROE are the components most likely to require review in changed market conditions. If the current approach on debt is used the cost of new debt automatically reflects the impact of current market conditions, while gearing and tax assumptions would not be expected to change with market conditions. Making it clear that the review would be restricted to only the MRP and ROE would help avoid extraneous issues being presented and allow for a quicker, more focused review. Few, if any, disadvantages are seen in limiting the review to the ROE and MRP components only. It is not possible to limit the review to just MRP as under the current framework some of the information that feeds into the decision on the ROE is also affected by changing market conditions.

The advantage of restarting the four-year duration of the guidelines if a review is triggered is that it reduces the frequency of review. On the other hand, it may be more disruptive as it impacts already scheduled revenue reviews and the timing of guideline reviews. The other relevant issue is that the review will be triggered in periods of abnormal economic conditions and heightened uncertainty. In these circumstances, there is likely to be merit in a decision that 'locks-in' the MRP and ROE for a shorter period. This would allow earlier reconsideration when there will be more information, and a

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[122] Indeed the networks advocated for guidelines to provide greater certainty.

better perspective, on the extent of economic dislocation and its impacts. Hence, it may be better if an early review was narrowly focused, and any revisions applied only for the duration of the current period for the guidelines.

7.1.7. Triggers for an early review

The Issues Paper suggested three possible triggers for an early review:

1. conditioning variables
2. DGM estimates; and
3. differences from the decision of other regulators.

Of these, the conditioning variables have the strongest case in theory and practice.

As noted below, DGM estimates can be quite volatile in the short-term and may be driven by many different factors. Using DGM estimates as a trigger may place too much weight on short-term movements in the estimates. The key problems with using other regulatory decisions as the trigger are that (a) they may not be timely, and (b) there are few relevant decisions. Overseas decisions may be less readily translated to Australia because of the different regulatory approaches and the differences in economic conditions. Differences in the industries regulated and the overall regulatory framework would also need to be considered. Within Australia the comparators would be limited to the state and territory regulators.

In contrast, conditioning variables are recognised indicators of market conditions that are timely, consistent over time, and readily observable. The issue will be in constructing an index that covers several indicators to reduce the sensitivity to any one index while not including less relevant indicators or duplicating other indicators.

Table 7 below summarises the conditioning variables from various sources.

Table 7: Conditioning variables from various sources

AER 2013 Guideline	SFG DGM indicator model	IPART uncertainty index
Dividend Yields	Dividend Yield	Dispersion in EPS forecasts
Credit Spreads	Credit Spreads	Credit spreads
Volatility Index	Term Spread	Volatility Index
	Risk free rate	Bills/OIS spread

The Bank of England constructed a macroeconomic uncertainty index to be used as a guide to the uncertainty around its macroeconomic forecasts that includes:

- FTSE options Volatility
- Sterling options volatility
- dispersion of company earnings forecasts
- dispersion of GDP forecasts
- GfK unemployment expectations balance
- CBI 'Demand uncertainty limiting investment' score and
- number of press articles citing economic uncertainty.

While there are common elements – credit spreads and volatility indices – that appear in at least three of the four indices, there are also significant differences. The IPART and BOE indices focus on uncertainty while the AER guideline conditioning variables and SFG indicators focus on investment climate. There is obviously overlap between these foci but they are different perspectives. Hence a key design question is which focus – investment climate or uncertainty – is the better guide to whether one would expect the expectations for the MRP to be significantly higher or lower than normal. This can be considered on the basis of investment fundamentals or statistical testing.

Different indices could be constructed and back-tested to assess the probability of false reads – either indicating abnormal market conditions too frequently or missing major events (such as the GFC) or periods of instability. Graphs of international macroeconomic uncertainty indices and the IPART uncertainty index are produced below. The indices show quite similar patterns over the period from 2004-2012 (the end of the international series). In 2001-3, the IPART index showed a low level of uncertainty, whereas the international indices were close to normal levels.

Figure 11: International Uncertainty Indices
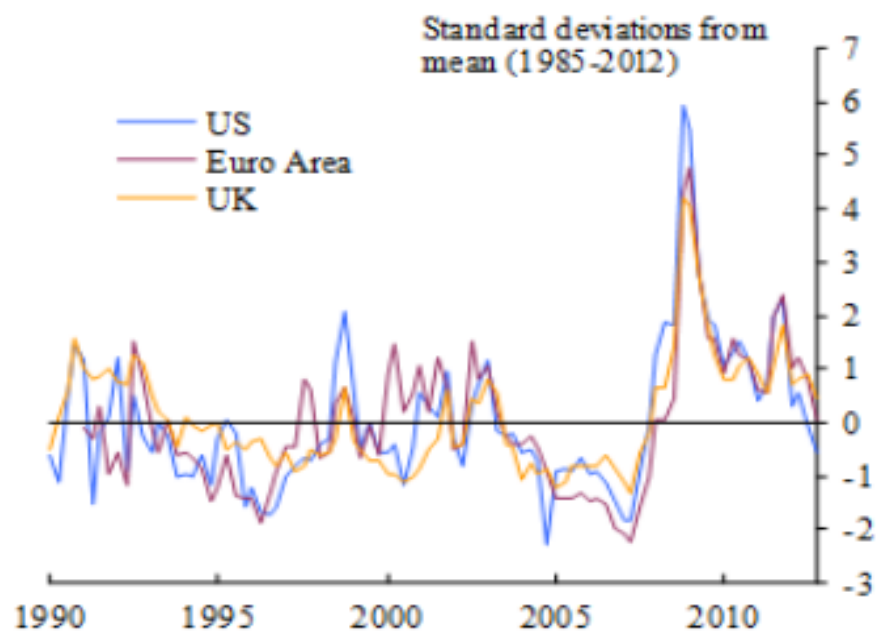
Source: www.voxeu.org/article/new-age-uncertainty-measuring-its-effect-uk-economy

Figure 12: IPART Uncertainty Index
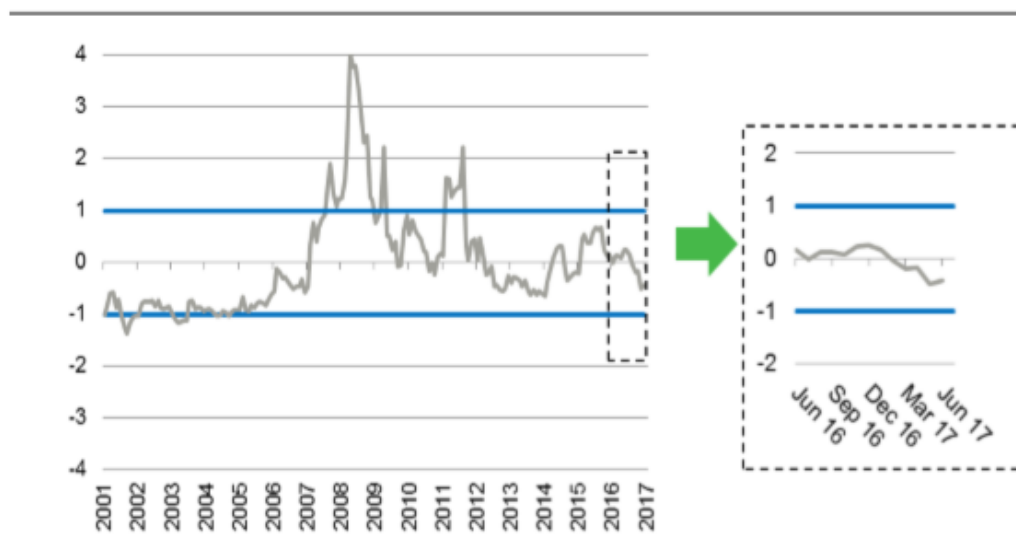
Source: IPART analysis.

How would the index be used?

Once an indicator index was constructed and tested, trigger values would have to be set. The index would be calculated on at least a monthly basis, and the trigger could take the form of "*if the index exceeds ±Y for more than X months*" a review would be triggered. The values for Y and X would have to be set through back-testing. Requiring that the index would have to exceed the trigger value for, say, at least 3 months would reduce the risk of transitory false reads triggering a review. If the index followed a normal distribution setting the Y value at 1 would result in a value outside the bounds 1/3 of the time. If the trigger for a review was when the index was more than 1 standard deviation from the average value the IPART index would trigger reviews after the GFC and in 2011-12 when uncertainty was high and 2002 and possibly 2004 when the uncertainty levels were low.

7.2. Approach to determining the Equity Beta

AER question 8: Is the theory underlying the Black CAPM still appropriate for informing an equity beta point estimate? In its place, should alternative information to guide the selection of an equity beta point estimate?

7.2.1. Summary of Response

CCP16 considers that the AER's current approach is fundamentally sound. However, within this framework the AER should:

- be clear that there are merits in stability of the beta and a high burden of proof would be required;
- give less weight to the Black CAPM given its limited use in practice and give greater weight to the practice of advisors and investment analysts; and
- consider measures of profitability and RAB multiples in assessing the overall ROE and feed this back into the decision on beta.

The NZ Commerce Commission reduced the beta uplift for gas pipelines due, in part, to an analysis of RAB multiples for the Vector and Maui pipelines provides a precedent for this.[123]

CCP11 considers that strengthening the weight given to observable market practice and reducing the weight given to theories of finance yet to find general acceptance in the investment community is likely to result in decisions on the ROE and beta that better achieve the ARORO. Given the information currently available, this approach would support a reduction in the beta, but in other circumstances it may result in a higher beta that the AER's current approach.

7.2.2. The AER's task

The ARORO is:

> "…that the rate of return for a [regulated network] is to be commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to the [service provider] in respect of the provision of [regulated services]."[124]

At a practical level this requires that "*The allowed rate of return allows service providers to obtain necessary funds from capital markets to fund capital investments and service the debt they incur in borrowing the funds.*"[125]

However, this is a particularly challenging task given:

1) the variety of the theories of relative returns and risk and their shortcomings;
2) the reducing data set available to the AER (assuming it is restricted to energy networks listed in Australia); and
3) the divergences between the finance theories proposed and the practice of asset valuation.

7.2.3. AER's current approach

Under the ROR guideline the S-L CAPM is used as a foundation model. Some additional sources of information are used to inform the estimation of the parameters in the S-L CAPM. Other information – such as the Wright model of CAPM and the ROE in valuation reports - is taken into account in estimating the overall ROE. Profitability measures and RAB multiples are not considered.

The approach to setting the beta involves three steps:

1. consideration of whether systematic risk differs between gas and electricity networks or between distribution and transmission networks;
2. estimation of the beta for listed Australian energy networks; and
3. selection of a point estimate for the beta at the top of the estimated range having regard to the Black CAPM which suggests that the returns for low beta firms may be biased downwards due to the risk-free rate used in the S-L CAPM. Other information that may be considered includes other theoretical and empirical evidence, including historical excess returns, survey evidence, implied volatility measures, other regulators' beta estimates, debt spreads and dividend yields.

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[123] See annex 1 of CCP18 submission to the Profitability Measures Review (2017) for further examples of the use of profitability measures
[124] NER, cl. 6.5.2(c) and cl. 6A.6.2(c); NGR, r. 87(3)
[125] AER, Rate of Return Guideline, Explanatory Statement, 2013 at p14

In the 2013 ROR Guideline the AER concluded that "*the risk exposure of the businesses we regulate, after taking into account the risk and the mitigating impact of the regulatory regime, is sufficiently similar to warrant the use of only one benchmark.*"[126] This judgement was supported by reports from Frontier Economics and McKenzie and Partington and estimates of beta for energy networks listed in Australia.[127] This remains its position.

The estimation of the beta is based on data from 9 regulated energy networks. However, not all have traded over the whole of the estimation period. Three have not traded since 2006-7, and one (AGL) has restructured and is no longer comparable. Hence, the set of firms from which the beta can be estimated is narrowing.

In selecting the point estimate for the equity beta, the AER tested the implications of adjustments in the beta for the implied difference in the risk-free rates between the S-L CAPM and Black CAPM. It found that:

> "*for 0.1 increase in equity beta (that is, from 0.6 to 0.7), to a 0.3 increase (that is, from 0.4 to 0.7), the size of the zero beta premium is between 150 basis points and 300 basis points (under a variety of scenarios for the risk free rate and market risk premium). This does not seem implausible, since zero beta premiums of this magnitude are below the market risk premium as required by the definition of the Black CAPM. Further, although the borrowing rates for the representative investor are not readily discernible, these magnitudes appear reasonable.*"[128]

7.2.4. Issues raised

The Issues Paper questions whether (or to what extent) the Black CAPM supports uplift in the point estimate for the beta. The Issues Paper also indicates that the AER will revisit the empirical analysis of the beta. In recent submissions, utilities have also presented studies that suggest that the estimates for the beta have increased in recent years and that a comparable treatment of the Black CAPM would support an increase in the beta.

Both these issues are discussed below.

7.2.5. What weight should be given to the Black CAPM?

The weight to be given to Black CAPM is considered in regard to 1) finance theory and estimation, and 2) market practice. CCP16 finds that notwithstanding the questions over the empirical performance of the S-L CAPM, it remains the dominant model in both finance theory and practice. In finance theory the Black CAPM is a well-recognised alternative that, like the Fama-French model, seeks to provide a better explanation for the observed pattern for the S-L CAPM to underestimate returns *achieved* by low beta stocks. However, there is also a rapidly developing behavioural finance school which seeks to provide a coherent theory based on alternative assumptions of risk aversion and decision-making. However, while it may provide an explanation for the market risk premium puzzle the implications for beta do not appear to be clear at this stage. Given the uncertainties of the theoretical underpinnings and the practical nature of the objective – see section 7.1.2 above – greater weight should be placed on market practice in considering the rate of return required by

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[126] AER, Rate of Return Guideline, Explanatory Statement, 2013 at p33
[127] Ibid, at p43
[128] AER, Rate of Return Guideline, Explanatory Statement, Appendices, 2013 at p71

investors. Here the evidence appears clear – the dominant approach is the S-L CAPM. While some adjustments may be made these are unlikely to be based on the Black CAPM.

7.2.6. Finance Theory

The strengths of the S-L CAPM are that:

- it is a coherent, relatively simple model of risk and expected return and portfolio selection and
- it is the most widely referenced and discussed model in the finance literature and has a level of academic and professional acceptance unmatched by the alternative models

A strength of the S-L CAPM is that it is based on standard neoclassical models of risk aversion, information, and efficient markets. But this is also a weakness as these assumptions are being questioned, particularly through alternative models of risk under the behavioural finance school.

One of the weaknesses of the S-L CAPM is that it appears to poorly predict actual returns. Beta seems to have a smaller effect on return outcomes than the theory predicts. In particular, the actual returns for low beta stocks appear to be higher than expected. However, S-L CAPM is a model of expected returns rather than actual returns. Expected returns are not directly observable and testing the model against actual returns assumes that actual returns are an unbiased indicator of expected returns. As the AER and its advisers have repeatedly stressed[129] the empirical analysis may disclose more about the impacts of various factors on actual returns than test the performance of the S-L CAPM as a model of expected returns.

However, various models, such as the Fama-French 3-factor model and the Black CAPM have been developed to provide a model of risk and return that better aligns to actual returns ex post. The strength of the Black CAPM is that it has a stronger theoretical basis than the Fama-French model. Like the S-L CAPM it is based on standard neoclassical models of risk aversion, information, and efficient markets, which is both a strength and weakness, as noted above.

The key difference between the S-L CAPM and Black CAPM is the risk-free rate. The S-L CAPM assumes there are no transaction costs and that investors can borrow or lend freely at the risk-free rate. Instead of assuming that investors can borrow or lend freely at the risk-free rate the Black CAPM assumes there are no restrictions on short selling.[130] Under the Black CAPM the risk-free rate is the return on a synthetic zero-beta portfolio estimated from the actual returns on portfolios with low, medium and high betas.

A key criticism of the Black CAPM is the difficulty of constructing and estimating the zero beta portfolio. The estimates of the RFR under the Black CAPM have shown large and variable premiums against the S-L CAPM risk free rate. For example:

- CEG (2008) reports zero beta premium estimates between 7.21 and 10.31 per cent per annum.
- NERA (2013) reports zero beta premium estimates between 8.74 and 13.95 per cent per annum.

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[129] See, for example, AER, Draft Decision, AusNet Services Gas access arrangement 2018 to 2022, Attachment 3 - Rate of return
[130] It could be noted that one of the key reasons why financial markets may not be efficient is that restrictions on short selling limit the extent to which professional investors can remove market imperfection through arbitrage

- SFG (2015) reports a zero beta premium estimates of 3.34 per cent per annum.

The CEG and NERA estimates of the premium exceed the usually assumed MRP, suggesting that beta is irrelevant.[131] The SFG estimates are high relative to the costs of borrowing but do at least leave a positive relationship between risk (beta) and return. Overall, the results serve to illustrate the volatility of the estimates of the RFR under the Black CAPM.

Indeed, if a zero-beta portfolio could earn premiums such as these, it raises the practical question of why would investors hold risk-free bonds rather than invest in a low beta portfolio. Posed in these terms it is analogous to the market risk premium puzzle. As noted above in the case of the MRP, this led to efforts to test and analyse the data used to attempt to better model investor behaviour. The AER's consultants McKenzie and Partington, and Partington and Satchell have raised questions about the reliability of the estimates of the RFR under the Black CAPM. The other response to the MRP has been to develop models of behaviour that do not assume linear, symmetrical risk aversion, redefine the relevant reference point for risk, and assume habit formation in investment decisions.[132]

This highlights that the Black CAPM is one of many models competing to provide explanations for the apparent anomalies. However, doubts remain as to whether the data discloses anomalies or reflects differences between actual and expected returns. Furthermore, S-L CAPM remains clearly the dominant model and development of alternatives that could challenge this model, such as the Black CAPM, are in a state of flux. As such, they are unsuitable for use in the regulatory context which requires models with strong theoretical basis and widely accepted in practice. Models should be based on established and transparent modelling and able to produce consistent and replicable outcomes over time. The Black CAPM, like the Fama French model and the DGM, has not met these essential regulatory criteria.

7.2.7. Market Practice

Surveys of market practice clearly indicate that S-L CAPM is the mostly widely used basis for determining required rates of return and valuing assets. There is evidence that in implementing the models, finance professionals and investors adopt simplifications and make adjustments. But CCP16 is not aware of any evidence that the adjustments are based on the Black CAPM to any significant degree. Indeed, there is sometimes an element of frustration that practitioners do not draw on more recent developments in finance theory.[133]

In the Explanatory Statement for the ROR guidelines, the AER cited the following evidence:[134]

- *"In a report commissioned by the ENA, SFG examined evidence on the approaches for estimating the expected return on equity adopted in independent expert reports. SFG*

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[131] Indeed, a premium above the bond yields that is greater than the MRP suggests a negative relationship between risk and return

[132] See, for example, J M Chen, Finance and the Behavioural Prospect, Palgrave Macmillan, 2016, pp137-180; Jeremy J Siegel., and Richard H. Thaler. "Anomalies: The equity premium puzzle." *The Journal of Economic Perspectives* 11.1 (1997): 191-200; G M Constantinides, "Habit formation: A resolution of the equity premium puzzle." *Journal of political Economy* 98.3 (1990): 519-543

[133] "*this possibility cannot be used to justify the way the CAPM is currently applied. The problem is that applications typically use the same market proxies, like the value-weight portfolio of U.S. stocks, that lead to rejections of the model in empirical tests.*" Fama and French (2004) at p43

[134] AER, Rate of Return Guideline, Explanatory Statement, 2013 at p62

stated that in half of the reports it reviewed, the expected return on equity was estimated by first using the Sharpe–Lintner CAPM, and then applying a specific uplift factor. This uplift factor was adopted to address perceived shortcomings in the Sharpe–Lintner CAPM estimates.

- *SFG also referred to a similar report prepared by Ernst & Young that was submitted to us during the Victorian gas access arrangement process. In this report, Ernst & Young stated that independent expert reports often use the Sharpe–Lintner CAPM to estimate the cost of equity, but typically exercise discretion in the application of the model."*

However, the bases of the adjustments within the S-L CAPM framework are not clear. As McKenzie and Partington concluded "*With respect to practitioners the evidence is clear that the Black CAPM is not explicitly accepted and we think it unlikely that it is used implicitly, although we cannot entirely rule it out.*"[135]

The key difference between the S-L CAPM and the Black CAPM is the RFR used. McKenzie and Partington argue that:

"*The near universal practice in measuring the risk premium/excess returns is to benchmark using the risk free rate as proxied by the yield on a government security. The widespread nature of this approach suggests that there are good reasons to prefer the risk free rate as the benchmark.*"[136]

Their conclusions are supported by more recent evidence. In a survey of 356 valuation experts across 10 European countries with CFA or equivalent designation, Bancel and Mittoo[137] found that:

- 78% use government bond rates to estimate the RFR and a further 13% use treasury notes.

- 81% use historical data to estimate beta.

- Fewer than half (46%) adjust the historical beta.

Bancel and Mittoo concluded that:

"*Overall, our evidence suggests that most experts are aware of the academic research on additional risk factors and try to incorporate some of these risks in their estimation but primarily based on their subjective judgments. Their preference for subjective estimates could reflect the challenges in estimating beta and market risk premium encountered by them, and confirms a wide gap in the theory and practice of valuation.*"[138]

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[135] Michael McKenzie and Graham Partington, Review of the NERA Report on the Black CAPM, Report for AER, 2012 at p26
[136] Ibid at p7
[137] Franck Bancel and Usha R. Mittoo, The Gap between Theory and Practice of Firm Valuation: Survey of European Valuation Experts, Journal of Applied Corporate Finance, 2014, downloaded from http://www.labex-refi.com/wp-content/uploads/2013/04/2014-working-paper-The-gap-between-theory-and-practice-of-firm-valuation-Bancel.pdf at pp13-16
[138] Ibid at p21

7.2.8. Updated beta estimates

Several utilities have argued that betas have increased in recent years and that this would support the use of a higher beta by the AER. Murraylink's recent proposal for 2018-2023 reset, supported by a report by Frontier Economics, provides an example. The increase to a beta of 0.8 proposed by Murraylink appears to rely heavily on the estimates for betas over 5 years after excluding DUET (one of the four firms). The exclusion of the estimates of DUET's beta, which were lower and outside the range of that for the other firms, was subjective and had a significant impact on the results. Inclusion of firms outside the regulated energy sector increases the estimated beta but it is not clear that the additional firms have comparable risks.

Utilities have submitted that estimates of beta have increased in recent years and estimates using shorter time periods are higher than those using longer time periods. The questions are whether these changes are significant and whether they are sufficient to warrant AER to change its beta assumption. AER's proposed updating of its studies to estimate beta will be critical in the consideration of these questions. However, CCP16 has concerns in regard to the Frontier Economics study, and similar studies recently submitted by utilities, and in particular the way the results are used.

The difficulty is that beta estimates have substantial error margins and shorter-term estimates of the beta and a small sample of firms increase these error margins. It is not clear that the differences in the results for the two sample periods are statistically significant. Partington and Satchell concluded that there is some weak evidence of increased beta at the portfolio level for a restricted set of portfolios and an increased beta at the individual firm level based on last five years data set.[139] However, they suggested that the increase may have been due to gearing assumptions rather than an increase in the underlying beta.

The issue of the volatility of beta, especially when estimated over short time period and with a small set of comparators, was raised in IPART's hearings on its review. Justin De Lorenzo (Sydney Desalination Plant) and Professor Stephen Gray both cautioned against placing too much emphasis on short term volatility. Justin De Lorenzo observed that:

> "Also I think in terms of any review that IPART would do from time to time on beta, looking at different comparator firms and periods of time, there needs to be a very high threshold or compelling evidence to change the beta estimate."[140]

Similarly, after discussing the up-dating of the beta estimates by ERAWA, which uses a similar data set, the AER's Professor Gray concluded that:

> "… the moral of that story is there is really some value in having a decent size set of comparator businesses, even if one has to look offshore, and a relatively long history of data with some kind of stability, because there is just no way that the true systematic risk and the

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[139] G Partington and S Satchell, *Report to the AER: Discussion of Estimates of the Return on Equity, April 2017* at p8

[140] Justin De Lorenzo, Review of the IPART WACC Method, Transcript of Public Hearing, August 2017 at p18

actual returns that investors are requiring are jumping around as much as a small comparator set with a short history might suggest."[141]

While a larger data set is desirable, a note of caution ("*even if …*") is expressed on the use of overseas data. CCP16 would echo this. The AER has provided sound reasons for its preference for using data from Australian firms only, and CCP16 would not recommend estimation of the beta from a single data set incorporating overseas utilities. For example, US utilities are more likely to be vertically integrated and include greater risks in generation and retail in their portfolios. Differences in regulatory frameworks, such as the use of price rather than revenue caps, may also affect systematic risk.

Nor do the reports provide analysis drawing from investment fundamentals that would support the proposition that the beta has increased. This raises questions as to the weight that should be given to the apparent increase in betas in recent years.

On the other hand, there have been changes to the regulatory regime that reduce the systematic risk for the utilities – the transition of utilities to a revenue cap and the transition to a trailing average approach for debt. The move to a revenue cap will mean that distribution networks are not exposed to volume risk (except temporarily) during the regulatory period. The adoption of the trailing average should also reduce financing risks for the utilities. Under the previous on-the-day approach the networks could use swaps to hedge their risk on variations in the RFR but could not hedge the debt risk premium component of debt costs. Under the trailing average approach, with annual updating of the cost of debt, the networks should not need to hedge their interest rate exposure assuming their portfolio reasonably matches the assumed portfolio of the BEE. Moreover, the promise of more stable allowances across regulatory periods increases certainty of returns for investors.

The AER has compiled estimates from various sources in the chart below.[142]

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[141] Professor Stephen Gray, Review of the IPART WACC Method, Transcript of Public Hearing, August 2017 at p17
[142] AER, Draft Decision, AusNet Services Gas access arrangement 2018 to 2022, Attachment 3 - Rate of return at pp3-78

Figure 13: Submissions on the value of the equity beta

Figure 3-3   Submissions on the value of the equity beta
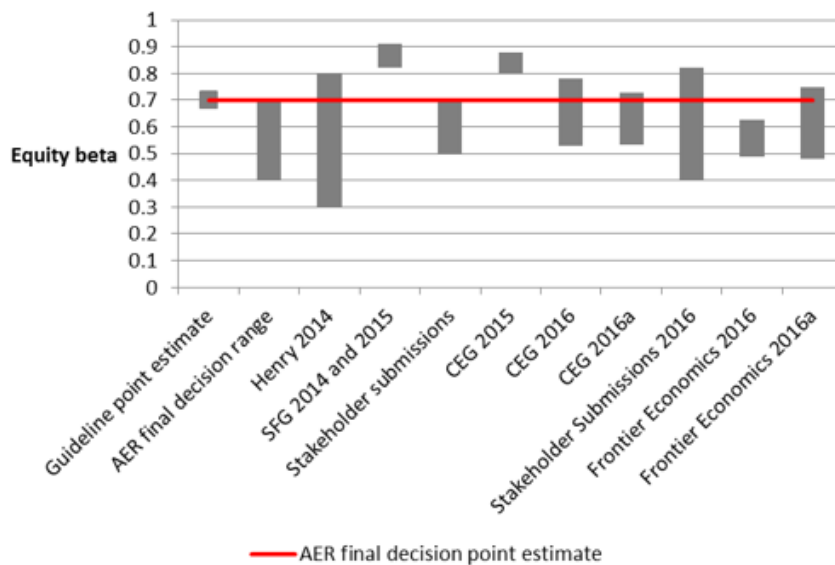
Source: AER analysis[325]

As presented, it is difficult to discern a consistent upward trend in the estimates of beta. Furthermore, except for SFG 2014/2015, and CEG 2015, the current beta of 0.7 is at or near the top-end of the range for each estimate.

In summary, while CCP16 acknowledges that in some cases the latest estimates are higher than earlier estimates, it is not clear how significant this is or indeed if there has been an upward trend in beta estimates. In contrast, the assumptions on beta used by other regulators and investment analysts appear to be relatively stable over time. This should be a significant factor in the AER's approach at this stage. On the evidence before it, CCP16 does not see that there is a case to increase the beta on the basis of the updated quantitative studies. But better information will be available on which to make such a judgement once the AER has updated its studies.

7.2.9.   How should AER estimate beta?

CCP16 considers the AER's current approach is fundamentally sound. However, within this framework the AER should:

- be clear that there are merits in stability of the beta and a high burden of proof would be required for changes to beta;
- give less weight to the Black CAPM, given its limited use in practice, and greater weight to the practice of advisors and investment analysts; and
- consider profitability measures and RAB multiples in assessing the overall ROE and feed this back into the decision on beta. The NZ Commerce Commission determination of the beta for gas

pipelines reduced a previous beta uplift due, in part, to an analysis of RAB multiples provides a precedent for this.[143]

We consider that strengthening the weight given to observable market practice and reducing the weight given to theories of finance yet to find general acceptance in the investment community is likely to result in decisions on the ROE and beta that better achieve the ARORO. Given the information currently available, this approach would support a reduction in the beta, but in other circumstances it may result in a higher beta than the AER's current approach.

7.3. Appropriate role of DGM

AER question 9: What is the appropriate role of dividend growth models (DGMs) in setting the allowed return on equity?

7.3.1. Summary of Response

As noted above, it is reasonable to assume that the long-term expectations for the MRP are anchored to the long-term average, while allowing that there may be times when the long-term expected MRP may drift up or down from the historical average. The challenge is to derive an estimate of current long-term expectations for the MRP.

DGM does not measure the MRP directly, but has currency as a means of estimating the current expectations for the ROE over the medium to long-term. Despite this, problems with the DGM limit the weight that can be placed on it and how it can be used. In particular DGM estimates:

1. rely on a strong assumption of efficient financial markets that is not supported empirically, especially over the short to medium term;
2. may be systematically biased upwards due to bias in analysts' dividend forecasts and the risk aversion of investors;
3. are highly sensitive to the assumptions and may be biased if there has been a significant change in the long-term growth prospects for the economy; and
4. can be highly volatile in the short-term due to the short-term volatility in equities markets.

In summary, DGM estimates contain information that can be relevant to the determination of the ROE, but need to be used cautiously because of the difficulty of 'sorting out the signal from the noise'. Absolute values derived from the DGM need to be considered carefully due to the potential biases, while short-term changes in levels also need to be considered carefully. Changes in DGM estimates may indicate a change in the expected MRP or reflect the many other factors affecting investor sentiment and driving equity market volatility.

While DGM estimates are relevant to the estimation of the ROE and ROR, the weight to be given to DGM estimates cannot be fixed in advance. It is possible, however, to specify the conditions when it would be likely that greater or lesser weight could be given to DGM estimates. Specifically, weight may be given to the DGM estimates where there is consistency between these estimates and the index of investment climate/uncertainty proposed above. But less weight – or no weight – should be given to changes that are contrary to investment fundamentals.

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[143] See annex 1 of CCP18 submission to the Profitability Measures Review (2017) for further examples of the use of profitability measures

7.3.2. DGM estimates and the efficient market hypothesis

Basis of DGM in theory and practice

The DGM has a solid theoretical basis and has been used in estimating the cost of equity in regulation and finance. Its primary advantage is that it offers a means of inferring the current required ROE for the market as a whole from the current financial market data. However, the reliability and robustness of the derived estimates has been questioned given the:

- sensitivity of the estimates to the assumptions;
- variability of the estimates between different versions of the DGM;
- short to medium term volatility of the implied long-term ROE estimate; and
- apparent frequent inconsistency between short to medium term changes in the implied long-term ROE estimate and market fundamentals.

The fundamentals of the DGM are simple: that the value of an asset equals the expected value of the future income stream discounted at a rate appropriate to the riskiness of the cash flows. For shares there are two types of cash flows - dividends during the period and an expected price of the stock at the end of the holding period. Since this expected price is itself determined by future dividends, the value of a stock is the present value of dividends through infinity.

$$\text{Value per share of stock} = \sum_{t=1}^{t=\infty} \frac{E(DPS_t)}{(1+k_e)^t}$$

where

DPS_t = Expected dividends per share

k_e = Cost of equity

In this form, there are two basic inputs to the model - expected dividends and the cost of equity. The expected dividends require assumptions about expected future growth rates in earnings and payout ratios. The required ROR on a stock is determined by its riskiness but when applied to the equity market as a whole it is the sum of the RFR and the MRP.   However, for given share prices and assumed dividend growth the model can also be solved for the ROR, and by deduction the MRP.

The key differences in the applications of the models are in the assumptions on the growth rate for dividends. The simple Gordon growth model assumes a single growth rate in dividends/earnings. The two–stage model has an initial stage in which expected dividends are assumed to be determined by estimates of analyst forecasts and a final stage in which the growth of expected dividends is assumed to be equal to the long–term dividend growth rate. The three-stage model has an interim stage where there is a transition from the analysts' forecasts to the long-term growth rate. The other key assumption is the basis for the long-term dividend growth rate. For example, is it the long-term growth rate for the economy or slower growth rate to allow for the creation of shares?

These are the most common models, although many other combinations of assumptions are possible. The AER uses two versions of the DGM – a two-stage model and a three-stage model. The central estimate for the nominal long-term growth in dividends was 4.6% (2.5% inflation and 3% real economic growth less 1% adjustment for share creation). ERA uses the AER models plus its own two-stage DGM. IPART uses 6 DGM models:

1. Damodaran Model: three-stage model with first two years based on analyst forecasts and constant growth rate after 5 years
2. BOE (2002) Model: three-stage model with longer periods for each phase and constant growth rate after 12 years
3. BOE (2010): three-stage model similar to Damodaran, with the first three years based on analyst forecasts
4. Bloomberg: methodology not disclosed by Bloomberg
5. SFG analyst implied: three-stage model which simultaneously solves for growth rate and discount rate (required return) to equate year 10 growth rate long term growth rate and
6. SFG indicator model: MRP is estimated on the basis of the variation in 4 market indicators (dividend yield, RFR, corporate bond spread and term spread) from their average values)

This summary of the various models illustrates the variety of models and assumptions used in implementing the DGM which can impact on the estimated required return.

7.3.3. Viability of the efficient market hypothesis

A key assumption of the DGM is that markets are efficient, with stocks valued at a point in time on the basis of the net present value of expected cash flows.

However, the general consensus is that the efficient market hypothesis is dead. Schiller[144] comprehensively tracks the development and testing of the efficient market hypothesis, and ultimately concludes that the body of financial 'anomalies' is simply too large to support it as a depiction of financial markets. The efficient market hypothesis requires, consistent with DGM, that the price of a stock, P_t, should be equal to the expectation of its underlying value, $P*_t$, given the information known at t - i.e. $P_t = E_t(P*_t)$. This formulation provides testable hypotheses, which in the testing gives rise to these 'anomalies'.

First, we should not see consistent overvaluation or undervaluation of stocks: forecasting errors should be randomly distributed over the full spectrum of numbers, from negative infinity to positive infinity, and so should not consistently be either positive or negative. Evidence, however, suggests that markets consistently overreact to information: in one of the earlier articles on this topic, De Bondt and Thaler find that people tend to overreact to unexpected news and that this predisposition to overreaction is mirrored in the pricing of stocks in the market.[145] Using monthly return data for the New York Stock Exchange over a span of more than fifty years (1926-1982), they find that previous 'loser' stocks subsequently outperform the market by, on average, 19.6%, whereas previous 'winner' stocks underperform the market by about 5%, suggesting not only overreaction, where 'loser' stocks are underpriced in response to bad news and 'winner' stocks overpriced in response to good news, but further suggests asymmetry in the overreaction. Herd behaviour may drive up asset values behind fundamentals. The bursting of bubbles is highly unpredictable and once burst may lead to an overreaction.

The second testable hypothesis, is that given the formulation of the efficient market hypothesis, the observed price plus any forecast error should be equal to the underlying price, $P_t + U_t = P*_t$. Under

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[144] Robert J Shiller, "From efficient markets theory to behavioral finance." *The Journal of Economic Perspectives* 17.1 (2003): 83-104

[145] Werner F. M. De Bondt and Richard Thaler, *Does the Stock Market Overreact?,* The Journal of Finance, Vol. 40, No. 3,. (1985) at pp793-805

the efficient market hypothesis, the form of forecast error is uncorrelated with any information (persistent over- or under-reaction to any piece of news would be arbitraged away), so it must hold that under the efficient market hypothesis $Var(P_t) + Var(U_t) = Var(P^*_t)$, and thus the variance of observed prices must be no greater than the variance of the underlying efficient price or value, $Var(P_t) \leq Var(P^*_t)$. However, using the simplest test, as Shiller illustrates, of plotting the Standard and Poor's Composite Stock Price Index compared to the present value of the subsequent real dividends paid, we find that the Composite Stock Price Index is far more variable than the estimated true underlying values, regardless of what discount rates are used.[146] In response to criticism of the earlier study, several studies[147] developed the analysis further using more advanced techniques and still found that stock prices are more variable than the underlying true value. It is important to note that these calculations are at the S&P 500 level: at the individual stock level, the price variability more closely tracks the underlying value variability, so that the stock market could be efficient at the micro level even though it is clearly not at the macro level. This is an important conclusion as the DGM is estimated at the macro (market-wide) level to estimate the MRP.

Keynes claimed: "*investing is an activity of forecasting the yield over the life of the asset; speculation is the activity of forecasting the psychology of the market.*" In the current context, investment is a reflection of the yield over the life of the asset; speculation is a reflection of the psychology of the market and it is speculation that may drive short term equity prices and variations in estimates of expected yields under the DGM in the short term. The regulators' task is to look beyond this to the long term investment yield.

7.3.4. Volatility and Variability of DGM estimates

International evidence
Norges Bank has compiled estimates of the implied world MRP for the period since 1995 using a variety of DGM models.

Figure 14: Estimates of the implied world MRP for the period since 1995 using a variety of DGM models
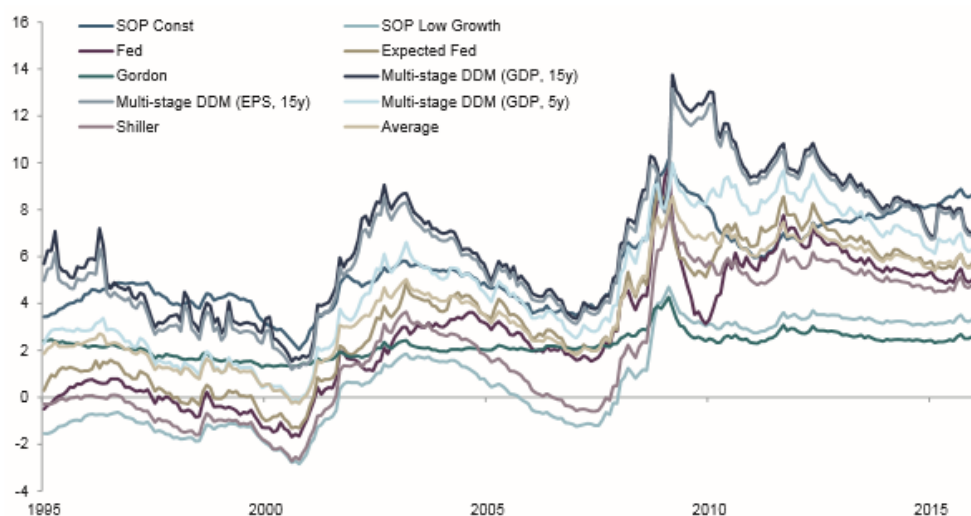
Source: Factset, IMF, OECD, Bloomberg, USDA Macroeconomic data; Norges Bank Investment Management

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[146] R J Shiller (2003), op cit.
[147] Cited in Shiller (2003)

Source: Norges Bank, *The Equity Risk Premium Discussion Note,* 2016, p32.

The results highlighted the range in the estimates of the MRP under different versions of the models. Not surprisingly a key factor in the differences in the absolute value of the implied MRP is the assumption on long-term dividend growth rates. The Sum of Parts (SOP) low growth, Shiller, and Fed models are at the bottom end of the range throughout the period. Models that rely less on analyst forecasts are more stable through time. The extreme example of this is the Gordon dividend discount model. This model, which assumes dividends grow at the risk free interest rate and does not use analysts' forecasts, provides the most stable estimate of the MRP since 2008. Models that assume dividends grow at the average of past long-term GDP growth rates and/or give greatest weight to analyst forecasts of dividends provide the highest estimates.

The sensitivity of the results to the assumed long-term growth rates focuses attention on whether investors' assumptions of the long-term growth rate are constant through time. Or in the current circumstances of an extended period of slower-than-expected recovery would investors have reduced their expectations of the long-term growth in dividends? If so, maintaining a constant assumption for the long-term growth in dividends may understate the reduction in the MRP in recent years.

Australian Evidence

Frontier Economics uses the estimates from the AER three-stage DGM to seek to show an increase in the MRP over the period from 2013 to 2016. The danger in this approach is that it uses estimates from one model only taken at discrete points in time rather than in the context of a continuous time series.

Figure 15: Estimates of MRP from the AER Three-Stage DGM
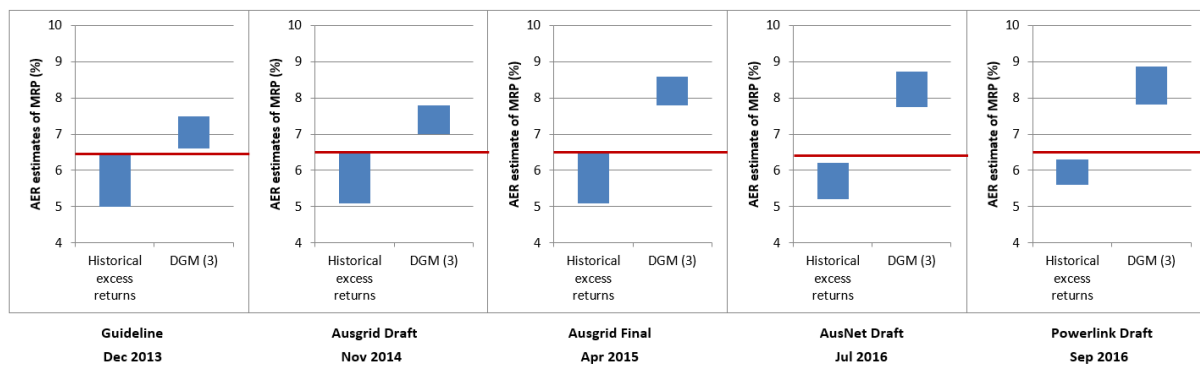
Source: Frontier Economics, *The market risk premium*, TransGrid Revenue Proposal 2018/19 – 2022/23 Appendix S at p6

By comparison the estimates below from Fenebris[148] show substantially lower absolute values for the MRP and a decline in the MRP from 2012 to 2014 followed by a small increase in 2015-2016. Since then the MRP estimate has fallen back to levels closer to long term average for the series.

[148] Cited in Partington and Satchell

Figure 16: Implied Market Risk Premia (IMRP): Australia
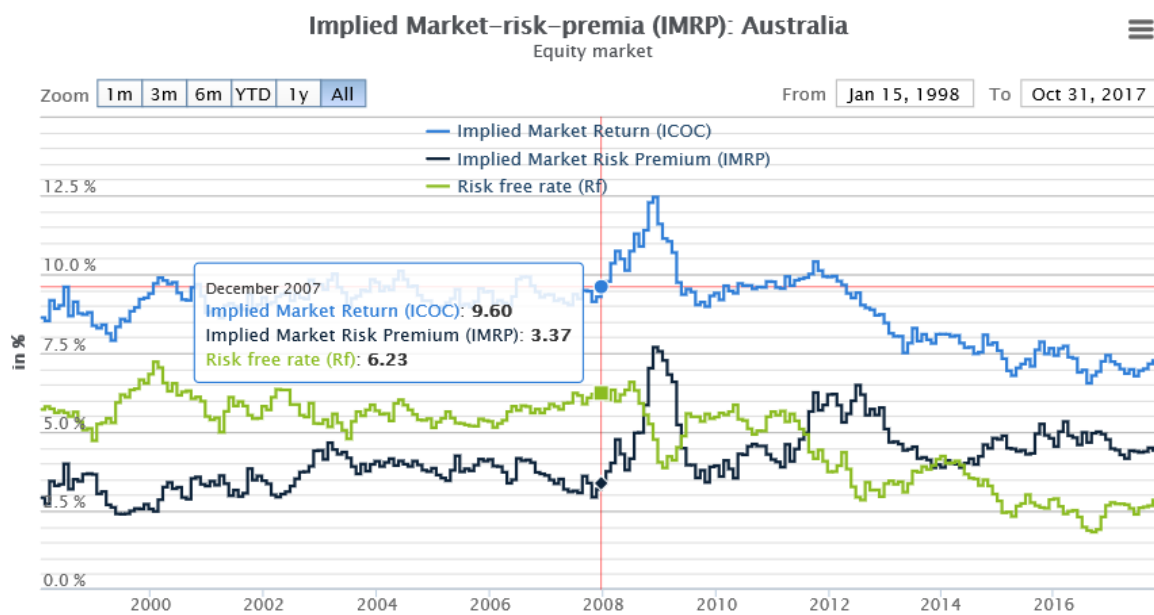
Source: www.market-risk-premia.com/au.html

IPART has published data for 5 of the 6 versions of DGM it uses (it could not provide Bloomberg data due to commercial restrictions). Of these models, the SFG indicator model (which is based on indicators rather than dividend forecasts and growth assumptions) is both the lowest and most stable through the period. There is substantial volatility in the other models from month-to-month. The outlier is the BOE 2002 model which gives greatest weight to analysts' forecasts of dividends by assuming the longest period of transition to the long-term growth rate. This provides substantially higher forecasts than the other models and appears to be more volatile. Interestingly, the spread between the models has increased through 2016.

Figure 17: Comparison of IPART's DGM estimates of MRP
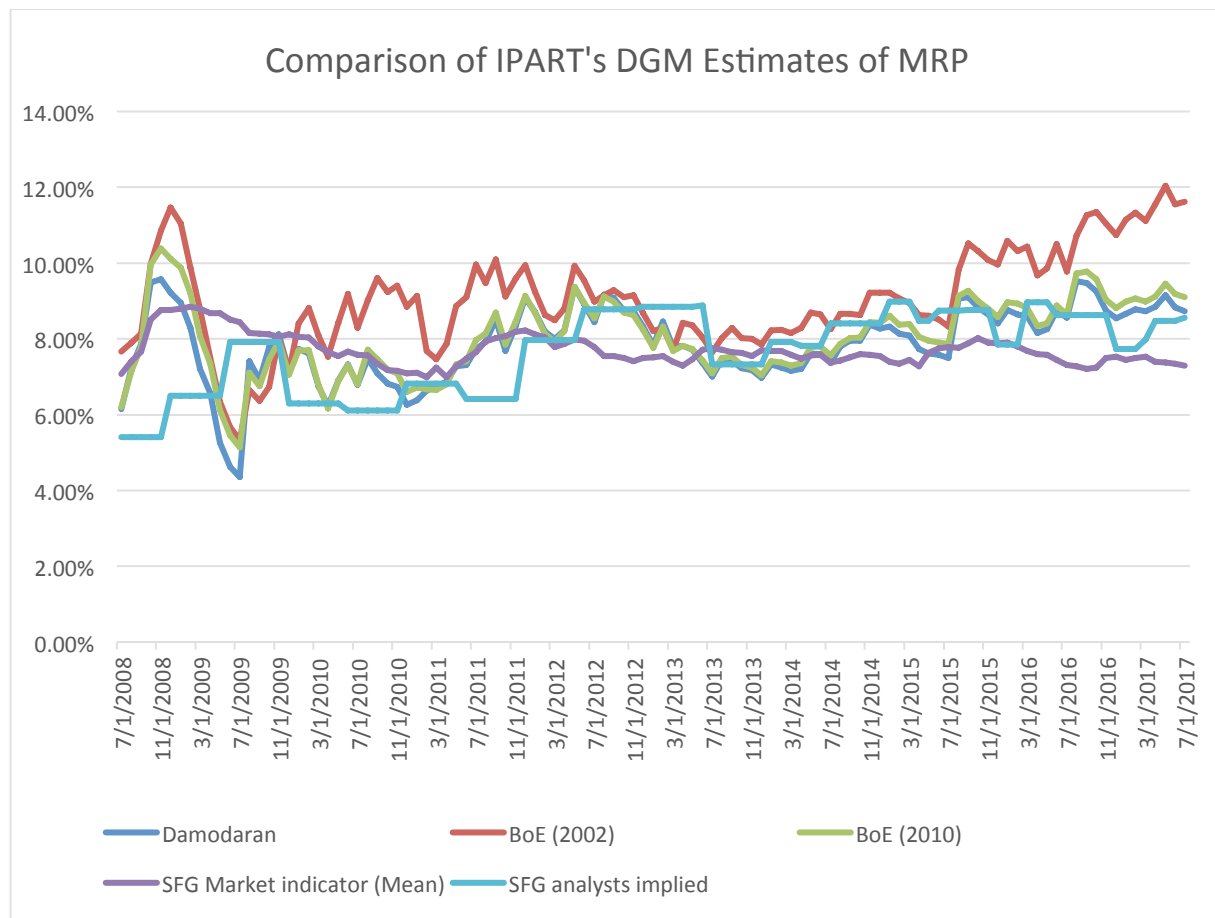
The review of these models highlights the differences between the models and the volatility of the estimates through time, reinforcing the risks of using the results from a single period and from only one or two models. Interestingly there is a significant difference between the trends in the MRP estimates from the Australian models since 2013 and those from the Norges Bank research for other countries. Most of the models in the Norges Bank study show a continuation of the steady fall in estimates for the MRP from 2013, in contrast to the flattening or slight rise in Australia. This raises the question as to why this is so. Possible reasons could be differences in dividend payout policies or expectations of long-term dividend growth. The assumptions in the DGM may not reflect investors' expectations of a weakening of long-term growth rates or that higher dividend payout ratios may not be sustainable.

7.3.5. Potential Biases in DGM estimates

Potential biases in DGM estimates can be grouped into systematic, ongoing biases and temporary biases related to specific circumstances.

Systematic biases

In their advice to the AER, Partington and Mackenzie cautioned that "*current applications of the DGM, including the two-stage model, are quite likely to result in upward biased estimates of the cost of equity*"[149] due to the:

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[149] M McKenzie and G Partington, The Dividend Growth Model, Report to the AER, December 2013 at p5

1. Use of dividends using analysts' forecasts to forecast earnings in the short to medium term. There is strong evidence that analysts' forecasts overestimate target prices, earnings and dividends;

2. Growing importance of non-dividend forms of cash flows between the company and its shareholders; and

3. The common use of the GDP growth rate as a proxy for the expected long run growth rate for dividends. McKenzie and Partington note that there is a lack of evidence to support this assumed relationship and that negative correlations between GDP growth and stock returns are commonplace. Furthermore, GDP growth rate should be adjusted downwards to account for the additional capital that investors must supply to support the growth in GDP.

Behavioural economics also suggests investors' approach to risk may not match the common assumptions of neo-classical economics. Investors may be risk averse, with losses and gains measured against a reference point – or expectation - rather than absolute terms. This may be factored into decision-making through conservative assumptions on future income streams. That is the investors may sensibly discount analysts' forecasts and future growth rates. DGM estimates that do not reflect this will result in estimates of the required ROE that are biased upwards.

On balance Partington and Mckenzie conclude that:

> "However, in our opinion the AERs implementation of a two stage model is a reasonable, transparent and easily reproducible implementation. Some extension of the period for transition to normal growth might be warranted, but we recommend that this transition period be no more than five years and more likely closer to three. For the reasons we discuss in our report, the risk with the AER's implementation of the dividend discount model is that the estimate of the implied cost of equity will be too high rather than too low.[150]"

Temporary biases

The Norges Investment Bank Research paper considered this and concluded that:

> "The average World ERP estimate from various dividend discount models is 5.9 percent. These estimates may be affected by recent data bias. Cash flow growth has been exceptionally large since the end of the Global Financial Crisis in 2009, which in turn may bias upward expectations of future cash flow growth when extrapolated from historical data. In a below-average cash flow growth scenario, the estimated World ERP is 3.7 percent. Estimates of the expected ERP are also affected by the choice of proxy for the future risk-free rate. The current near-zero short-term interest rates may be a poor proxy for future short-term rates if the market expects rate increases in the future. The expected World ERP from the discount models may be closer to 4 percent if expectations of interest rate normalisation are taken into account."[151]

Furthermore, long-term expectations for economic growth may be affected by long term economic optimism or pessimism. For example, following the GFC and concerns about the long-term growth path for the Australian economy following the resources boom, investors may have had lower expectations for long-term growth, resulting in an upward bias in DGM estimates using constant

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[150] McKenzie and Partington, op cit at p25
[151] Norges Bank, *The Equity Risk Premium Discussion Note,* 2016 at p3

long-term growth assumption. The chart below from the BOE illustrates the decline in expectations for long-term growth in the US, UK and Europe over this period.[152]

Figure 18: Long-term growth forecasts since the financial crisis (IMF five-year ahead nominal GDP forecasts)
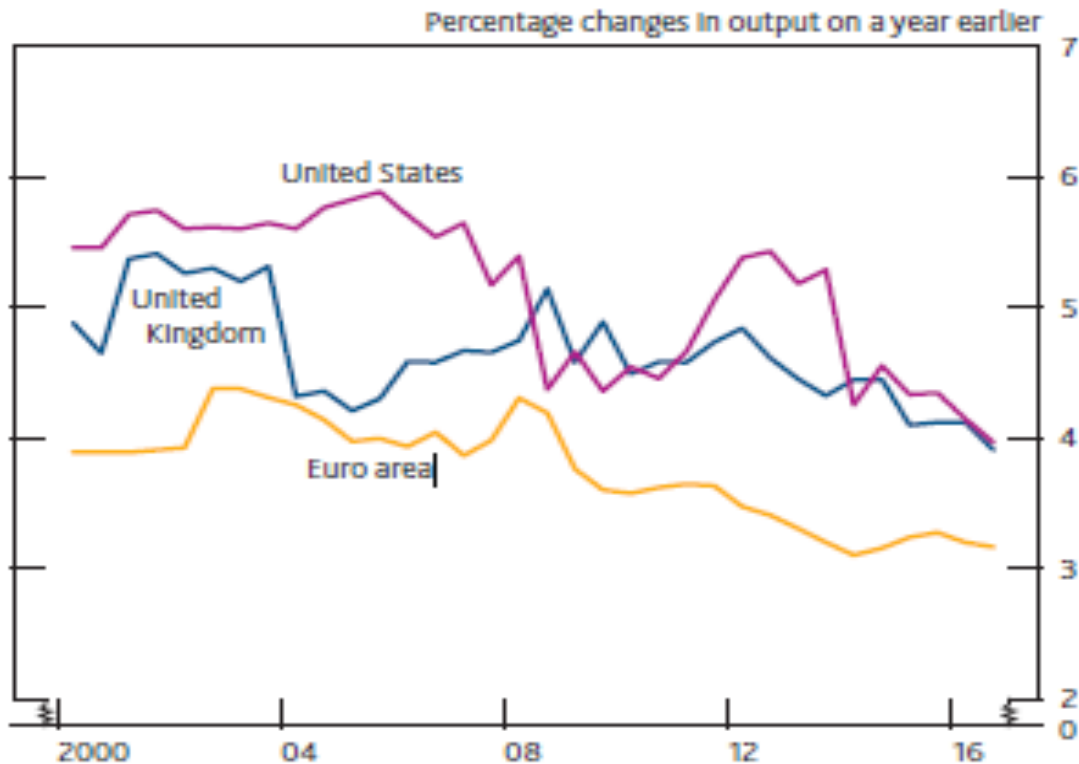
Sources: IMF *World Economic Outlook* and Bank calculations.

In examining the implications that can be drawn for P/E ratios Partington and Satchell also raise the prospect of changes in long-term growth expectations:

> "*In the environment of the last few of years it seems very likely that expectations of growth have been depressed. Current low interest rates are the RBA's attempt to try and stimulate flagging growth and flagging investment. Reduced expectations of growth would push the earnings yield up, so if the expectations of the payout ratio have not changed, a relatively flat earnings yield implies that the cost of equity has come down".*[153]

7.3.6. Framework for the use of DGM estimates

In summary, the estimates of the ROE and the MRP using the DGM are quite sensitive to the form of the model and the assumptions. In particular, it requires strong assumptions to be made about the investor's expectations for the long-term growth in dividends and the stability of these expectations over time. The results can also be affected by the 'behavioural/irrational component', to use Damodaran's term. Market volatility and extended period of positive or negative market sentiment

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[152] Will Dison and Alex Rattan, *An improved model for understanding equity prices*, Bank of England Quarterly Bulletin 2017 Q2 at p91

[153] Partington and Satchell (2017), op cit, at p22

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will affect the measured MRP using the DGM while expectations for the MRP may remain more stable.

Given these factors, the AER should exercise caution in adjusting the MRP in response to variations in the forward-looking estimates of the MRP derived from the DGM. It is important that any change in the assumed MRP can be shown to be consistent with investment fundamentals and the impacts of market conditions on the relative risks and demand for different asset classes. This is consistent with expert advice and practice.

The BOE uses DGM [DDM] to analyse trends in stock prices but they stress the need for caution:

> "As the ERP cannot be observed, any estimate of it is necessarily subject to uncertainty. Part of the uncertainty associated with model-based estimates of the ERP reflects uncertainty about the measurement of the model's inputs. For example, investors' true dividend expectations cannot be observed, so any proxy for these used in a DDM, whether derived from analyst surveys or GDP forecasts, is necessarily only an approximation. The inherent uncertainty about the true value of the ERP is reflected in the wide dispersion of ERP estimates in the literature. Given the uncertainty associated with measuring the ERP, the Bank's analysis tends to focus less on the precise level of the ERP and more on changes in the ERP over time or on the level of the ERP relative to historic averages."[154]

Partington and Satchell reach similar conclusions:

> "DGM-based estimates of the MRP in a 10 year horizon context, are probably better down-weighted than given more weight. We are not completely dismissive of the DGM approach, but it is more useful as a conceptual tool than a forecasting model.[155]
>
> ….
>
> We also reiterate our past advice that year by year estimates from the DGM are likely to be unreliable."[156]

The DGM estimates can be used at two points: the determination of the MRP and ROE at scheduled reviews of the guidelines; and the determination of the MRP and ROE when an early review is triggered. At each review, there would be a strong presumption that long-term expectations for the MRP would be anchored to the historical average. But the results from the DGM models could be considered alongside other information in considering whether a variation in the MRP from the historical average is warranted. The weight that can be placed on the DGM results cannot be fixed in advance but would depend on the:

1. extent to which the results are consistent between different versions of the DGM
2. extent to which the results are not transitory but have been sustained for a period and
3. consistency of the results with the conditioning variables and other indicators.

Under the proposed approach set out above, an early review would be triggered by an index of uncertainty or investment climate indicating abnormal market conditions. If the variation in the

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[154] Will Dison and Alex Rattan, op cit, at pp92-93
[155] Partington and Satchell (2017) at p25
[156] Partington and Satchell (2017) at p26

DGM estimates from the long-term average were consistent in direction and magnitude with the index of uncertainty or investment climate and other indicators, it would be reasonable to place greater weight on the outcomes from the DGM in considering whether to vary the MRP within the range established by the historical analysis, given the long term investment horizon adopted by the AER.

Some NSPs[157] have suggested that under the current regime, the AER is somehow committed under the current guideline to placing a 50/50 weighting on the historical analysis and the DGM outcomes. CCP16 considers that the AER's current approach does not require that and would be concerned if the formulaic approach in the next Guideline made such a step; the regulator's discretion should not be so bound as it cannot take account of the overall circumstances and interrelationships with other components of the ROE and the overall rate of return. The weight to be placed on the DGM in the Guideline cannot be specified in advance quantitatively.

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[157] E.g TransGrid's 2018-19 to 2022-23 revenue reset proposal.

8.   Imputation credits

AER question 10: Is it appropriate to limit the review of the valuation of imputation credits to updating the empirical analysis? Are there any particular issues we should take into account when updating empirical analysis?

8.1.   Summary and recommendations

CCP16 supports the AER's current approach to assessment of the value of imputation credits as part of the overall building block approach and in the context of the post-tax revenue model. However, we encourage the AER to consider imputation credits more holistically as part of a tax/imputation credits package that impact on the overall returns to the investor and to the receiver of the credits. As a starting point CCP16 recommends that the AER to collect a more comprehensive data base on the actual practices with respect to tax and imputation credits, particularly of entities that are close to the BEE but also embracing the infrastructure sector more generally.

In supporting the AER's current approach, CCP16 considers that following the decision in May 2017 by the Full Federal Court on the meaning of the 'value of imputation credits' (as used in the rules) this central issue is now settled. As a result, market based studies such as the dividend drop-off studies should play little or no part in the AER's new Guideline. The AER's focus on equity ownership and tax statistics is appropriate and is therefore supported by CCP16.

The AER's task now is to develop a consistent framework and data set for the assessment of the value of imputation credits based on the equity ownership and tax returns data. The tax return data should be particularly useful for estimating both the dividend payout ratio and the utilisation rate. CCP16 would encourage the AER to continue to seek refinement of this data.

The estimation of the value of imputation credits has been at the centre of multiple appeals to various Tribunals and to the Federal Court. Until the Federal Court decision in May 2017, there was one successful appeal by the NSW Networks and others, and two failed appeals to the SA Tribunal and the Victorian Tribunal. The Federal Court's decision has done much to clarify what has become the central point of debate, namely the meaning of the 'value of imputation credits', a term that was first introduced into the rules during the 2012 rule change process – without much description. The rules themselves provide little guidance to how the value of imputation credits should be considered.

The Full Federal Court has now determined that the phrase should not be interpreted narrowly but considered in the context of the overall building block framework. In addition, the Court clarified that the value of imputation credits is to be taken as the face value of the imputation credits available for distribution. From this interpretation flows the conclusion that the value of imputation credits is best measured on the basis of the imputation credits available to be redeemed. The Court concluded that market based studies such as the dividend drop-off studies are not appropriate for this assessment (leaving aside all the other limitations of the various dividend drop-off studies).

CCP16 therefore considers that the high level issue of the meaning of the value of imputation credits is now settled. The focus of the AER's attention should be on other matters. The remainder of this chapter puts forward the view that the AER's assessment of both tax and imputation credits is built

around observations of the total market. CCP16 recognises that there are good practical and conceptual reasons for this but we remain concerned that:

- The AER's approach treats tax and imputation credits as separate issues and it may be valuable to consider tax and imputation credits as a 'package', particularly in the context of a post-tax WACC where both items sit outside the WACC parameters.
- This process would be assisted by the AER collecting additional data on the actual taxation rates and imputation policies of the regulated networks (and similar infrastructure entities) just as it bases its benchmark credit ratings and gearing ratios on industry data.

In making these observations, CCP16 is also reflecting the concerns of the CCP in general and consumer groups that there is something very strange about consumers paying significant allowances for taxation costs that are not in fact being incurred by the private sector networks.

CCP16 also agrees with the AER that it should continue to collect data on equity ownership and tax statistics. The tax statistics data would be particularly useful – if the quality could be more relied on – given the Court's interpretation that the value of imputation credits in the regulatory framework must be assessed to reflect utilisation of these credits rather than 'market' measures.

Recommendations:

- The AER should continue to assess the value of imputation credits using the conceptual framework that has now been endorsed by the Full Federal Court, namely that the 'value of imputation credits' is the face value of the imputation credits that are available for distribution, not the market value that is estimated by market based studies such as the dividend drop-off study.
- The AER should, however, reconsider its view that the assessment of the credits that are available for distribution is based on market wide information such as equity ownership statistics and tax statistics. CCP16 recommends that the AER collect specific industry data on the utilisation of imputation credits and at the very least, use such data to assess whether the current approach is appropriate
- The AER should, at the same time collect additional information on the effective tax rates of the industry so that the overall taxation allowance (including imputation credits) reflects more closely the actual industry practices and will provide a more coherent view of the total tax rate/imputation credit value in the post-tax PTRM. Collecting data on actual tax rates and imputation credits is no different than the approach used by the AER to determine the benchmark credit rating and gearing ratio used in the ROD and ROE calculations.
- CCP16 considers there is considerable merit in the AER undertaking further empirical research on the equity ownership and tax statistics. Equity ownership data may well evolve as the economy restructures and the flow of international capital increases. The tax statistics could be a valuable and very direct measure of both utilisation and payout ratios. CCP16 appreciates the difficulties with this tax data but consider that if the quality issues could be addressed these statistics will be a valuable component of the AER's assessment 'tool box'.

8.2. The role of imputation credits in the regulatory framework

The imputation system in Australia has been in place since 1987. It is a system that endeavours to eliminate double taxation of cash payouts from a corporation to its shareholders by issuing 'franking

credits' to eligible investors. A shareholder in possession of a franked dividend in Australia can expect to receive a financial benefit from capital growth, dividend payouts and franking credits that can be used to off-set the investor's tax obligations.

The relevance of imputation credits within the building block framework adopted by the AER is that access to imputation credits should, in principle, reduce the equity returns that eligible shareholders expect to earn when purchasing shares in a company.

Turning that around, the Association of Superannuation Funds of Australia Limited (ASFA) has estimated that for superannuation members (a large proportion of Australian households), a franked dividend of $100 generates an after-tax return of $122 for an accumulation fund member and $143 for a pension fund member.[158] Superannuation funds are significant investors in long-life utility assets including the regulated networks. In effect, the existence of imputation credits will (all other things being equal) push the price of shares up (although how much it will do so is not directly observable) and the returns on those shares down.

As in many components of the AER's rate of return estimation, the impact of imputation credits on the expected return on equity is not directly observable but must be estimated from other data. One of the difficulties for the AER is that the rules do not provide much guidance on how imputation credits should be valued. The rules specify that:[159]

- the allowed rate of return must be … determined on a nominal vanilla basis that is consistent with the estimate of the value of imputation credits (NER cl 6.5.2 (d)(2));
- the Rate of Return Guidelines must set out … the estimation methods, financial models, market data and other evidence the AER proposes to take into account in estimating … the value of imputation credits (NER cl 6.5.2 (n)(2)); and
- the estimated cost of corporate income tax … must be estimated in accordance with the formula that states that estimated tax for each year is a function of the estimate of taxable income for that year earned by the BEE, the expected statutory income tax rate for that regulatory year and **the value of imputation credits** (gamma) (NER 6.5.3).

A further difficulty is that not all businesses issue franking credits and not all eligible parties who receive franking credits utilise these credits.

The AER also proposes that the gamma that is relevant to the BEE will be informed by "market wide behaviour rather than with regard to industry or firm specific values."[160] In the 2013 Guideline, the AER proposes to define 'gamma' as follows:[161]

> *"…the value of imputation credits within the building block revenue framework is an estimate of the expected proportion of company tax **which is returned to investors through utilisations of imputation credits."***

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[158] The Association of Superannuation Funds of Australia, *Dividend imputation – its rationale and its impact on superannuation outcomes*, August 2015 at p4.
[159] The references refer to the NER Chapter 6 (Distribution businesses). The same wording is included in the relevant sections of Chapter 6A of the NER and in the NGR.
[160] See AER, *Explanatory Statement, Rate of Return on Investment Guideline*, December 2013 at p159
[161] AER, *Explanatory Statement, Rate of Return on Investment Guideline*, December 2013 at p158

Consistent with the Monkhouse formula,[162] the AER proposed to estimate gamma as the product of two parameters that are relevant to the estimation of the utilisation of imputation credits.

- the payout ratio, which is the proportion of imputation credits generated by the BEE that are distributed to investors; and
- the utilisation rate (theta), which is the extent to which investors use the imputation credits they receive to reduce their personal tax.

While there have been debates about the data that the AER uses to measure these two parameters, the essence of the ongoing disputes is the interpretation of the 'value' of imputation credits. It is the interpretation of the value of imputation credits that has been central to the networks' appeals to the various Tribunals, and the AER's appeal to the Federal Court with respect to the decision of the NSW Tribunal to reject the AER's preferred interpretation.

Before commenting on the specific elements of the AER's question, CCP16 states its firm view that the interpretation of the 'value of imputation credits' is now 'settled law' following the judgement of the Full Federal Court in May 2017 that confirmed the AER's interpretation of the rules and overturned the NSW Tribunal's decision. The Full Federal Court saw its main task was to 'resolve' the meaning of the value of imputation credits and it has done so in clear terms.

The Court specifically addressed the NSW Tribunal's view, which was in accord with the networks' submissions. The Tribunal had stated that: "the value was not what can be claimed or utilised, but what is claimed or utilised as **demonstrated by the behaviour of the shareholder recipients** of the imputation credits". [163] [emphasis added]

This interpretation led the NSW Tribunal into supporting the market based estimates of the value of the imputation credits as proposed by the networks and their consultants and opposed to the redemption of utilisation approach adopted by the AER. The Full Federal Court was clear in its rejection of the market-based interpretation considering the approach failed to recognise the overall context in which imputation credits are utilised in the AER's building blocks:

> 751   In our opinion, the Tribunal erred in law in construing r. 6.5.3 of the NER and r 87A of the NGR as invalidating the AER's approach to estimating the cost of corporate income tax of the respondents where gamma is the value of imputation credits. In our opinion, the expression "the value of imputation credits" is to be construed as a whole, in its context and having regard to the subject matter of the exercise. It would be an error to limit attention to the word "value" and give it meaning in isolation. In essence, we thing this is what the Tribunal did. The Tribunal thereby misunderstood the function of imputation credits under the Rules in relation to the return on capital and the tax building block.

It is not necessary to go into the further details of the debate on the meaning of the value of imputation credits although it continues to be a matter of contention for some networks and their advisors. CCP16 is satisfied that the Full Federal Court's ruling in favour of the AER's view that the

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[162] See Monkhouse P, 'The Valuation of Projects under the Dividend Imputation Tax System', Accounting and finance, May 1996, vol 36(2) at pp185-212. Cited in AER, *Explanatory Statement, Rate of Return on Investment Guideline,* December 2013 at p158
[163] Cited by the Federal Court at [750].

value of imputation credits in the regulatory context is the face value of the imputation credits available for distribution. It takes into account two factors:

- Not all imputation credits created when companies pay tax are distributed, because some company profits are not paid out in dividends but are reinvested in the business, and
- Foreign investors are unable to redeem imputation credits they receive.

The AER's interpretation, now endorsed by the Full Federal Court, does not take account of behavioural factors such as domestic investors who are unable to redeem imputation credits, some eligible domestic investors do not redeem the franking credits and some do redeem the imputation credits but may not value them at the full face value.

From CCP16's perspective, this much is now 'settled law'. Of course, what is not settled is whether the overall approach to assessing the tax allowance for the BEE should be reassessed. Consumers have indicated a strong concern, which is shared by the CCP, that the majority of the regulated network businesses (or their corporate entities) are paying little or no tax in Australia.

Following the decision of the Full Federal Court, CCP16 considers that there is limited if any role for the market based studies of the 'value of imputation credits' in the context of the building block regulatory regime.

8.3. Additional data that should be collected by the AER

8.3.1. High level assessment

CCP16 concludes that there is value in the AER collecting additional empirical analysis on the basis that collecting such data will assist the AER in forming a view on the practical relevance of its high level assumption that the BEE will be informed by "market wide behaviour rather than with regard to industry or firm specific values".

The reasons for CCP16's view on this are discussed below.

The estimate of the value of imputation credits could be included as a discount to the allowed return on equity derived from the 'foundation model'. However, in the AER's post-tax revenue model (PTRM), the benefit of imputation credits sits outside the WACC parameters and is captured as part of the tax liability of the company.[164]

The decision by the Full Federal Court quoted above highlighted the risks in looking at individual elements of the building blocks, such as the value of imputation credits, without consideration of the overall context. CCP16 agrees strongly with this observation and encourages the AER to keep that in mind when considering the measurement of the components of imputation credits.

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[164] Under a post-tax WACC framework, the value of imputation credits is not a WACC parameter but is captured in the tax liability of the company. Under a pre-tax WACC framework (adopted by some regulators), the value of imputation credits is a WACC parameter. Either way, the measurement difficulties remain, although inclusion in the post-tax adjustment is probably more transparent.

CCP16 considers that the effective taxation rate[165] and imputation credits in the post-tax model should be considered as a whole rather than discretely. CCP16 (and many other stakeholders) are concerned that the current approach does not take a sufficiently holistic view. In considering the AER's question 10, it is therefore appropriate for CCP16 to step back from the detail and consider the "tax/imputation credit package". As discussed below, neither of these two components is assessed in a manner that reflects the characteristics of the BEE; rather they are market wide measures largely irrelevant to the actual policies and actions of the regulated network businesses.

For example, and as indicated above, there is something deeply troubling about the idea that consumers should fund an allowance based on the statutory taxable income rate of 30% when there is little evidence that this is the effective tax rate that is actually paid by the privately owned networks.[166] CCP16 therefore encourages the AER to commence collecting relevant information on the taxable income and actual taxes paid in Australia by the network companies so as to better understand the possible differences between its estimates of taxable income and tax expenses and actual taxable income and tax paid.

> Consumers are rightfully concerned that the AER's current allowance for taxation does not reflect the actual taxation rates that are paid by the network businesses. While this is a complex topic, the AER should respond to this concern and begin the process of collecting and evaluating the assumption that a BEE would typically pay tax at the statutory rate.

In requesting this, CCP16 understands that the rules currently require the AER to apply the statutory tax rate. However, the collection of taxation data can shine a light on whether:

1. There are systematic differences between actual taxable income and AER's estimates of taxable income that need to be taken into account in the methodology for estimating taxable income.
2. The rules need to be reviewed so that they more accurately reflect the actual state of affairs and recognise the very significant changes in ownership that has occurred since the relevant rules were formulated in 2012.

It is similarly concerning that so much debate has occurred about the level of imputation credits when the majority of network businesses do not appear to pay full franking credits to their Australian shareholders.

CCP16 considers that the AER may have restricted itself by specifying that the value of imputation credits relevant to the BEE be calculated on a market wide basis rather than on the basis of individual businesses or business sectors. In saying this, CCP16 is aware of the strong view of Lally that the measurement of the utilisation rate should be consistent with the definition of the utilisation rate as "the value-weighted average over the utilisation rate of all investors who are relevant to the Officer CAPM…"[167]

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[165] 'Effective tax rate' can be understood as the ratio of tax paid to pre-tax profits allowed under the ROR. Under the NER tax paid is a function of the estimated taxable income and the statutory tax rate. CCP16 understands that the primary difference between the AER allowance for tax and the actual tax paid is the difference in the AER's estimate of taxable income and actual taxable income.

[166] This is not to imply that the companies are acting illegally. It is to recognise the reality of the taxation environment in which they operate.

[167] Lally, *The estimation of gamma*, November 2013 at p3

However, it is not clear how this definition provides the best estimate of the 'tax/imputation credit' calculation for a BEE in the post-tax PTRM. While CCP16 raises the question, it is not expecting the AER to provide an individual pass through allowance for franking credits. However, it is reasonable to expect the AER to consider developing an industry benchmark that reflects the specific features of the firms that operate in this area. For example, the AER could collect information on the actual payout ratio of the listed regulated firms (which may include the broader class of infrastructure firms).

This suggestion is no different than the way in which the AER has set the benchmark credit rating or the gearing ratio. The AER looks first to data from the relevant industry participants before it sets the efficient benchmark for these parameters. Similarly, the AER sets the equity beta on the basis of industry specific data. At the very least, collection of this data would improve the AER's understanding of how the industry and their investors create and utilise franking credits and, along with the collection of actual taxation data, could provide reassurance to consumers that they are not funding the network businesses for costs that are not incurred now, or over the life of the assets.

> CCP16 considers that the AER should collect relevant data on taxation and imputation policies of the relevant businesses with particularly reference to infrastructure businesses.

8.3.2. Detailed assessment

The AER's initial assessment of the value of imputation credits resulted in its estimate of gamma of 0.5. This is derived as the product of a payout ratio of 0.7 (based on tax statistics) and a utilisation rate of 0.7. The AER comes to this utilisation rate by examination of some 5 sources of information consideration of the strengths and weaknesses of each approach.

Table 8 summarises the AER's initial conclusions on the utilisation rates. A striking feature of this table is the variation in estimation from the alternative approaches. Another striking feature is that the AER places very little reliance on implied market value studies on the basis that these studies are not consistent with the conceptual framework. As discussed above, the Full Federal Court has confirmed the AER's conceptual framework.

The AER's initial view is that a utilisation rate of 0.7 best represents the outcome of this assessment of each method without assigning specific weights to each method.

Table 8: AER assessment of estimation approaches for the utilisation rate (theta)

Estimation method	Estimate of utilisation rate	AER's reliance	Comment
Equity ownership	0.7 to 0.8	Significant regard	Consistent with conceptual framework by Officer and Monkhouse, simple and intuitive and uses relatively transparent source of data
Tax statistics studies	0.4 to 0.8	Some regard	Consistent with conceptual framework by Officer and Monkhouse but issues with data quality and consistency
Implied market value studies	0 to 0.5	Less regard	Not consistent with conceptual framework, employs complex and problematic estimation

Estimation method	Estimate of utilisation rate	AER's reliance	Comment
			methodologies
Conceptual goal posts	0.8 to 1.0	Limited regard	Not an empirical approach but defines the boundaries for estimates of the utilisation rate
Other supporting evidence	Not applicable	Limited regard	Includes observations about market practice, government tax policy and imputation equity funds

Source: AER, *Explanatory Statement, Rate of Return Guideline*, December 2013 at pp159-160

Since publishing this information in the 2013 Rate of Return Guideline, the AER has undertaken further investigations and concluded that a utilisation rate in the range of 0.3 to 0.5, with a mid-point of 0.35 best reflects the utilisation of imputation credits. The AER's revised gamma is 0.4 (rather than 0.5). The AER has also updated the range for tax statistics to 0.4 to 0.6

With respect to the AER's specific question, CCP16 does support the updating of the data that it relies on for its decision on the gamma parameters.

For example, it is not appropriate to assume that the values such as equity ownership rates are constant over time. The current estimate is based on data from the National Accounts to estimate the domestic ownership share. The equity market can be expected to change over time given the international flows of capital and this, together with the expansion of the economy and changes in ownership structures may well change the proportion of domestic and non-domestic investors.

CCP16 also notes the issues raised by the AER in its assessment of its approach to equity ownership including which domestic shareholders (if any) should be excluded, whether the calculation should include both public and private businesses or only publically listed companies and over what length of time should the data be collected. CCP16 considers it is appropriate to review the more recent evidence on each of these options in order to give more confidence to its equity ownership estimates.

The second measure, tax statistics, is on the surface a valuable source of information on utilisation of the imputation credits. ATO provides statistics on the tax returns of individuals, superannuation funds and companies as well as on the imputation credits refunded to charities and other tax exempt entities. As the AER notes, these statistics are potentially able to directly measure the amount of imputation credits distributed and the credits utilised - and by whom. As such the tax statistics not only align well with the AER's conceptual framework, they are also a source of further research – it they were sufficiently reliable.

CCP16 has not considered the other measures as following the decision of the Federal Court, the market value studies do not have a clear role to play in the new Guideline and in any case have been extensively reviewed by the AER and its consultants. Moreover, the AER's consultant, Handley, has indicated to the AER that he does not consider the conceptual goalposts approach to be a reasonable approach to estimating the utilisation rate.[168]

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[168] See AER, Ausgrid Final Decision 2014-2019, Attachment 4, April 2015 at p4-95.

9. Other factors related to the rate of return

AER question 11: Should expected inflation and its interaction with the allowed rate of return be a priority under the Guideline review?

> CCP16 supports the AER's current approach to estimating expected inflation and the focus on a real rate of return on an indexed RAB. These issues should not be a priority for this review.

Although a nominal rate of return is set by the AER, the regulatory models[169] are constructed to provide a real ROR (WACC) on a real rate base. In effect, there is a real WACC-real price contract with customers, supervised by the regulator, under which the return on capital for the network and the price path for customers remains the same in real terms irrespective of the actual inflation. However, variations between expected and actual inflation will affect the nominal return on capital and, if debt is financed in nominal terms, the real ROE.

This has led some utilities to argue that the regulatory framework should be modified to fix the nominal ROE or nominal return on debt and real ROE instead of the real ROE.

The CCP15 submission to the AER inflation review did not support a change in approach. The submission noted that good regulatory practice is built on consistency and predictability. Both investors and consumers place a high value on these attributes. Hence, there must be a very good reason for change – the "bar" for change must be high – to ensure that any change is enduring and unambiguously in the long-term interests of consumers.

The submission from CCP15 argued that:

1. The AER's current approach is:
   a. consistent with the requirements under the NER and NGR;
   b. consistent with good regulatory practice in implementing incentive based regulation;
   c. reflects sound economic principles and is consistent with promoting efficient investment and financing strategies; and
   d. provides an appropriate allocation of risk.
2. The 'real return on real RAB' is a common means of implementing incentive-based regulation. Variability in nominal returns on capital and real returns on equity are integral to this approach.
3. The networks advocating for change have not shown that the risks have been significant in practice in Australia or other regulatory regimes that have adopted the 'real return on real RAB' approach.
4. A shift from current approach would increase the variability and uncertainty of the real price path. That is, risk may be reduced for the networks but would be increased for customers.
5. If a change were made, the reduction in risk should be reflected in the equity beta and the ROR provided.

The supporting arguments are set out in the CCP15 submission to the Review of Expected Inflation.[170]

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[169] i.e. the Post-Tax Revenue Model, the Asset Roll-Forward Model and the annual adjustment of revenues/prices using the CPI-X formula

[170] Available at https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/review-of-expected-inflation-2017/initiation

Attachment – Regulatory precedents for the use of RAB multiples

The UK's Civil Aviation Authority (CAA) expressed its position on market-to-asset ratios (MARs) as follows:

> "*The CAA agrees that MARs should be interpreted with caution. By comparing the airport operator MARs to other sectors with higher MARs starts to make inference about whether other sectors have got it 'right' or 'wrong'. This does not take the discussion forward. By comparing the MARs to 1, ignores the idea that a small modest premia might be desirable. The CAA considers that the MARs calculated in respect of HAL disposals (1.09 to 1.14) are within a range that does not give the CAA concern that the current WACC is too high or too low.*"[171]

The New Zealand Commerce Commission stated:

> "*Our focus is not on isolating the individual sources of excess returns. Rather our objective is to assess whether the existing WACC uplift is too generous. As pointed out by Covec, 'irrespective of the cause of a high RAB multiple, the existence of such multiples is strong evidence that the WACC is not too low'*".[172]

The Commerce Commission in New Zealand usefully summarised the way in which market valuations, or RAB multiples have been used in assessing the reasonableness of rates of return. This is reproduced in the box below.[173] Have considered these practice and precedents and, notwithstanding the acknowledged limitations of these ratios, the Commerce Commission considers that RAB multiples provide a cross-check on the reasonableness of the allowed WACC. In its 2016 review of the cost of capital the Commerce Commission stated that:

> "*As part of our reasonableness checks, we have considered RAB multiples for regulated energy and airports businesses in New Zealand. RAB multiples can provide a useful indicator of whether the allowed rate of return has been set at a sufficient level to adequately compensate investors for putting their capital at risk.*"[174]

It concluded that the RAB multiples for the electricity networks of 1.13-1.43 supported its view that the allowed rates of return were not unreasonable and cited the RAB multiples in the Vector and Maui gas pipeline sales of 1.14-1.5 as supporting its decision to remove a beta uplift factor of 0.1 compared to the other regulated energy networks.

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[171] Civil Aviation Authority, *Estimating the cost of capital: a technical appendix to the CAA's Final Proposal for economic regulation of Heathrow and Gatwick after April 2014 CAP 1115*, 2013 at p78

[172] Commerce Commission of NZ, *Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services Reasons paper*, 2014 at p155

[173] Commerce Commission of NZ, *Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services Reasons paper*, 2014 at pp152-154

[174] Commerce Commission, *Input methodologies review draft decisions, Topic paper 4: Cost of capital issues,* June 2016 at p161

"C17.1 The Chairman of Ofwat has referred to high RAB multiples for UK water utilities as evidence that the regulator's allowed WACC is too high noting that "the continuing trend for water companies to be sold for prices around 130% of RAV (regulated asset value) only suggests that the regulator's adopted cost of capital is too high and the premia reflect excess demand for these assets".

 C17.2 In its February 2014 report on the split cost of capital, the Queensland Competition Authority referred to UK and Australian RAB multiples as evidence of above-normal returns.

C17.3 While the AER decided not to use RAB multiples to assess the reasonableness of its WACC parameters, the AER does monitor RAB multiples as part of a set of indicators to help inform it of potential areas of inquiry and research.

C17.4 In its 2013 advice to the UK Office of Water (Ofwat) on the approach to reviewing the appropriate returns for water companies, PwC noted that "the expectation for out-performance on regulatory assumptions can be gauged by looking at the market-to-asset ratio (MAR) of water industry companies…". PwC reports an average MAR in the UK water sector of 1.23 and concludes that "the relatively high MARs suggest that there have been consistent expectations of higher returns…". PwC lists three potential drivers of these expectations:

C17.4.1 outperformance that is attributable to unregulated business units which PwC comments is generally small;

C17.4.2 synergies available to the new entity that are not allowed for by the regulator; and

C17.4.3 allowed revenues being set at levels higher than finance providers require "suggesting operational targets were easy to outperform, and/or the WACC was set too high relative to the actual costs of financing".

C17.5 In 2014, Grant Samuel prepared an independent expert's report relating to APA Group's proposal to acquire the Australian gas distribution company Envestra. In this report, Grant Samuel commented that:

C17.5.1 "A common rule of thumb parameter used in the valuation of energy infrastructure assets is RAB multiples";

C17.5.2 "Theoretically, listed infrastructure entities should trade at, and assets should be acquired at, 1.0 times RAB. However, that does not occur and, in fact, most assets generally trade at a premium to RAB"; and

C17.5.3 "The precise reasons for this are uncertain but contributing factors probably include: expectations of volume growth above the levels used by regulators…; expectations of savings relative to the operating and capital costs assumed by regulators…; a cost of capital less than that assumed by the regulators…; growth options…; and profit streams from other businesses".

C17.6 In 2013, PwC published a report on regulated airports in the UK noting that "regulated airports are allowed to earn a return on their regulatory asset base (RAB). RAB is therefore a key valuation metric, and the market places significant emphasis on enterprise value to RAB multiples in assessing the value of regulated airports."

C17.7 In 2011, Deloitte published a paper in which it explored a number of valuation issues concerning regulated infrastructure assets. When describing factors that had led to Australian utilities trading at a premium to their RAB, Deloitte said: "the effective cost of capital borne by the asset owner may be lower than that assumed by the regulator due to either a cheaper cost of capital and/or greater leverage."