Draft Rate of Return Guidelines 2018

Submission to the ERA

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Energy Networks Australia

Contents

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1 Executive summary

Energy Networks Australia welcomes the opportunity to provide this submission to the Economic Regulation Authority (ERA) Rate of Return Guideline Review. Overall, there are several areas of the ERA's Draft Decision that are capable of acceptance by affected networks. In particular:

- The ERA's method of calculating beta is clear and transparent, and gives rise to an appropriate "statistical best" estimate of beta.
- Whilst there are some issues of clarity, affected members consider that the cost of debt approach used by the ERA is capable of acceptance.
- The ERA's approach to gearing, even as it provides a different answer than in the past, is capable of acceptance.
- The ERA's approach to inflation is supported by the affected members.

In this submission Energy Networks Australia focuses on concerns it has in relation to the approach in the Draft Guideline in relation to the market risk premium, low beta bias and gamma.

In summary, Energy Networks Australia's position in relation to these matters is a follows:

- Market risk premium – Energy Networks Australia considers that the ERA must adopt an approach that gives rise to the best possible empirical estimate of the market risk premium that is commensurate with the prevailing conditions in the market. To give effect to a binding guideline, the requirement to have regard to all relevant financial models is maintained.

  Relevant to the ERA's task of producing the best possible estimate of the market risk premium, Energy Networks Australia submits that:

  - The arithmetic average should be used in estimating the market risk premium from historical excess returns. This is not a matter of judgment or opinion, but is the subject of a mathematical proof.
  - There has been no change to the dividend growth model evidence since the 2013 guideline to justify the ERA's proposal to down weight its reliance on the dividend growth model evidence.
- Low beta bias – Energy Networks Australia submits that the empirical evidence of low-beta bias is compelling, and is supported by new evidence provided by AGIG and APA to the ERA process, as well as our submission into the Australian Energy Regulator (AER) guideline process. The ERA's decision to give it no weigh, or even to acknowledge its existence, is problematic.
- Gamma - Energy Networks Australia has provided evidence that there are no material concerns with the ATO estimates of credits created or credits redeemed, in which case there is no need to separately estimate a distribution rate and

instead the ATO tax statistics method to directly estimate gamma can be adopted.

Energy Networks Australia considers that there are several major problems with the 20-firms approach to estimating the distribution rate. The evidence does not support the ERA's shift from its current approach in favour of placing 100 per cent weight on the 20 firm approach. Similarly, the evidence does not support the ERA shifting from current approach in favour of placing 100 per cent weight on a single equity ownership estimate.

Energy Networks Australia considers that the evidence supports a range of 0.34 to 0.39 for the utilisation/cash flow gamma for listed equity. We submit that it would be inappropriate to fix an estimate of gamma for the duration of the Guideline. Rather, the Guideline should set out how the estimate of gamma will be changed if the equity ownership approach becomes inappropriate due to the potential changes in tax law.

We consider it useful to bring to the ERA's attention the relevant material that was provided by Energy Networks Australia to the AER with regard to its development of the equivalent guideline for the energy networks that operate in the east coast. Although we recognise there are key differences between the approaches each regulator has taken towards the estimation of some parameters, there is nevertheless significant overlap between the two concurrent processes. We trust that the attached information will provide useful evidence to the ERA as it makes its deliberations.

Attached is Energy Networks Australia's full submission to the AER. In addition, expert reports are contained within Attachments 1-3:

- **Attachment 1** – John Earwaker, *The AER's Draft WACC Guideline. An International Perspective*. The report demonstrates that approaches proposed in the AER's Draft Rate of Return Guideline would result in rates of return on equity that are not commensurate with, and which fall significantly below, those of alternative investment destinations for similar regulated investment funds (such as New Zealand, the United States, United Kingdom and Europe).
- **Attachment 2** – Frontier Economics, *Low-beta bias and the Black CAPM.* The report considers the approaches that have been taken to estimate ex ante expected returns directly. This is essentially the same evidence that AGIG and APA have presented to the ERA its submission to this review process.
- **Attachment 3** – HoustonKemp, *Forecasting dividend growth*. The report demonstrates a useful way to produce relatively precise estimates of long run dividend growth, and thus assists in addressing any possible queries around model inputs which have been raised in regards to the use of the dividend growth model (DGM).

2 Market risk premium

2.1 ERA Draft Guidelines

This section focuses on concerns in relation to the approach in the Draft Guideline in relation to the market risk premium. It includes consideration of both of the Draft Guidelines and the more recent Western Power Final Decision, which represents a further refinement of the ERA's views, and provides more details on the proposed implementation approach.

Energy Networks Australia understands that the ERA's current views on the evidence in relation to the market risk premium are as follows:

- The ERA's historical excess returns point estimate, which forms the lower bound of the ERA's assessment of the market risk premium is estimated at 5.7 per cent in the Western Power Final Decision. The ERA uses a simple average of the lowest arithmetic and highest geometric means to estimate the lower bound of the historic market risk premium.
- The ERA estimates the contemporaneous market risk premium, using the dividend growth model, at 7.6 per cent in the Western Power Draft Decision, and has not updated that number for the Final Decision. The ERA proposes to afford less weight to the DGM evidence relative to its prior decisions, citing "diminished confidence" in the DGM following the publication of the AER's Draft Guideline.
- In order to comply with the proposed binding guideline framework, the ERA's approach to the market risk premium must be able to be applied mechanistically (i.e., without the exercise of any discretion by the ERA) at the time of each determination. The ERA has not specified its preferred approach in its Draft Guideline, but instead asks stakeholders to consider three alternatives.

Energy Networks Australia addresses its concerns with the ERA's approach to estimating the market risk premium in the remainder of this section.

2.2 The role of geometric means in the draft guideline

Key messages

- Energy Networks Australia considers the objective assessment of the available evidence does not support material weight being applied to geometric means.
- Energy Networks Australia submits that the arithmetic average must be used in estimating the market risk premium from historical excess returns. This is not a matter of judgment or opinion, but is the subject of a mathematical proof.

It is apparent that the ERA applies material weight to the geometric means in order to reduce the point estimate for the market risk premium. Energy Networks Australia notes that the merits of using the arithmetic mean of historical excess returns rather than the geometric mean has been considered in some detail in the AER's guideline process, including the AER's expert concurrent evidence sessions. Energy Networks Australia proposes that the relevant evidence from the AER's process should be taken

into consideration by the ERA. This evidence suggests that the arithmetic average must be used in estimating the market risk premium from historical excess returns.

The ERA's Explanatory Statement states that:

> *An arithmetic average will tend to overstate returns, whereas a geometric average will tend to understate them. These biases are empirically significant. As Blume shows, when compounding the arithmetic average over time, it is the sampling error in the measurement of the arithmetic average return that causes the upward bias in the expected return. The geometric average normally gives a downward biased measurement of expected returns. The geometric mean can understate returns as it is based on an ideal consistent compounding, which does not account for the actual variability of returns over time.* [1]

The ERA's Explanatory Statement also notes the AER's regulatory practice:

> *In its April 2017 TasNetwork decision the AER continues to use both the arithmetic and geometric means, tempered by an understanding of the potential biases in both.*[2]

The ERA and the AER both use the historical excess returns data to estimate the expected market risk premium in a setting where no compounding of returns occurs, and this mathematically requires the arithmetic mean.

In the second concurrent evidence session, conducted as part of the AER's review of the Rate of Return Guideline, the experts explained that this is not a matter of opinion, but is the subject of a mathematical proof.

The AER's expert, Dr Lally, has also advised the AER that the arithmetic mean must be used, also providing a mathematical proof as the basis for that advice. In his 2012 report for the AER,[3] Dr Lally states that:

> *The AER's belief that geometric averages are useful apparently arises from a belief that there is a compounding effect in their regulatory process (AER, 2012, Appendix A.2.1), and therefore the analysis of Blume (1974) and Jacquier et al (2003) applies. However, I do not think that there is any such compounding effect in regulatory situations and the absence of a compounding effect leads to a preference for the arithmetic mean over the geometric mean.*[4]

Dr Lally then presents a mathematical derivation to demonstrate that the historical arithmetic mean satisfies the NPV=0 criterion and the historical geometric mean does not. Dr Lally sets out the NPV=0 test and concludes that:

> *The geometric mean fails this test whilst the arithmetic mean will satisfy it if annual returns are independent and drawn from the same distribution.*

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[1] ERA, *Draft Explanatory Statement for the Rate of Return Guidelines (2018)*, June 2018, p.114.
[2] ERA, *Draft Explanatory Statement for the Rate of Return Guidelines (2018),* June 2018, p.11.
[3] Lally, M., July 2012, The cost of equity and the market risk premium.
[4] Lally, 2012, p. 31.

So, if historical average returns are used, they should be arithmetic rather than geometric.[5]

Subsequent to the concurrent evidence sessions, the AER commissioned a report from Partington and Satchell to opine on matters including the use of geometric means.[6] Their response on this point, in full, is as follows:

The estimation of the market risk premium is for the purpose of determining investors' required rate of return. This return is equal to their expected rate of return if prices are in equilibrium. Investors compound returns and whether or not the AER compounds returns is not relevant to the return that investors require/expect. It is well established that the arithmetic average of annual returns will overestimate expected returns if the holding period is more than one year. The holding period of investors is likely to be more than one year. For example, in the expert evidence session it was suggested that some investors in the regulated businesses had investment horizons of 20 years. Given investor holding periods of more than one year it is appropriate for the AER to have regard to the geometric average for returns. It is also appropriate for the AER to consider return periods of more than one year.[7]

Partington and Satchell present no mathematical proof and do not consider the mathematical proof presented by Dr Lally or any of the other mathematical proofs of why the arithmetic mean must be used to estimate expected returns. Rather, Partington and Satchell simply assert that investors may consider compound returns if they have long investment horizons. But there are two fundamental problems with this view that are apparent from the mathematical proofs that have been presented:

- The mathematical proofs already incorporate arbitrarily long time horizons. For example, the Lally proof is easily generalizable to *N* periods. The idea is to demonstrate that the arithmetic mean must be used to ensure that the present value of the allowed cash flows, over the life of the asset, is equal to the initial RAB.
- When investors consider compound returns or geometric means, it is for a different purpose. It is entirely appropriate for an investor to use the geometric mean as an estimate of the compound annual return that *has been* received over a particular historical period. But it is entirely inappropriate to use it as an estimate of the *expected* return over the forthcoming year. This is demonstrated in the simple example in the box below.

[5] Lally, 2012, p. 32.
[6] Partington, G. and S. Satchell, May 2018, Report to the AER: Allowed rate of return 2018 Guideline Review.
[7] Partington and Satchell, 2018, p. 34.

Illustration of arithmetic vs. geometric means

Consider an investor who has held an asset for two years and seeks to use that historical data for two purposes:

- To estimate the compound return that *has been* earned over the *historical* two-year period; and
- To estimate the *expected* return over the *forthcoming* two-year period.

Suppose the observed returns were -2% and 14% in each of the two years, respectively. In this case, the geometric mean is $(0.98 \times 1.14)^{0.5} - 1 = 5.7\%$ and the arithmetic mean is $(-0.02 + 0.14)/2 = 6\%$.

Note that $100 invested at the beginning of the two-year period would have fallen by 2% to $98 at the end of the first year and then risen by 14% to $111.72 at the end of the second year. This is equivalent to an annual compound return of 5.7% $[100(1.057)^2 = 111.72]$. Thus, the geometric mean is the appropriate calculation for the investor to use to compute the compound return that has been earned over the historical two-year period.

Now consider the best estimate of the expected return over the forthcoming two-year period. The two-year history suggests that, each year, there is a 50% chance that the return will be -2% and a 50% chance that the return will be 14%. Thus, over the forthcoming two-year period there are four possible outcomes, as summarised below.

Year 1	Year 2	Probability	Value of investment
-2%	-2%	0.25	96.04
-2%	14%	0.25	111.72
14%	-2%	0.25	111.72
14%	14%	0.25	129.96
Expected value			112.36

In this case, the expected value of the investment at the end of the two forthcoming years is $112.36, which equates to the arithmetic mean: $100(1.06)^2 = 112.36$. Thus, the arithmetic mean is the appropriate calculation when estimating the expected return over a forthcoming period.

The arithmetic mean treats each historical data point as representing one possible outcome that may occur in each year in the future.

Using the geometric mean to estimate the future expected return implies that the series of historical data will be repeated again in sequence in the future.

Energy Networks Australia suggests that regulators should give due regard to clear evidence enunciated in mathematical proofs designed to fit the particular circumstances of the regulatory task, and far less weight to general views about what investors might do more broadly. With this in mind, it is clear that there is no role for geometric means in the determination of the market risk premium.

2.3 Evidence from the ERA's dividend growth model

Key messages

» Energy Networks Australia considers there has been no change to the DGM evidence since the 2013 guideline to justify the ERA's proposal to down weight its reliance on the DGM evidence.

The DGM evidence has the great benefit of providing an estimate of the market risk premium that is commensurate with the prevailing conditions in the market. By contrast, the historical excess returns approach, by definition, produces an estimate that is commensurate with the historical average market conditions over the historical period that is used.

The ERA has placed material weight on DGM estimates since its 2013 Rate of Return Guidelines - roughly 60 percent according to the ERA's own references.[8] The ERA's Explanatory Statement now suggests that the ERA intends to place less reliance on the DGM market risk premium, relative to the historical market risk premium.

The ERA gives no indication of the weight it proposes to use in the Draft Guidelines. It is also not explicit in its Western Power Draft and Final Decisions. However, in the Draft Decision, it formed a range of 5.6 percent to 7.6 percent, and a point estimate of 6.2 percent, which implies a weight of 30 percent on the DGM. In the Final Decision, the range was 5.7 to 7.6 percent with a point estimate of 6 percent, which implies a weighting of 16 percent. Thus, the ERA appears to have moved from a weighting of 60 percent to a weighting of 16 percent over the period of two years.

Energy Networks Australia is concerned about the ERA's proposal to down weight its reliance on the DGM evidence. The only evidence the ERA cites for this diminished confidence are concerns about the DGM expressed recently by the AER in its Draft Guideline. The ERA has not commissioned any work on the reliability of DGM estimates, but cites work commissioned by the AER.[9] The AER raises a list of concerns with the DGM in its Draft Guideline materials. A number of these concerns are not new and have been well known to the AER and ERA over the course of multiple decisions. The ERA's Explanatory Statement does not raise any objections to the DGM other than those that have already been raised by the AER and which have already been considered by the ERA in its past decisions. Indeed the list of concerns raised by the ERA in the Western Power Final Decision are almost identical to those raised in the DBP Final Decision.[10] Clearly, concerns that have been well-known for some time, and which have previously been factored in to a regulator's process for determining the allowed MRP, cannot be the basis for "diminished confidence" cited by the ERA. That

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[8] ERA, *Revised decision of the Economic Regulation Authority's access arrangement for the Mid-West and South-West Gas Distribution Systems*, October 2013, p.11.
[9] ERA, *Draft Rate of Return Guideline Explanatory Statement*, Section 11.2.2.3.
[10] ERA, *Final Decision on Proposed Revisions to the Access Arrangement for the Western Power Network, Appendix 5 Return on Regulated Capital Base*, September 2018, p.59.
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*, June 2016, p.117.

is, if a point has been previously raised and a decision-maker applies material weight to the DGM after considering that point, as a matter of logic that same point cannot now be used as the reason for "diminished confidence."

Only three of the concerns cited by the AER are new, and therefore capable of being the source of the recent "diminished confidence". Energy Networks Australia addresses these concerns in the remainder of this section.

Long-run inflation estimate

In relation to inflation, the AER is correct in stating that, under its preferred specification, the specification of the long-run growth rate requires an estimate of long-run inflation.[11] The Explanatory Statement states that Partington raised this point in the concurrent evidence sessions, noting that different estimates of long-run inflation would produce different long-run growth rates.

However it is important to note that what is required here is not an estimate of inflation for next year or the year after, but a long-run forecast of inflation that would be appropriate to apply in perpetuity. Under any multi-stage DGM, a long-run forecast of inflation is required in perpetuity. The only figure that could reasonably be used for this purpose is the 2.5 per cent figure that the AER currently uses – the mid-point of the RBA's target band. Every economic forecaster uses that same figure as the long-run inflation forecast as, given the RBA's track record of targeting inflation, it is the most credible long-run inflation forecast presently available.

We note that the ERA, when it assesses inflation, does so only over a five-year time horizon, so differences in inflation forecasting methods between the ERA and AER are not relevant in this context.

Energy Networks Australia submits that no reasonable and objective assessment could rely on this point as a legitimate reason for now rejecting or down-weighting the DGM evidence.

Dividend reinvestment plans

The AER's Explanatory Statement also notes that, during the concurrent evidence sessions, Partington raised a point in relation to dividend reinvestment plans.[12] The Explanatory Statement concludes that the dividend yield may be overstated if a material fraction of the dividends are returned back to the company via a reinvestment scheme. However, that conclusion would only hold if the funds that were reinvested simply evaporated. A simple mathematical explanation is set out in the box below.

[11] *AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement,* p. 220.
[12] *AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement*, p. 222.

Illustration of the irrelevance of dividend reinvestment schemes

To illustrate the Partington claim about dividend reinvestment schemes, consider the simplest form of DGM:

$$P_0 = \frac{Div_1}{r_e - g}.$$

Consider a firm that has a share price of $100, a forecasted dividend of $6 and a long-run dividend growth forecast of 5%. In this case, the implied required return on equity is 11%:

$$100 = \frac{6}{r_e - 5\%}$$

$$r_e = 11\%.$$

Now suppose that a third of all dividends are returned to the firm under a dividend reinvestment scheme, consistent with the example in the Explanatory Statement (where there is an "advertised" dividend yield of 6% and a "true" dividend yield of 4%). The Explanatory Statement suggests that the implied required return on equity should be computed as:

$$100 = \frac{4}{r_e - 5\%}$$

$$r_e = 9\%.$$

But that would only be correct if the dividend reinvestment scheme involved the firm effectively setting fire to all of the money it received under the scheme. It implies that the investors receive no benefit at all from the $2 of dividends that was reinvested – the $2 simply evaporates.

A more reasonable assumption is that the $2 reinvestment provides the investors with $2 of benefit – that the new shares are bought at their fair value. In this case, the dividend reinvestment scheme is irrelevant – the investors either receive a dividend of $6 or a dividend of $4 and shares worth $2. In both cases the implied required return on equity is the same, being 11%.

Energy Networks Australia submits that DGM estimates should *not* be re-computed by reducing dividend forecasts in relation to dividend reinvestment plans. Such an approach would only be valid if the dividends that were reinvested simply evaporated and produced no benefit to the shareholders participating in the plan. A more reasonable and balanced assumption would be that a dollar of reinvestment produces a dollar of benefit for the shareholder, which has been the AER's approach to date.

The Independent Panel assembled by the AER has also concluded that the argument about dividend reinvestment plans is flawed:

> *The comment on dividend reinvestment plans at p.222 of the Explanatory Statement should be deleted. DGMs assume only that dividends are received. DGMs do not care whether dividends are consumed or*

reinvested. Dividend reinvestment plans may change the number of shares outstanding, but usually by much less than share repurchase programs.[13]

Clearly, this point cannot be relied upon as a reason for now rejecting or down-weighting the DGM evidence.

Stable return on equity

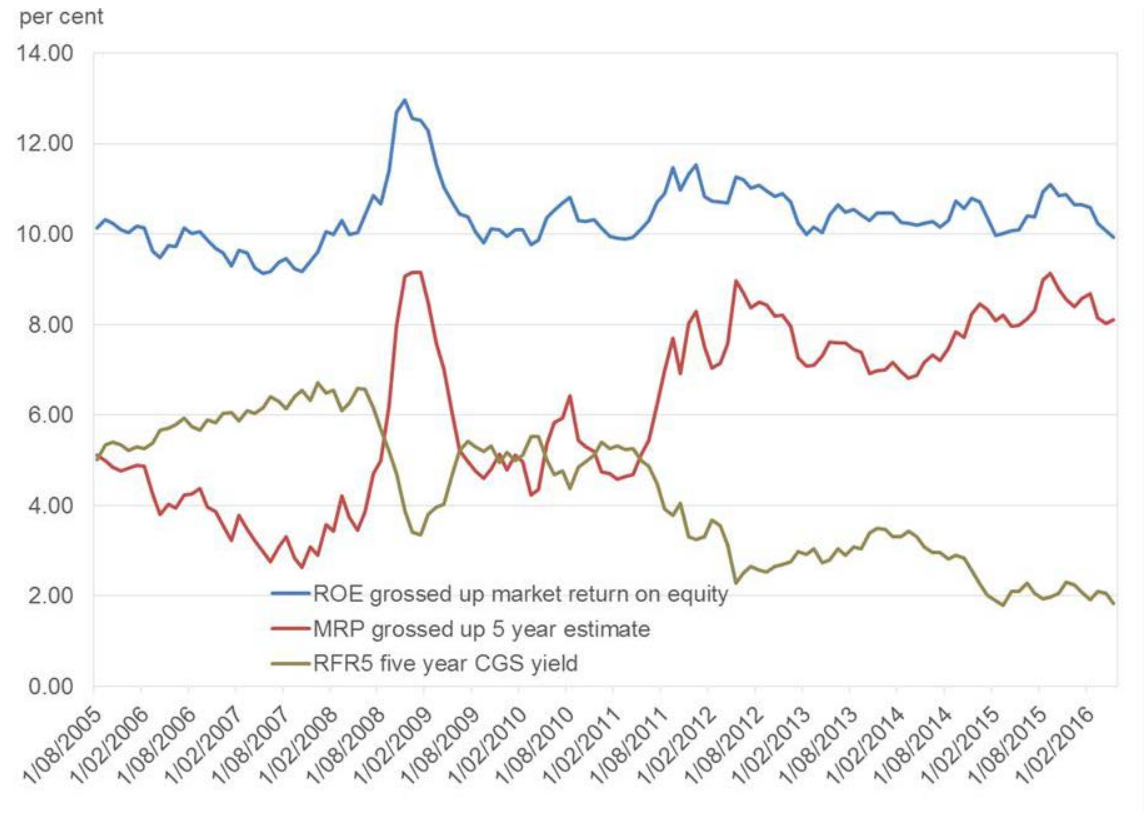
The AER's Explanatory Statement expresses concerns about the DGM approach producing estimates of the required return on equity that exhibit too much stability.[14] There are a number of fundamental problems with this conclusion.

First, the AER's Explanatory Statement concludes incorrectly that this means the DGM *assumes* a stable return on equity.[15] The ERA's Explanatory statement repeats this incorrect statement.[16] There is no such assumption – the DGM computes the required return on equity that is implied by current stock prices. The DGM will report whatever those current stock prices imply – whether it be a volatile or stable required return. There is no assumption involved – the market data is free to speak for itself.

Second, the evidence is that the DGM does *not* produce a stable required return. An attachment to the materials for the AER's second concurrent evidence session demonstrates that the AER's DGM estimates of the required return on equity have not been stable over time, but have varied in a very sensible manner – being low during the mid-2000s bull market, increasing during the GFC and falling thereafter. This is in contrast to the fixed market risk premium approach, which suggests that the required return on equity *fell* dramatically during the GFC.

[13] Independent Panel Report, September 2018, p. 35.
[14] AER, July 2018, *Draft Rate of Return Guideline: Explanatory Statement*, p. 222.
[15] AER, July 2018, *Draft Rate of Return Guideline: Explanatory Statement*, p. 222.
[16] ERA, June 2018, *Draft Rate of Return Guideline: Explanatory Statement*, paragraph 544, p. 104.

Figure 1 Dividend Growth Model implied return on equity: All Ordinaries Index (monthly, grossed up)[17]



Third, the concern expressed in the AER's Explanatory Statement is said to be because a stable required return on equity is inconsistent with the AER's view that the required return on equity is not stable, but varies directly with changes in the risk-free rate. This appears to imply that evidence is deemed to be unreliable if it is inconsistent with the AER's prior view on the stability of required returns on equity. That is, a reason for concern with the DGM evidence is that it suggests that the required return on equity is more stable than the AER's approach of adding a fixed premium to the risk-free rate.

Thus, a key question in the prevailing market conditions is whether the required return on equity has fallen one-for-one with the fall in government bond yields. The AER's proposition is that it has, but that must be tested against the relevant evidence. The AER's DGM evidence is inconsistent with that proposition, and the AER deems it to be unreliable for that reason. That is, evidence that is inconsistent with the proposition is deemed to be unreliable by virtue of the very fact that it is inconsistent with the proposition.

[17] ERA, Final Decision on Proposed Revisions to the Access Arrangement for the Western Power Network, Appendix 5, September 2018, p.59.

Further, following extensive empirical analysis, the ERA concluded explicitly in its 2013 guideline materials that the market risk premium is not constant but, rather, varies with market conditions:

> *...the MRP may fluctuate, depending on economic conditions. On this basis, the Authority considers that the forward looking MRP does vary.* [18]

The ERA has produced no new evidence that the market risk premium is stable over time (which would need to be the case if the overall return on equity moves one-for-one with the risk-free rate). Nor has the ERA changed in the 2018 Draft Guideline its conclusion in the 2013 Guideline materials that the market risk premium fluctuates depending on economic conditions.[19] Therefore, Energy Networks Australia cannot understand why the ERA would now derive a market risk premium estimate that is effectively invariant to changing market conditions. Nor can Energy Networks Australia understand why the ERA would rely on stability of the overall return on equity (which is consistent with a market risk premium that varies over time) as a reason to dismiss the DGM evidence, given its own prior work. We would suggest that it does not do so, and that it does not follow the AER into error in this respect.

Overall, Energy Networks Australia considers that there has been no change to the DGM evidence since the 2013 guideline and there is no grounds for treating the DGM differently in the current guideline.

2.4 Method to determine the final point estimate

Key messages

- To give effect to a binding guideline, the requirement to have regard to all relevant financial models is maintained.
- Energy Networks Australia submits that the final guideline should explain the exercise of judgment so that stakeholders are able to understand how the final estimate was derived from the relevant evidence.

Energy Networks Australia notes that, in order to comply with the proposed binding guideline framework, the ERA's approach to the market risk premium must be able to be applied without the exercise of any discretion by the ERA when applying the guideline at the time of each determination.

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[18] ERA, December, Rate of Return Guideline: Explanatory Statement, paragraph 697, p. 147.
[19] When considering the Wright approach in its Draft Guideline Explanatory Statement (pp. 106-107), the ERA notes that it conducted a series of detailed statistical tests during the course of its 2013 Guideline. The ERA concluded from those tests that the total return on equity was more likely to be stationary than was the MRP. The Draft Guideline Explanatory Statement goes on to consider a report commissioned by the AER. That report speculates that the ERA's results "may" have been different if the ERA had considered real returns and that the results "may" have been different if performed in other ways. These conjectures may be true, but require testing, not simple acceptance; conjecture should not be permitted to over-rule objective empirical analysis if the rate of return guideline is to be capable of acceptance by stakeholders.

The ERA is considering three options to determine the market risk premium under the binding framework:

1. Initial regulatory discretion to select a point estimate that then remains fixed for the period. This is essentially the ERA's current approach with the market risk premium estimate fixed during the 4 years of guideline application.
2. A mechanistic approach. Under this approach, fixed weightings would be applied to the historical excess returns and the dividend growth model estimates, both estimated in a mechanistic way at the time of each determination.
3. A historical approach. This approach relies entirely on the historic market risk premium estimate.

Under the proposed amendments to the *National Gas Rules*, to give effect to a binding guideline, the requirement to have regard to all relevant financial models is maintained. A better estimate will be arrived at if the market risk premium point estimate is informed by all relevant financial models and evidence. Therefore, option 3 cannot give rise to the best estimate of the market risk premium and therefore cannot contribute to the achievement of the *National Gas Objective* to the greatest degree. It can also not be said to be commensurate with the prevailing conditions in the market.

Energy Networks Australia considers that the goal is to produce the best possible estimate of the market risk premium, based on market data and commensurate with the prevailing conditions in the market. Thus, the ERA must consider what data sources and what empirical estimation techniques are most likely to produce the best possible estimate of the market risk premium that is commensurate with the prevailing conditions in the market. The ERA needs to also consider what weight to apply to different pieces of evidence in order to produce the best possible estimate of the market risk premium, commensurate with the prevailing conditions in the market.

Ultimately the ERA will apply some weight to each piece of evidence when distilling the range of evidence into a single allowed market risk premium. Energy Networks Australia advocates that those weights be disclosed in the interest of transparency – either explicitly or at least in the form of a ranking of the importance of each piece of evidence so that any stakeholder may replicate independently the ERA's market risk premium decision. We note that the ERA has done this in the past.

We also consider that two principles that are very important for stakeholders are:

1. Consistency over time – the same evidence should produce the same outcomes over time; and
2. Evidence-based decision-making – any change from one guideline to another should be supported by a change in the relevant evidence.

2.5 Evidence from other regulators

Key messages

» Energy Networks Australia submits that any reasonable objective review of the evidence from other regulators would conclude that recent market risk premium allowances that are materially above 6.0 per cent in the prevailing market conditions.

The Explanatory Statement sets out a range of estimates from other regulators, as summarised in Table 1 below. A range of estimates from other regulators between 2014 and 2018 is being said to be 5.36 per cent to 7.4 per cent.

Table 1 Estimating the Market Risk Premium in Australian regulatory decisions

Regulator	Year	Industry	MRP (%)
AER[189]	2018	Electricity network	6.5%
ERA[190]	2018	Electricity	6.2%
QCA[191]	2018	Various	5.36%
IPART[192]	2018	Various	6.0%
AER[193]	2017	Gas distribution network	6.5%
ERA[194 195]	2016	Gas transmission	7.4%
ESCOSA[196]	2016	Water, sewerage, stormwater drainage and other services	6.0%
ACCC[197]	2015	Fixed Line Services (Telecommunications)	6.0%
QCA[198]	2014	Various	6.5%

The figures in the table above are incorrect in several respects.

First, the 5.36 per cent cited for QCA decisions is not a market risk premium estimate, but is in fact the product of the market risk premium and beta. This is very clearly set out on p. 62 of the SeqWater Final Decision, which is cited as the source of the 5.36 per cent figure. The QCA adopted and MRP of 7.0 per cent, *increasing* the MRP allowance relative to its 2014 Guideline allowance of 6.5 per cent.[20]

The ERA's reported figures for IPART are also incorrect. It is important to note that IPART's approach is to derive two separate market risk premiums: an estimate of the 'current' market risk premium (9.1 per cent in the February 2018 update) and an estimate of the market risk premium using historical excess returns (this has always been 6.0 per cent).

Then, IPART uses each of these estimates to derive two separate WACCs: a WACC based only on current evidence, and another based only on long-run historical evidence. Finally, IPART attaches a default 50/50 weighting to each of these two

[20] QCA, *Final Report, Seqwater Bulk Water Price Review 2018–21*

WACCs. Hence, in effect IPART's default market risk premium estimate is: 50% x 9.1% + 50% x 6.0% ≈ 7.6%.

The ERA seems (based on footnote 196 in the Explanatory Statement) to have focused on just the long-run historical excess returns estimate of the market risk premium , and ignored the current estimate of the market risk premium (derived solely using the DGM). The MRP allowance that IPART provides is not based just on historical returns but, rather, an equal weighting of estimates derived using historical returns and the DGM. Therefore, the estimate quoted for February 2018 should be 7.6 per cent, not 6.0 per cent.

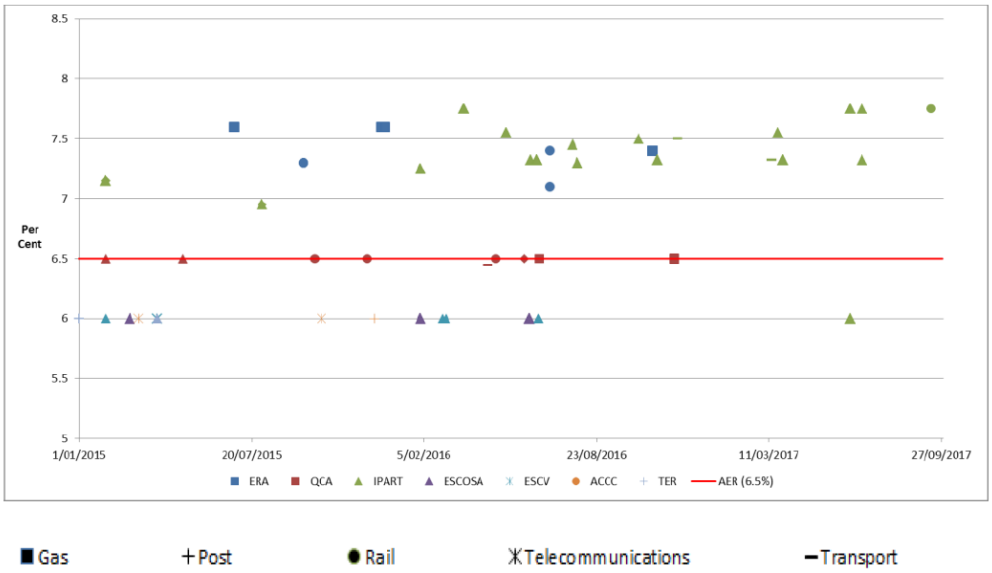
Third, the ACCC cites, as one of the reasons for it adopting an MRP of 6 per cent over the ten year risk-free rate, the fact that it is not required to have regard to all relevant financial models, estimation methods and evidence – as is the case for energy networks. This leads the ACCC to give no weight to DGM evidence. The ACCC does, however, give weight to survey evidence, which has increased materially since this decision in 2015. Both of these reasons suggest that the ACCC's 6 per cent figure is not directly comparable with a current allowance for an energy network.[21]

The Energy Networks Australia's May 2018 submission to the AER documents that the trend among other Australian regulators is to adopt market risk premium allowances estimates that are higher than 6.0per cent and higher than they were using in 2013. That is, the directional trend is towards increasing the MRP allowance estimates and to adopt allowances that are materially above 6.0 per cent.

Indeed, the Energy Networks Australia May 2018 Submission documents a set of recent MRP allowances that has been compiled by the AER, shown in Figure 2 below.

[21] ACCC, *Final Decision, Public inquiry into final access determinations for fixed line services*

Figure 2 Recent regulatory decisions on the market risk premium



Source: AER APA Final Decision, November 2017, Figure 3-16.

In the last two years, the only decisions to adopt the market risk premium of 6.0 per cent are;

- an IPART water decision where legislation mandates that figure; and
- an ERA September 2018 Final Decision for Western Power; and
- A July 2018 Draft Rate of Return Guideline decision by the AER.

It is important to note that, whilst the ERA uses the five-year risk-free rate, and calculates the market risk premium over the five year risk-free rate, the AER uses a 10-year risk-free rate and computes its market risk premium estimate relative to a ten-year risk-free rate. There is presently a difference of 30-40 bps between the five-year and ten-year risk free rates. This means that the AER's latest estimate of the market risk premium of 6.0 per cent would translate to a market risk premium of 6.3 percent to 6.4 per cent. If computed using a five-year risk-free rate, it is equivalent to 5.6 to 5.7 per cent for the AER, as there is usually around 30-40 bps between the five and ten year risk-free rates. Likewise, as the ERA acknowledges, a number of other regulators in Australia, such as IPART, ESCOSA and the ACCC, use ten-year risk-free rates in their determinations. Hence, any decisions by these regulators captured in the Figure above should similarly be adjusted upwards for the difference between the five-year and ten-year risk free rate before being compared to the ERA's estimate of the risk-free rate.

Further, not included in the AER's Figure above are the following regulatory decisions:

- The ERA determined a market risk premium allowance of 7.2 per cent over the ten year risk-free rate in its October 2017 Final Decision for WA rail networks; and
- IPART determined a market risk premium allowance of 7.6 per cent in its February 2018 Biannual WACC update.

Energy Networks Australia considers that any reasonable objective review of the evidence from other regulators points overwhelmingly to an increase in the market risk premium since 2013, and to a market risk premium well above the figure of 6.0 per cent estimated by the ERA.

3 Low beta bias

Key messages

» Energy Networks Australia submits that the empirical evidence of low-beta bias is compelling. The ERA's decision to give it no weight, or even to acknowledge its existence, is problematic.

Energy Networks Australia notes that the ERA has, continuing on from its DBP Final Decision of June 2016, ignored the phenomenon of low beta bias in its Draft Guidelines, whereas the ERA specifically adjusted for low beta bias in its previous Guidelines. We consider this to be a material concern.

We also consider it problematic from a process point of view that the ERA eschewed all mention of the debate in its Draft Guidelines. In particular, in the table summarising the changes made from 2013, the ERA suggests that there is no change in its approach to estimating equity beta.[22] Whilst it is true in a technical sense that the ERA uses the same regression methods and input data to estimate equity beta, in 2013, the ERA chose the top end of its confidence interval around its best beta estimate specifically to account for low beta bias. By contrast, the 2018 Draft Guidelines adopt the mean estimate, having no regard to the evidence of low beta bias. We note that the new binding guidelines legislation will requires regulators to detail reasons for changes from guideline to guideline. Clearly the current Draft Guidelines would fail this requirement in respect to the discussion on low beta bias.

Energy Networks Australia notes that the independent panel only has the ERA's Draft Guidelines before it and unlike the AER process, stakeholders have had no chance to put information before the ERA prior to its Draft Guidelines, so the independent panel has not been made aware of this significant change in the ERA's methodology. Thus, any comments the panel makes about the appropriateness of the ERA's reasoning in the context of equity beta will need to be considered in light of the fact that the ERA has not informed the independent panel of all aspects of the debate.

The key reason the ERA gave for departing from its 2013 Guidelines is that evidence on low beta bias comes from considering *actual* returns, and its goal is to determine the *expected* return. We consider that there are substantial flaws in assuming that investors do not take into any account more than 50 years of empirical finance research, replicated in many developed markets around the world where the

[22] 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, June 2016, p.166.

phenomenon is examined, and that investors simply use a textbook CAPM to form their expected returns; particularly when leading finance textbooks point out precisely this flaw in the model. However, we note from the DBP Tribunal decision that this approach was open to the ERA, based on the evidence before it at the time of the DBP final decision.

We thus suggest the ERA take consideration of *new* evidence, developed by Frontier Economics, which looks solely at *expected* returns.[23]

We note the ERA has suggested an openness to new evidence on this question, noting:

> *The Authority has concluded that, if any adjustment could be justified, it should apply to the intercept term in the SL-CAPM, thereby taking account of the alpha term arising in ex post tests of the model. However, the Authority is not convinced there is adequate evidence, at the current time, to justify making such an adjustment.*[24]

We would urge the ERA to consider the evidence put forward by Frontier Economics, which has been submitted to it by APA and AGIG. What it shows is that, when one considers expected, rather than actual returns, the evidence that low beta bias is a real phenomenon and is stronger, not weaker. For this reason, the ERA's decision to give it no weight, or even to acknowledge its existence, should change.

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[23] Frontier Economics, *Low-beta bias and the Black CAPM*
[24] ERA, *Final Decision on Proposed Revisions to the Access Arrangement for the Dampier to Bunbury Natural Gas Pipeline 2016 – 2020, Appendix 4*, June 2016, paragraph 436.

4 The value of imputation tax credits, gamma

Key messages

- Energy Networks Australia has provided evidence that there are no material concerns with the ATO estimates of credits created or credits redeemed, in which case the ATO estimate of the 'cash flow' gamma for all equity is reliable.
- Energy Networks Australia considers that there are several major problems with the 20-firms approach to estimating the distribution rate. The evidence does not support the ERA's abandonment of its current approach in favour of placing 100 per cent weight on the 20-firms approach. Similarly, the evidence does not support the AER abandoning its current approach in favour of placing 100 per cent weight on a single equity ownership estimate.
- Energy Networks Australia considers that the evidence supports a range of 0.34 to 0.39 for the utilisation/cash flow gamma for listed equity. We submit that it would be inappropriate to fix an estimate of gamma for the duration of the Guideline. Rather, the Guideline should set out how the estimate of gamma will be changed if the equity ownership approach becomes inappropriate due to the potential changes in tax law.

4.1 The ERA draft guidelines

Energy Networks Australia understands that the ERA's estimation of gamma is as follows:

- The ERA proposes to determine gamma through the product of the distribution rate and the utilisation rate, which are separately estimated.
- The ERA proposes to determine the distribution rate using Lally's estimate of 0.83 from the financial reports of the 20 largest ASX-listed firms, resulting in a distribution rate of 0.83.
- The ERA proposes to estimate a utilisation rate using an equity ownership approach to determine the percentage of domestic investors in the Australian equity market from ABS data, which results in a utilisation rate of 0.6.
- As such, the ERA proposes to use a gamma of 0.5.

In summary, the ERA has changed the approach to gamma adopted in its 2013 Guideline in favour of the AER's 'cash flow' approach to gamma. Under the 'cash flow' approach, gamma is defined to be the proportion of credits created by the benchmark efficient entity (BEE) that are redeemed by its shareholders. The idea is that some of the corporate tax that is paid by the BEE will be recovered by shareholders via the redemption of imputation credits – consequently, the corporate tax allowance is reduced by that amount. Under the 'cash flow' approach, gamma is estimated as the

product of (a) the proportion of created credits that are distributed by the BEE and (b) the proportion of those credits that are redeemed by shareholders.

4.2 Distribution rate

4.2.1 Problems with the 20 firms approach to the distribution rate

Problems with FAB data

The Explanatory statement proposes to place 100 per cent reliance on the Lally 20-firms estimate of the distribution rate. The Lally estimates are derived from franking account balances – a comparison of the change in FABs over a period to dividends paid over the corresponding period. Thus, the problems for individual firms that have been identified in the ATO FAB data also apply to the Lally FAB estimates.

It is important to note that the problems identified with the FAB data is not that firms mis-report it, but that it is difficult to accurately track and follow the flow of franking credits through the tax system. Presumably companies report the same figure to the ATO as they include in their financial statements, so one figure is not more reliable than the other. Rather, the issue is whether it is correct to assume that every reduction in the FAB is due to credits being distributed to shareholders.

For example, the ATO states that:

> *It would be difficult to use this data to reconstruct franking accounts due to the dynamic nature of the tax system as it impacts on business.*[25]

One example provided by the ATO is:

> *Churn within consolidation groups.*[26]

That is, some credits are extinguished within corporate structures without being distributed to shareholders. For example, BHP Ltd has distributed over $1 billion of imputation credits to BHP Plc under its 'dividend equalisation scheme'. Although these credits have been removed from the FAB, they have not been distributed to shareholders,[27] so the FAB-based estimate of the distribution rate is overstated.

Similarly, as noted below, a number of firms have received large tax refunds that materially decrease their FAB. Under the Lally approach, these reductions are incorrectly treated as distributions to shareholders. Again, the result is an overstatement of the distribution rate.

The benchmark efficient entity

Since the objective is to estimate the distribution rate for the BEE, the 20-companies estimate will only be appropriate if the 20 companies are similar to the BEE in relevant

[25] ATO Note, p. 1.
[26] ATO Note, p. 1.
[27] Or it could be said that they have been distributed to shareholders who are known to be unable to redeem them – which is equivalent.

respects. There are two corporate characteristics that determine the firm's imputation credit distribution rate:

- **The dividend payout rate**: Because credits can only be distributed by attaching them to dividends, a higher dividend payout rate will result in a higher credit distribution rate, other things being equal.
- **Foreign profits**: Because credits can be attached to dividends that are paid out of foreign profits, a higher proportion of foreign profits will result in a higher credit distribution rate, other things being equal.

Thus, firms that differ materially from the BEE in terms of either of these two characteristics (dividend payout rate, or availability of foreign profits) will be inappropriate for the purpose of estimating the credit distribution rate.

The 20 largest Australian companies have (on average) material foreign profits. The average across the 20 companies is more than 40 per cent foreign revenue.[28] By contrast, the benchmark efficient entity has 100 per cent domestic revenue, by definition. To the extent that these 20 companies are able to use foreign revenues to assist in the distribution of imputation credits, the estimate of the distribution rate will be over-stated.

The sample of 20 firms varies materially in terms of the dividend payout rate. For example, over the 2000-2013 period examined by Lally, the large mining firms had low dividend payout rates (as that period coincided with the mining investment boom) while Telstra had a very high payout rate. Consequently, it is impossible for all 20 firms to be appropriate comparators on this dimension – as not all can have a dividend payout ratio that matches the BEE.

In summary, the sample of 20 firms has been selected on the basis of size. But size is not a characteristic that has any relevance to the credit distribution rate. The two characteristics that *are* relevant are the proportion of foreign profits and the dividend payout rate, and the 20 firms sample differs materially from the BEE on both of those dimensions. Consequently, it seems impossible for the sample of the 20 largest companies to provide an appropriate estimate of the credit distribution rate for the BEE.

The distribution rate from comparator firms

Lally (2018) considers the imputation credit distribution rate for five comparator firms: APA, AusNet, DUET, Envestra, and Spark Infrastructure.[29] However, there are a number of material problems with this analysis:

- Dr Lally is unable to find the required FAB information in relation to three of those firms, although for one of those firms he *assumes* a closing FAB and proceeds on that basis.
- For one of the two remaining firms, he replaces his empirical estimate of the distribution rate with his assessment of what he considers the distribution rate

[28] Source: Bloomberg: Financial Analysis – Segment geographic.
[29] Lally (2018), pp. 19-20.

would have been if the company in question had adopted what he considers to be more efficient behaviour.

» For the one remaining firm (AusNet), Dr Lally concludes that the distribution rate must be 1 because the 2017 FAB is less than the 2007 FAB. However, AusNet annual reports reveal that the FAB increased materially from $10.3 million in 2006 to $28.6 million in 2007 to $51.2 million in 2016. The FAB recorded for 2017 is -$26.4 million. The cause of this large reduction in the FAB is *not at all* related to the distribution of credits. Rather, it is due to AusNet receiving a large tax refund during that financial year. The 2017 AusNet Annual Report highlights:

> *The reduction in franking credits that will arise from the receipt of tax refund for FY2017 from the ATO*[30]

and notes that:

> *The refund for FY2017 arises primarily from increased deferred tax resulting from differing tax and book depreciation profiles.*[31]

This serves to highlight the dangers of using a high-level analysis of FAB data to estimate the distribution rate for any firm. Not every reduction in the FAB is caused by the distribution of credits. That is, the assumption that every reduction in the FAB is due to credits being distributed to shareholders is inconsistent with the evidence.

Moreover, a materially different estimate of the distribution rate would be obtained if the sample period had started one year earlier (2006) or finished one year earlier (2016). So the estimates are unstable depending on the particular sample period that is used.

Implicit assumption that every reduction in the FAB is due to credits being distributed to final shareholders

The 20-firms approach implicitly assumes that all credits distributed by each of the 20 firms are immediately available for end shareholders to redeem. However, any credits distributed to other companies or trusts will be retained by those entities until they pay a dividend or make a distribution. Energy Networks Australia is unaware of any data on the extent to which credits are trapped, or delayed, in these intermediate entities. However, it would be unreasonable to assume that the figure is zero, in which case the 20-firms approach would produce an upper bound for the distribution rate.

An obvious example of this problem relates to BHP, where the Australian company BHP Ltd has distributed over $1 billion of credits to the sister firm in the UK, BHP Plc, under the dividend equalisation scheme, which has recently come to the attention of a number of activist shareholder groups. Although these credits have been removed from the FAB, they have not been distributed to shareholders, so the FAB-based estimate of the distribution rate is overstated.

Similarly, a number of firms, including AGL and AusNet Services, have received large tax refunds that materially decrease their FAB. Under the Lally approach, these

[30] Ausnet 2017 Annual Report, p. 107.
[31] Ausnet 2017 Annual Report, p. 107.

reductions are incorrectly treated as distributions to shareholders. Again, the result is an overstatement of the distribution rate.

In this regard, the ATO note of September 2018 concludes that:

> *Taxation Statistics cannot be used to estimate the quantum of franking credits created, distributed or received by a company or group over time.*[32]

There has been no suggestion that any firm would report a different FAB figure to the ATO than the figure it reports in its financial statements. Consequently, it would seem to follow that if the figures reported to the ATO cannot be used to estimate the quantum of franking credits distributed by a company or group over time, the figures in the same firm's annual report also cannot be used for that purpose.

Conclusions in relation to the 20 firms estimate of the distribution rate

Energy Networks Australia considers that:

- The evidence does not support placing 100 per cent weight on the 20-firms approach.
- If the 20-firms approach is to be used, it should be interpreted as an upper bound rather than a point estimate because not all reductions in a firm's FAB are due to credits being distributed to investors.

4.3 Utilisation rate

4.3.1 Problems with the equity ownership estimate of the utilisation rate

Internal consistency

The primary problem with the approach proposed in the Draft Guideline is that an estimate of the proportion of credits distributed to the BEE shareholders is paired with an estimate of the proportion of credits redeemed by some *other* group of shareholders. If the equity ownership approach is to be used, it should be for listed equity – to be consistent with the definition of the BEE.

An upper bound only

The equity ownership approach assumes (among other things) that every credit that is distributed to a resident investor is redeemed by that investor. However, there are a number of reasons why resident investors do not redeem credits, including being barred from doing so by the operation of the 45-day rule. Thus, the equity ownership estimate is an upper bound for the actual proportion of credits redeemed and should be interpreted in that way.

This problem with the equity ownership estimates will intensify if the law is changed to prevent shareholders who have no personal tax obligations from redeeming credits.

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[32] ATO, September 2018, Franking account balance – tax of time series data from Taxation Statistics, p. 1.

Such a change is the current policy of the federal opposition, who have announced that it would apply from 1 July 2019 and would prevent the redemption of $59 billion of credits over the decade.[33] In this case, the equity ownership approach could not be used as an estimate of the proportion of credits redeemed, because the assumption that every credit distributed to a resident investor would be obviously invalid. Over recent years a total of approximately $25 billion of imputation credits has been redeemed each year and the Parliamentary Budget Office has estimated that the proposed change in policy would result in approximately $6 billion of credits[34] becoming ineligible for redemption, which is clearly material. For example, an equity ownership estimate of 60 per cent would need to be adjusted down to approximately 45 per cent.

Of course, the guideline must reflect the current law, rather than potential (or even likely) new laws. However, the guideline should clearly set out how the ERA will change its approach to estimating the utilisation rate if the law is changed such that the equity ownership approach is no longer appropriate.

That is, it would clearly be inappropriate to fix a gamma for the duration of the guideline, on the basis that all credits distributed to resident investors can be redeemed, when there is a material prospect of a material violation of that assumption.

Energy Networks Australia proposes that, if the ERA maintains its reliance on the equity ownership estimates, the guideline should set out a process for how the allowed gamma would change if the proposed policy becomes law. The simplest approach would be for the ERA to set two figures for gamma – one to be adopted if the existing law is maintained and one to be adopted if the proposed policy becomes law. Energy Networks Australia notes however that, in order to comply with the proposed binding guideline framework, this approach must be able to be applied without the exercise of any discretion by the ERA when applying the guideline.

Other problems with the equity ownership estimates

There are material questions about the reliability of the equity ownership estimate, including:

- The equity ownership estimates are based on survey data collected by the ABS which requires filtering and adjustment to "clean" the data. It is the subject of express data quality warnings by the ABS. Since the ABS data are collected through surveys of samples of taxpayers, the equity ownership estimates are subject to sampling error and, unlike the ATO tax statistics estimates, represent very indirect estimates of gamma under a utilisation rate interpretation.

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33 https://d3n8a8pro7vhmx.cloudfront.net/australianlaborparty/pages/7652/attachments/original/.1520827674/180313_Fact_Sheet_Dividend_Imputation_Reform.pdf?1520827674.

34 https://d3n8a8pro7vhmx.cloudfront.net/australianlaborparty/pages/7652/attachments/original/.1520827674/180313_Fact_Sheet_Dividend_Imputation_Reform.pdf?1520827674.

- The ABS data should be used with caution. Noting that the ABS has revised the figures on which the equity ownership estimates are based, the problems that are evident, even in the updated data, include:
  - The method for compiling the data has not changed. There is still the same reliance on survey responses, there is still the same mis-match between components of the data, and there are still the same problems with estimating the market value of equity for some sectors.
  - The historical estimates for some sectors have changed materially in the update. The fact that an historical number can be materially changed almost 20 years after the event is clearly troubling. This is especially so when the change is not based on new data, but rather the application of different assumptions for how the same data should be processed into an estimate.
  - The revision to the estimates is based on a 'backcasting' exercise whereby estimated splits between domestic and foreign equity from recent data is 'backcasted' to the historical data, replacing the estimates that were made at the time the historical data was collected.
  - The revised estimates result in very little volatility in the estimates for listed equity and more volatility in the estimates for all equity, when the reverse would be expected ex ante.
  - The plausible impact of the GFC that was evident in the 2014 data has now been removed in the 2017 revision. That is the GFC impact has now been removed from the historical record.

Energy Networks Australia submits that the recent information released by the ABS raises more questions about the reliability of the equity ownership estimates than were apparent at the time of the 2013 Guideline. Energy Networks Australia submits that this data should receive relatively less weight, accordingly.

Conclusions in relation to the equity ownership estimates

Energy Networks Australia considers that:

- The evidence does not support the ERA abandoning its current approach in favour of placing 100 per cent weight on a single equity ownership estimate.
- If the equity ownership approach is to be used, it should be interpreted as an upper bound rather than a point estimate because resident investors do not (and cannot) redeem 100 per cent of the credits that are distributed to them.
- The guideline should clearly set out how the ERA will change its approach to estimating the utilisation rate if the law is changed such that the equity ownership approach is no longer appropriate.

4.4 Australian Tax Office data

4.4.1 The reliability of the tax statistics published by the ATO

The proportion of tax paid by the average firm that is returned to investors via the utilisation of imputation credits can be estimated directly using the ATO tax statistics

approach. This approach uses aggregate tax statistics data published by the ATO to calculate the proportion of tax paid that is returned to investors as the ratio of *credits redeemed* to *credits created* over the Australian market. Under this approach:

$$\gamma = \frac{Credits\ Redeemed}{Credits\ Created}$$

where the numerator is the total amount of credits redeemed against personal tax obligations and the denominator is total corporate tax paid over the relevant period.

Energy Networks Australia understands that in estimating gamma using ATO tax statistics, the only data needed is corporate tax paid and credits redeemed. The reliability of these has been confirmed as part of the Energy Networks Australia's December 2017 submission to the AER, where Hathaway states that

> *The Company Tax item is the total company tax collected by the ATO during the relevant period and the Credits Redeemed item is the total amount of credits redeemed via the filing of personal tax returns. These two data items are 100% reliable as they are figures that relate directly to ATO tax collections. There is no reason to question the ATO's records of the amount of corporate and personal tax it has collected.*[35]

Hathaway (2017) goes on to conclude that the ATO tax statistics can "clearly"[36] be used to provide a reliable utilisation estimate of gamma.

The ERA's Explanatory Statement notes that the conclusion of the ATO note commissioned by the AER was that:

> *The ATO would not recommend using taxation statistics data as the basis for a detailed macro analysis of Australia's imputation system.*[37]

The AER arranged a meeting on 21 June 2018 to provide an opportunity for ATO staff to explain what the above quote means. In that meeting, ATO staff explained that their concerns related primarily to the problems with the FAB data. It has now been generally agreed that the FAB data should not be used and that the dividend data should be used to estimate 'credits distributed.' That is, there is agreement that the problematic FAB data should not be used for any purpose.

The ATO note also identifies that the question they were asked to address relates specifically to the franking account balance:

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[35] Hathaway (2017), p. 1. Available at https://www.aer.gov.au/system/files/Energy%20Networks%20Association%20-%20submission%20on%20rate%20of%20return%20issues%20paper%20-%2012%20December%202017%20-%20Attachment%20C%20-%20Letter%20-%20Dr%20Neville%20Hathaway%20-%20Tax%20Statistics.pdf

[36] Hathaway (2017), p. 2. Available at https://www.aer.gov.au/system/files/Energy%20Networks%20Association%20-%20submission%20on%20rate%20of%20return%20issues%20paper%20-%2012%20December%202017%20-%20Attachment%20C%20-%20Letter%20-%20Dr%20Neville%20Hathaway%20-%20Tax%20Statistics.pdf

[37] ERA, July 2018, Draft Rate of Return Guideline: Explanatory Statement, Paragraph 848.

> *The AER has sought input from the ATO regarding the use of Taxation Statistics data* ***to reconstruct the franking account balance.***[38]

and the ATO is clear in its answer to this question:

> *It would be difficult to use this data to* ***reconstruct franking accounts.***[39]

Having reached agreement that the FAB data should not be used (and that the FAB data is not required to provide a utilisation estimate of gamma) the relevant question is simply whether the ATO has reliable data on:

- Credits created, by the payment of corporate tax to the ATO; and
- Credits redeemed from the ATO by shareholders,

as these are the only two quantities required to estimate gamma.

No question has been raised in relation to the data on 'credits redeemed' from the ATO. The only questions that have been raised in relation to 'credits created' by the payment of corporate tax to the ATO are:

- Some foreign companies pay corporate tax in Australia which does not give rise to the creation of credits; and
- The ATO data relates to tax payable rather than tax paid, so would be overstated to the extent that companies default on their tax obligations.

Hathaway (2018) has investigated both of these issues and concludes that they are both immaterial.

In relation to foreign companies, Hathaway (2018) concludes that:

> *Not only does the data for non-residents 'appear to be small at first glance' [as acknowledged by the AER] but it is small and not material…the effect of the non-resident data only changes the second decimal place of the gamma estimate. It is clearly not material in the overall scheme of gamma estimates.*[40]

In relation to the difference between tax payable and tax paid, Hathaway (2018) notes that the vast majority (85 per cent) of company tax is collected progressively throughout the year. Thus, even if 5 per cent of the remaining tax payable was never recovered (which is an implausibly high figure for defaults on tax obligations) this would mean that tax payable and tax paid differed by only 0.75 per cent, which has no material impact on the estimate of gamma.

In summary, there are no outstanding questions on the quality of the data that the ATO publishes on 'credits created' and 'credits redeemed.' Consequently, these data provide a reliable estimate of the 'utilisation' or 'cash flow' gamma, albeit one that includes unlisted firms.

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[38] ATO note of 9 May 2018, p.1, emphasis added.
[39] ATO note of 9 May 2018, p.1, emphasis added.
[40] Hathaway (2018), p. 5. Available at https://www.aer.gov.au/system/files/ENA%20-%20Capital%20Research%20Memorandum%20-%2028%20June%202018.pdf

4.4.2 Weighing of strengths and weaknesses

The ERA has concluded that listed equity should be used in estimating the distribution rate.[41] However, there are three problems with the data that is available in relation to listed firms:

- The Lally estimate of the distribution rate provides, at best, an upper bound for each firm because franking account balances can, and do, reduce for reasons other than the distribution of credits to shareholders.
- The equity ownership estimate of the utilisation rate is, at best, an upper bound because resident investors do not (and cannot) redeem all credits distributed to them – a problem that may well intensify after 1 July 2019.
- Combining two estimates from two different methodologies using two different data sources results in a compounding of estimation error.

The ATO tax statistics have the great benefit of providing a direct estimate of gamma from a single source of data. There is no need to separately estimate distribution and utilisation rates – the 'cash flow' gamma can be estimated directly as the ratio of credits redeemed to credits created.

Also, the ATO tax statistics provide a point estimate rather than an upper bound – the ATO records credits actually redeemed, rather than an estimate of the maximum amount of credits that could possibly be redeemed.

The only disadvantage of the ATO data is that it also includes unlisted equity, whereas the ERA has concluded that only listed equity to be used. The ERA considers that the distribution rate for listed equity may exceed that for unlisted equity. In this case, the ATO estimate would be a lower bound for the 'utilisation' gamma for listed equity.

The ERA has concluded that the relevant task is to estimate the utilisation/cash flow gamma for listed equity. Consequently, the ERA must weigh the various strengths and weaknesses of each approach in performing that task. For the reasons set out above:

- The 20 firms/equity ownership approach produces an upper bound of 0.39. The 20-firms estimate for listed equity is an upper bound because the FAB can fall for reasons other than the distribution of credits to shareholders. The equity ownership estimate for listed equity is an upper bound because resident investors do not (and cannot) redeem all of the credits that they receive.
- The ATO tax statistics approach produces a lower bound of 0.34. This is because the ATO data includes unlisted equity and the distribution rate for unlisted firms may exceed that for listed firms.

Conclusions and recommendations

Energy Networks Australia considers that the evidence supports a range of 0.34 to 0.39 for the utilisation/cash flow gamma for listed equity.

Energy Networks Australia submits that it would be inappropriate to fix a gamma for the duration of the guideline. Rather, the guideline should set out how the estimate of

[41] ERA, July 2018, Draft Rate of Return Guideline: Explanatory Statement, Paragraph 844.

gamma will be changed if the equity ownership approach becomes inappropriate due to the proposed change in tax law. The simplest approach would be for the ERA to set two figures for gamma – one to be adopted if the existing law is maintained and one to be adopted if the proposed policy becomes law.

5 The role financeability analysis

Key messages

» Energy Networks Australia submits that financeability assessments could be useful in ensuring that the allowed return is sufficient to support the credit rating that was assumed in deriving that allowed return.

5.1 The role of financeability assessments

Energy Networks Australia considers that it is good regulatory practice for regulators to consider the overall outcome of their decisions to ensure that the allowed return is sufficient to support the credit rating that was assumed in deriving that allowed return.

There is no guarantee that the assumed credit rating will be supported by credit metrics obtained from the Revenue and Pricing Model, which is based on the ERA's estimates of benchmark efficient allowances. For example, if the ERA assumed a AAA credit rating for the BEE and estimated the allowed return on that basis, the resulting Revenue and Pricing Model credit metrics would be insufficient to support the assumed AAA rating, indicating an internal inconsistency to be addressed. Indeed, this is precisely the way that most regulators apply financeability tests. For example, IPART has recently considered these issues in its review of financeability tests.[42]

The fact that a number of regulators in Australia and overseas use financeability assessments when setting revenue allowances demonstrates clearly that there is no circularity problem that renders such tests useless in a regulatory setting.

Energy Networks Australia agrees that financeability tests provide a useful check on the appropriateness of regulatory allowances (including the rate of return). IPART has made some important advances in thinking on the application of such tests in its most review. Energy Networks Australia notes that the review is still ongoing so networks collectively cannot comment comprehensively on the suitability of IPART's framework. The network sector supports further exploration of whether and how financeabiltity tests should be applied, including their interaction with the rate of return allowance.

[42] https://www.ipart.nsw.gov.au/Home/Industries/Special-Reviews/Reviews/Financeability-Tests/Review-of-financeability-test-2018

AER Review of the Rate of Return Guideline

Response to Draft Guideline

25 September 2018

Energy Networks Australia

Contents

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1 Overview

Key messages

- **Focus on the long-term is needed** - Network businesses understand that energy prices are a concern to consumers and are seeking to contribute to establishing a Guideline that delivers outcomes that are in the long-term interests of consumers. This includes ensuring that network businesses are able to achieve a reasonable, predictable and sustainable return on investment.
- **Long term interests of consumers requires the 'best possible' estimate on the evidence** - The AER's task in the Guideline review is to reach a rate of return that best promotes the long-term interests of consumers, having proper regard to all relevant evidence, the Revenue and Pricing Principles and prevailing conditions in the market for equity funds. ENA submits that the best way for the AER to achieve this is by reliance on empirical data and a balanced consideration of evidence, reaching the best possible estimate of each parameter, and taking into account relevant models, data and evidence consistent with applying its 2013 Foundation Model.
- **Draft Guideline is not in the long-term interests of consumers and will lead to harmful price and service outcomes** - Network businesses consider that the Draft Guideline and its outcomes, if applied in future determinations, will not promote outcomes consistent with the long-term interests of consumers as defined in the National Electricity and Gas Objectives. Changes to the AER's proposed approach to the estimation of the return on equity, and assumptions used in estimating the cost of corporate income tax are required if the Final Guideline is to avoid harmful price and service outcomes for both current and future consumers.
- **Final Guideline needs to restore confidence by addressing process concerns in review** - The Guideline review process undertaken has been altered significantly since the 2013 review process. The outcomes of the Draft Guideline, including the treatment of expert and market evidence, and the process and findings of the Independent Panel review have created the serious risk of undermining confidence in AER decision-making processes. This, in turn, risks undermining the investor confidence that a fair and reasonable return can be earned on any investments that network businesses may contemplate making in future. This would have a negative impact on the type of necessary investments required to support the transformation of the energy sector that is currently occurring. This would result in the transformational benefits to consumers of the new market being delayed or foregone altogether.

- **A return on equity estimate which does not reflect evidence of prevailing market conditions will fail essential regulatory framework requirements** - The return on equity estimate which results from the Draft Guideline approach does not appear to meet the essential requirements of the regulatory framework. The AER is required to ensure it has considered prevailing conditions in the market for equity funds in determining the rate of return. The Revenue and Pricing Principles also require consideration of allowed returns being commensurate with regulatory and commercial risks. The AER's estimates of key return on equity parameters have moved in the opposite direction to the weight of recent evidence that reflects prevailing market conditions. The AER's equity beta and market risk premium estimates in the Draft Guideline result from a decision to attach no significant weight to the latest market data and evidence.
- **The evidence supports, at a minimum, maintenance of the current cost of equity** – This is because the application of the AER's own Foundation model and estimation methodologies to the relevant data suggests that the best possible estimates of critical cost of equity parameters (beta and market risk premium) have increased since the 2013 guideline. This means there is no reasonable basis for a reduction in these parameter estimates and the overall equity risk premium.
- **Draft Guideline return on debt and gearing approaches are potentially 'capable of acceptance'** - The Draft Guideline approaches to the return on debt and gearing have been reached with demonstrated regard to empirical evidence, including requested cost of debt data from network businesses and an iterative process of analysis and clarification of underlying methodologies. A result of this is that many network businesses consider that the broad cost of debt approach applied by the AER in the Draft Guideline, representing 60% of the effective value of the rate of return determination, meets the process goal of being capable of acceptance.
- **No evidence to move beyond past AER and review approaches on gamma** – Unless there is strong evidence to the contrary, settled approaches established by reviews are preferable over the changed approach proposed in the Draft Guideline and the best estimate of cost of corporate income tax ('gamma') is 0.34 to 0.39 based on those approaches applied previously by the AER.

1.1 Overview

Energy Networks Australia (ENA) welcomes the opportunity to provide this response to the AER's Rate of Return Guideline Review, following the publication of the Draft Guideline and explanatory statement in July 2018.

ENA's participation in this review continues to be aimed at supporting outcomes that are acceptable to all stakeholders, including the AER, while delivering sustainable business outcomes for networks that are a precondition for the long-term investment in energy infrastructure that is vital for Australia's growing energy needs.

Draft Guideline is not in the long-term interests of consumers and will lead to harmful price and service outcomes

Network businesses consider that the Draft Guideline and its outcomes if applied in future determinations will not promote outcomes consistent with the long-term interests of consumers as defined in the National Electricity and Gas Objectives. Substantial changes to the AER's proposed approach to estimation of the cost of equity, and assumptions used in estimating the cost of corporate income tax are required if the Final Guideline is to avoid harmful price and service outcomes for current, and critically, future consumers.

Network businesses consider that without substantial changes, harmful outcomes are likely to be promoted through the period of the next Guideline, and over the longer-term. Outcomes which the AER's Draft Guideline would promote include:

- **Higher future financing costs** - increased financing costs arising from pressure on network businesses' credit metrics have the potential to result in sustained higher future costs to customers. As an example, a mere 5 basis point (or 0.05%) addition to the existing weighted average cost of capital would lead to an increase in financing costs of approximately $250 million over a five-year regulatory period. A more substantial capital market response, for example flowing from a 'one-notch' downgrade in credit metrics of around 20 basis points (or 0.20%), would equate to a potential increase in financing costs borne by consumers of approximately $1 billion over five years.
- **Limitation to above minimum services development** - a gradual 'paring back' of network services to standard 'vanilla' minimum required services, denying customers access to innovative new services.
- **Constraining of distributed energy resources** – the emergence of localised capacity shortages, resulting in constraints to consumers benefiting from distributed energy resources (DER).
- **Lower capacity to maintain and enhance service and reliability** - Degradation of measured service and reliability outcomes for customers over time, and a lack of capacity to meet consumer expectations for increased service levels. This outcome would be at variance with consistent feedback from network customer engagement on the desirability of at least maintaining service and reliability levels.
- **Reduced investment in wholesale competition promoting projects** – there exists the potential for deferral of discretionary interconnection projects that would reduce wholesale prices and benefit customer bills. The recent Integrated System Plan, as an example, identified a Net Present Value benefit to customers of a more interconnected grid at around $1.2 billion, with competition benefits significantly outweighing required capital investments to enable these savings.[1]

[1] AEMO *Integrated System Plan*, July 2018, p.6

Final Guideline needs to restore confidence by addressing process concerns with review

The Guideline review process undertaken has been altered significantly since the 2013 review process. The outcomes of the Draft Guideline, including the treatment of expert and market evidence and the process and findings of the Independent Panel review, create the serious risk of undermining confidence in AER decision-making processes. This risk is heightened by the AER's 'incremental' review resulting in the sharpest single reduction on allowed returns on equity of any Australian regulatory determination, arising from the compounded effect of significant and simultaneous movement of the equity beta, market risk premium and gamma estimates.

ENA has had careful regard to the findings of the AER-convened joint expert evidence and report, as well and other evidence described in the AER's Draft Guideline explanatory statement. It is critical for regulatory confidence in the AER that expert and market evidence, including previously submitted evidence and further evidence in this response, is treated transparently and that the Final Guideline can be transparently demonstrated to have followed the evidence.

A failure to address this will undermine industry confidence in future AER processes. The AER has over the past two years reaffirmed its commitment to a process of organisational reorientation, innovation and renewal which has been termed 'AER 2.0'. In this single most significant (by value at risk) decision, the review process risks significantly undermining trust and confidence of network businesses and existing and potential investors in the AER's capacity to deliver innovative, collaborative, highly predictable and evidence-based regulatory processes and decisions.

The restoration of trust and confidence in this aspect of the AER's functions, and a determination of an appropriate rate of return on past and planned network investments represent the most important signals of regulatory credibility and stability for those considering long-term network investments that will be critically affected by current and future AER Board decisions. A lack of confidence will undermine the ability of this and future decisions to encourage efficient investment in networks in the long-term interests of consumers.

Return on equity estimate which does not reflect evidence of prevailing market conditions will fail essential regulatory framework requirements

The return on equity estimate which results from the Draft Guideline approach fails to meet the essential requirements of the regulatory framework. The AER is required to ensure it has proper regard to prevailing conditions in the market for equity funds in determining the rate of return. The Revenue and Pricing Principles also require consideration of allowed returns being commensurate with regulatory and commercial risks.

The AER's estimates of key return on equity parameters have moved in the opposite direction to the weight of recent evidence, which reflects prevailing market conditions. For example, the AER's equity beta, and market risk premium estimates in the Draft Guideline result from a decision to attach no significant weight to the latest market data and evidence. The consequence of this is that the overall return on equity

estimate moves in the opposite direction to the weight of evidence on required equity returns in current conditions.

As a direct result of this, the resulting return on equity estimate fails all but one of AER's cross-checks. The only cross-check that the new resulting equity risk premium does, in the AER's view, satisfy is a comparison of a 'point in time' relativities between the market risk premium and the debt risk premium. This measure was specifically critiqued in the AER's own 2013 Guideline decision as providing weak evidence and as not being a reliable basis for decision-making.

The approaches proposed in the Draft Guideline would result in rates of return on equity that are not commensurate with, and which fall significantly below, those of alternative investment destinations for similar regulated investment funds (such as New Zealand, the United States, United Kingdom and Europe). This is further discussed in Section 7 of this submission, and the report that accompanies this submission (See Attachment 1).

An objective and balanced assessment of the available empirical evidence and application of the AER Foundation Model giving weight to stability and predictability would suggest that no change should be made to the beta or MRP parameters. Such an approach would also result in an estimate that would satisfy the AER's nominated cross-checks, and meet the framework requirements of reflecting prevailing equity market conditions.

Draft Guideline return on debt and gearing approaches are potentially 'capable of acceptance'

The Draft Guideline approaches to cost of debt and gearing have, in ENA's view, been reached with proper regard to empirical evidence, including cost of debt data requested by the AER from network businesses, and an iterative process of analysis and clarification of underlying methodologies. Consequently, many network businesses consider that the broad cost of debt approach applied by the AER in the Draft Guideline, representing 60% of the effective value of the rate of return determination, meets the AER's process goal of being capable of acceptance.

Section 5 of this submission sets out a range of areas which network businesses consider the AER should take into account in finalising the Draft Guideline approach to the return on debt allowance. It highlights that while the proposed approach is capable of acceptance, aspects of the AER's proposed methodology have the capacity to introduce a material downward bias in estimates. This highlights that any material changes in the Final Guideline that are not justified given available evidence would put at risk the status of the Draft Guideline approach to the return on debt as being 'capable of acceptance.'

The capable of acceptance objective is critical to investor confidence in the final Guideline and therefore the extent to which the guideline will encourage efficient investment, necessary to promote the long-term interests of consumers.

Best estimate of value of imputation tax credits ('gamma') is 0.34-0.39 based on AER's own previously applied approach

Networks accept the outcome of past 'gamma' reviews and have sought to apply approaches consistent with previous AER and review body rulings in reaching estimates of this parameter. In the Draft Guideline the AER applies a new approach based on a number of recently-commissioned expert reports, and proposes new approaches which go beyond past approaches and review outcomes. These newly introduced methodologies applied by AER, however, are not robust compared to past approaches. Nor does the adoption of these new approaches satisfy the AER's process goal of an incremental review.

ENA considers that there are several major problems with the 20-firms approach to estimating the distribution rate. The evidence does not support the AER's abandonment of its current approach in favour of placing 100% weight on the 20 or a 50-firms approach. Similarly, the evidence does not support the AER abandoning its current approach in favour of placing 100% weight on a single equity ownership estimate.

ENA considers that the evidence supports a range of 0.34 to 0.39 for the utilisation/cash flow gamma for listed equity. ENA submits that it would be inappropriate to fix an estimate of gamma for the duration of the Guideline. Rather, the Guideline should set out how the estimate of gamma will be changed if the equity ownership approach becomes inappropriate due to the potential changes in tax law.

1.2 Engagement in development of positions

ENA's response to the Draft Guideline has been informed by nine months of ongoing engagement with consumers through the AER's Consumer Reference Group (CRG), input from broader member stakeholders through 'business as usual' panels and forums, and through the experts who participated in the AER's concurrent expert sessions.

Consumers have raised concerns about high electricity prices and rates of return. Engagement with the CRG over the last nine months has resulted in agreement being reached between ENA and many members of the CRG on a number of matters, including the important role of transparency in the AER's exercise of discretion in determining the rate of return allowance.

ENA has undertaken a joint project, commissioning NERA to report on a range of issues relating to rate of return outcomes, and available evidence around factors contributing to past asset base growth. The AER has facilitated this work by making a range of regulatory information submitted by businesses available to the consultant, and by assisting in confirming data analysis and results. This report is due to be submitted separately shortly.

ENA and CRG have previously engaged in detail on a proposal to provide for the potential for network businesses to opt to extend the current cost of equity averaging period from the current 20 business days, to a longer period of between 20-60

business days. This proposal was outlined in the AER *Market Risk Premium Discussion Paper*, and continues to be supported by both ENA and CRG.

A high-level summary of feedback heard in preparation of this submission and how this has been considered in this response is included in Section 12.

ENA has also participated in the AER's broader consultation process, which has included ongoing dialogue with stakeholders as well as the concurrent expert sessions. ENA notes that through the AER's expert evidence process, the experts were able to reach consensus on several issues. These areas of agreement between experts are highlighted throughout this submission.

As a result of the consultation process led by the AER, as well as our own engagement with the CRG and other stakeholders, ENA considers that it has developed a more rounded submission that takes into account the views of our stakeholders in regard to the safe, secure reliable and efficient delivery of network services.

1.3 Basis of approach to outstanding issues

In some areas, ENA and consumers have not reached a consensus view, and in some areas the experts were unable to reach a unanimous view. As in previous submissions to this process, the approach that underpins ENA's positions on these matters is as follows:

- **Consistent with the AER's current framework**. All of the positions in this document are consistent with the AER's current framework, in accordance with the AER's stated intention for this to be an incremental review. ENA has adopted the AER's current trailing average approach to the return on debt, the AER's current Foundation Model approach to the return on equity, and the AER's current 'utilisation' interpretation of the value of imputation credits.
- **Contributes to the achievement of the National Electricity Objective (NEO) and National Gas Objective (NGO)**. The positions in this document are focused on the long-term interests of consumers as set out in the NEO and NGO. ENA considers these objectives are best met by obtaining the best possible estimate of the required return, based on the available evidence.
- **Incremental to the current Guideline**. All of the positions in this document begin by accepting the framework and outcomes of the 2013 Guideline[2] and consider how the evidence has moved since then.
- **Based on robust evidence**. All of the positions in this document are supported by robust empirical evidence. On each point, ENA has documented the relevant empirical evidence and explained the significance of that evidence. All evidence

[2] As explained below, during the previous review ENA and member firms submitted that the AER's 2013 Guideline delivered an unreasonably low allowed return on equity and PIAC submitted that it delivered an unreasonably high allowed return on equity via an overstated equity beta. This resulted in litigation by some firms and PIAC, wherein the Tribunal ruled that neither appellant had made out their case. Consequently, ENA does not seek to re-litigate this issue and accepts the 2013 Guideline as being an appropriate starting point.

is based on standard, well-accepted methods. We have sought to avoid taking positions that are based on conjecture or supposition about matters that 'might' have an effect, or descriptions of alternative frameworks that 'might' be contemplated as we consider this to be of limited practical value to the AER.

- **Seeking the best estimate**. All of the positions in this document are designed to produce the best possible estimate of the relevant parameter based on the proper consideration of all of the relevant evidence.
- **Detailed and specific**. All of the positions in this document set out the specific role of each piece of relevant evidence and how we think it should be interpreted and used in the process.

1.4 A Guideline that is capable of acceptance

ENA continues to advocate the goal of producing a Guideline that is capable of acceptance by all stakeholders. ENA considers that the characteristics of such a Guideline include:

- Based on robust evidence;
- Transparent;
- Internally consistent – the same standard of evidence should be applied to all parameters;
- Consistent over time – parameter estimates should only change if there is evidence to support that change;
- Based on broad consultation; and
- Produces stable and predictable outcomes.

The overriding objective of the Guideline process is to provide an allowed rate of return that is the best possible estimate of the required return of investors, such that it will, or is likely to, contribute to the achievement of the NEO and NGO to the greatest degree. For every component of the allowed return, the central question is "What is the best estimate possible in the circumstances, based on the available evidence?".

In this regard, we note that one of the propositions that all Experts appeared to agree with is that:

> *The Guideline should set the allowed return on equity equal to the best estimate of the required return on equity.* [3]

[3] Joint Experts' Report, Proposition 2.03, p. 14.

2 Objectives of this review

Key messages

- The overriding objective of the Guideline process is to provide an allowed rate of return that contributes to the achievement of the NEO and NGO to the greatest degree. ENA agrees with the AER that this is done by:
  - Obtaining the *best possible empirical estimate* of each parameter, and consequently of the required return of investors;
  - That is based on *market evidence*; and
  - Is *commensurate with the prevailing conditions* in the market.
- ENA considers that the Guideline would contribute to the achievement of the NEO and NGO to the greatest degree, and be most capable of acceptance by stakeholders, if it demonstrates the following features:
  - Based on robust evidence;
  - Transparent;
  - Internally consistent;
  - Consistent over time;
  - Based on broad consultation; and
  - Produces stable and predictable outcomes.

2.1 The overriding objective

Focus is on NEO and NGO

The Explanatory Statement sets out the task that the AER and all stakeholders are engaged in:

> *We are required to estimate an efficient rate of return that contributes to the achievement of the NEO and NGO, the RPPs and the ARORO by promoting efficiency in the investment, operation and use of, energy network services for the long term interests of consumers.*[4]

Thus, the centre point of the exercise for all stakeholders is the NEO and NGO. The NEO is:

> *…to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to:*
>
> - *price, quality, safety and reliability and security of supply of electricity*

[4] AER, 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 35.

- *the reliability, safety and security of the national electricity system*[5]

and the NGO is stated in similar terms.

In the context of the current review, ENA notes that:

» The NEO and NGO refer to the *long-term* interests of consumers; and that

» Price is one factor among many, including quality, reliability, safety and security.

RPP provides further guidance

The Revenue and Pricing Principles provide further guidance on achieving the NEO and NGO, including:

> *A regulated network service provider should be provided with a reasonable opportunity to recover at least the efficient costs the operator incurs…*
>
> *A regulated network service provider should be provided with effective incentives in order to promote economic efficiency with respect to direct control network services the operator provides. The economic efficiency that should be promoted includes efficient investment…*
>
> *A price or charge for the provision of a direct control network service should allow for a return commensurate with the regulatory and commercial risks involved…*
>
> *Regard should be had to the economic costs and risks of the potential for under and over investment by a regulated network service provider…*[6]

The ARORO was developed to contribute to NEO and NGO

In the context of the current Rules framework, the AEMC provided guidance in setting the allowed return in a way that best contributes to the NEO and NGO. The AEMC developed the allowed rate of return objective (ARORO), which states that:

> *…the rate of return for a [Network Service Provider] 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 [Network Service Provider] in respect of the provision of [standard control services].*[7]

The current Rules require the allowed rate of return to be determined such that it achieves the ARORO. The AER has also confirmed that it intends to make its the Final Guideline in a manner consistent with both the existing Rules framework, and the new framework which may be established following introduction of the COAG Energy Council agreed binding Guideline legislation (*Statues Amendment National Energy Laws)(Binding Rate of Return Instrument) Bill* 2008) introduced in the SA Parliament

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[5] National Electricity (South Australia) Act 1996, s 7A.
[6] AER, 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 35.
[7] NER 6.5.2(c).

in August 2018. ENA submits that the ARORO provides useful guidance on how to best promote the NEO and NGO.

The ARORO was developed by the AEMC as a mechanism for best promoting the NEO and NGO. In its 2012 Final Decision, the AEMC stated that:

> *…the new rules allow the regulator (and the appeal body) to focus on whether the overall rate of return meets the allowed rate of return objective, which is intended to be consistent with the NEO, the NGO and the RPP.*[8]

The AEMC also explained that:

> *Efficient outcomes in terms of investment, operation and use of network services are most likely to be obtained when the best estimate of the rate of return is obtained. Achievement of the overall allowed rate of return objective will promote effective incentives as the rate of return determined should be commensurate with benchmark efficient financing costs.*[9]

The AEMC concluded that a full consideration of all relevant evidence is most likely to produce the best possible estimate of the required return, which will in turn be consistent with the ARORO and consequently best contribute to the NEO and NGO:

> *The final rule provides the regulator with sufficient discretion on the methodology for estimating the required return on equity and debt components but also requires the consideration of a range of estimation methods, financial models, market data and other information so that the best estimate of the rate of return can be obtained overall that achieves the allowed rate of return objective.*[10]

The AEMC also noted the importance of setting an allowed return on equity that properly reflects the market conditions at the time:

> *In estimating the return on equity under paragraph (h), regard must be had to the prevailing conditions in the market for equity funds.*[11]

NEO and NGO are promoted by adopting the best estimate of the required return on equity in the prevailing market conditions

The Explanatory Statement concludes that the NEO and NGO are promoted by adopting the best possible empirical estimate of each parameter, based on market evidence, and within the context of the Foundation Model approach. For example, the Explanatory Statement notes that an allowed rate of return that is too high or too low is unlikely to achieve the regulatory objectives, and that:

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[8] AEMC, 29 November 2012, Final Rule Change Determination, pp. 23-24.
[9] AEMC, 29 November 2012, Final Rule Change Determination, p. 13.
[10] AEMC, 29 November 2012, Final Rule Change Determination, p. 8.
[11] NER 6.5.2(g).

> *We have done so by adopting an approach of focusing on the best empirical estimates for rate of return parameters. In this way we consider we can determine an approach that is most likely to promote the NEO and NGO.* [12]

In this regard, the AER has previously stated that:

> *The role of the allowed rate of return is to attract the amount of investment needed, and as such to reflect the returns that investors require in order to invest, given the risk of the investment.*[13]

The Explanatory Statement also states that decisions should be evidence-based with a focus on market evidence:

> *Where we exercise judgement, we do so placing our emphasis on market data and avoiding choices that are influenced by any material bias in either promoting or discouraging investment. We consider that the promotion of efficient investment will flow from a decision that reflects well established economic approaches as supported by the available evidence, always having regard to the principles set out in the RPPs and the various elements we are seeking to achieve in the NEO and NGO.* [14]

In relation to the allowed return on equity, ENA agrees that the goal of the Guideline review should be to obtain the best possible estimate of each parameter for use within the Foundation Model approach, such that the Foundation Model produces the best possible estimate of the required return on equity.

Another important feature is that the parameter estimates should be commensurate with the prevailing conditions in the market. In this regard, the Explanatory Statement states that:

> *Because the market for capital finance is competitive, an efficient service provider is expected to face competitive prices in the market for funds. Therefore, we consider efficient financing costs are reflected in the prevailing market cost of capital (or WACC) for an investment with a similar degree of risk as that which applies to a service provider in respect of the provision of regulated services. As Alfred Kahn stated, 'since the regulated company must go to the open capital market and sell its securities in competition with every other would-be issuer, there is clearly a market price (a rate of interest on borrowed funds, an expected return on equity) that it must be permitted and enabled to pay for the capital it requires'.* [15]

ENA agrees strongly that the NEO and NGO will be best met by a Guideline that seeks to provide the best possible empirical estimate of each WACC parameter for use in

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[12] AER, 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 32.
[13] https://www.aer.gov.au/system/files/AER%20presentation%20on%20achieving%20the%20NEO%20.pdf.
[14] AER, 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 29.
[15] AER, 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 77.

the Foundation Model, commensurate with the prevailing conditions in the market, and based on the relevant market evidence. This approach is also consistent with the ARORO, the NEO and the NGO – the long-term interests of consumers are best served by setting the allowed return on equity to be consistent with the efficient return that is required by investors in the prevailing market conditions.

In this regard, we note that one of the propositions that all Experts appeared to agree with is that:

> *The Guideline should set the allowed return on equity equal to the best estimate of the required return on equity.* [16]

In summary, ENA agrees that the overriding objective of the Guideline process is to provide an allowed rate of return that contributes to the NEO and NGO to the greatest degree, and that this is achieved by:

- Obtaining the *best possible empirical estimate* of the required return of investors;
- That is based on *market evidence*; and
- Is *commensurate with the prevailing conditions* in the market.

2.2 The exercise of regulatory judgment

Judgment to be applied in pursuit of the best possible estimates

ENA agrees that the NEO and NGO are best met by obtaining the best possible estimate of the return that investors require.

In some areas of the estimation task, it is inevitable that the AER will have to exercise a degree of judgment because the estimation task is not a purely mechanistic one. For example, judgment is required when estimating the beta and MRP parameters.

ENA considers that this judgment should be exercised with the goal of producing the best possible estimate of each parameter for use within the Foundation Model approach, such that the Foundation Model produces the best possible estimate of the required return on equity. That is, the AER should apply its judgment by asking what evidence and process is likely to produce parameter estimates that, when inserted into the Foundation Model, produce the best possible estimate of the required return on equity, that has proper regard to prevailing conditions in the market for equity funds and the revenue and pricing principles.

That is, if the goal is to produce the best possible estimate of the return that market investors require in the prevailing market conditions, the exercise of regulatory judgment would involve making empirical estimation choices in pursuit of that goal.

Potential for expanding the role of regulatory judgment

Some stakeholders have suggested that the scope of regulatory judgment can extend beyond making the empirical estimation choices that the AER considers likely to

[16] Joint Experts' Report, Proposition 2.03, p. 14.

produce the best possible estimate of the required return – specifically, that the exercise of regulatory judgment may extend to setting the allowed return above or below the best possible estimate in order to achieve various other policy objectives.

For example, CCP16 has submitted that, although RAB multiples and ex post profitability metrics do not provide direct evidence at the parameter level, the AER could have regard to them when applying its judgment:

> *General financial performance measures can inform the overall judgement on the ROR, which will in turn be reflected in the values for the underlying parameters such as the MRP and beta, around which there is considerable uncertainty. While general performance measures do not provide direct evidence at the parameter level, they can inform the AER's exercise of judgement at both the aggregate and parameter level. CCP16 recommends that the AER should give greater consideration within its current framework to general financial performance measures. Current financial performance measures indicate that the allowed ROR has increasingly exceeded investors' required ROR, given the low level of risk for the sector.*
>
> *RAB multiples provide information on expected returns that is directly relevant to the AER's task of determining a fair rate of return. While other factors affect RAB multiples, CCP16 considers that there are sound regulatory and commercial precedents for disaggregating the impacts of these factors. The implied ROE can then be used in a directional manner in setting the ROE and ROR. Lack of consideration of these measures increases the risk of setting a ROR that does not meet the requirements of the NEO / NGO.*[17]

Similarly, the CRG has submitted that the AER could exercise judgment by reducing the allowed return if there is evidence of regulated businesses earning "ex post EV profits."[18] To implement this approach, the AER would adopt an allowed rate of return (AROR) objective of achieving zero ex post EV profits across NSPs and over time and the AER would exercise its judgment to:

> *…modify the input parameters as required consistent with the ROR Objective. In other words, the initial estimate of the AROR must be checked against ROR outcomes, and the initial estimate modified as required to achieve the AROR objective.*[19]

ENA considers it crucial to distinguish between:

- The AER exercising its judgment in deriving the best possible estimate of the required return, based on market data and commensurate with the prevailing conditions in the market; and
- The AER expanding the role of judgment to adopt something other than the best possible estimate of the required return.

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[17] CCP16, May 2018, Submission to the Australian Energy Regulator, p. 54.
[18] CRG, May 2018, Submission to the Australian Energy Regulator Rate of Return Review, p. 73.
[19] CRG, May 2018, Submission to the Australian Energy Regulator Rate of Return Review, p. 73.

As set out above, ENA agrees with the AER that the former is consistent with the NEO and NGO, but the latter is not.

ENA understands that the Draft Guideline considers the exercise of judgment in the context of empirical estimation of the best possible estimates.[20] ENA submits that that the Final Guideline should make a clear statement on this point.

The exercise of regulatory judgment to date

The CRG and CCP16 submissions proceed on the assumption that the 2013 Guideline adopted an allowed return above the benchmark efficient financing costs. For example, the CRG submission states that:

> *In exercising regulatory discretion under the 2013 Guideline, the AER set input parameters resulting in an ROR that is too high.*[21]

Similarly, the CCP16 submission starts with the proposition that:

> *To date, the AER appears to have deliberately taken an approach of choosing parameters at the upper end of estimated ranges, to avoid the risk of too low a rate of return and the risk of under-investment.*[22]

By contrast, ENA understands that the 2013 Guideline reflected the AER's best estimate of the required return, based on all of the relevant evidence available at the time. Specifically, ENA understands the 2013 Guideline reflected the AER's estimate of the allowed return that contributed to the NEO and NGO to the greatest degree. In this regard, the 2013 Explanatory Statement notes that the AER was required to produce an allowed return that is commensurate with the efficient financing costs of the benchmark efficient entity.[23] The AER went on to note that:

> *The new rules give us the discretion to adopt the approach we consider most appropriate to estimate the rate of return with the ability to take into account a wider range of relevant estimation methods, financial models, market data and other evidence as well as considering inter-relationships between parameter values. This will enable us* ***to determine the best estimate of the required rate of return*** *at the time of each regulatory determination.*[24]

The current Explanatory Statement confirms the approach of seeking the best possible estimate of the required return, not shaded one way or the other by other policy objectives:

> *Where we exercise judgement, we do so placing our emphasis on market data and avoiding choices that are influenced by any material bias in either promoting or discouraging investment. We consider that the promotion of*

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[20] AEMC, 29 November 2012, Final Rule Change Determination, pp. 8, 29, 32.
[21] CRG, May 2018, Submission to the Australian Energy Regulator Rate of Return Review, p. 73.
[22] CCP16, May 2018, Submission to the Australian Energy Regulator, p. 5.
[23] AER, December 2013, Rate of Return Guideline, Explanatory Statement, p. 15.
[24] AER, December 2013, Rate of Return Guideline, Explanatory Statement, p. 15, emphasis added.

efficient investment will flow from a decision that reflects well established economic approaches as supported by the available evidence, always having regard to the principles set out in the RPPs and the various elements we are seeking to achieve in the NEO and NGO.[25]

As set out above, ENA agrees that this approach of seeking the best possible estimate of the required return is appropriate and consistent with the NEO and NGO.

The trade-off between price and reliability

Balancing the trade-off by setting an appropriate allowed return

The Explanatory Statement notes that consumers have submitted that:

- The AER's 2013 Guideline adopted parameter estimates that were systematically in favour of NSPs;
- This bias has created an incentive to increase capital expenditure beyond efficient levels;[26] and
- Demand and utilisation declined after 2008.

The Explanatory Statement also notes that consumers have submitted that allowed returns should be reduced and summarises the trade-off between allowed returns and investment:

Consequently, consumers submit that when we exercise judgement in this current guideline process we should do so in favour of a lower, rather than a higher, rate of return. When put in the context of the NEO and NGO, consumer representatives have clearly indicated, during this consultation process, a willingness to accept a higher level of risk in respect of the rate of return and the investment it is intended to promote in exchange for lower prices.

However, we also accept submissions made by service providers and investors that we should exercise our judgement with care. There is an ongoing need for investment to replace existing assets, to address locational peak demand and to reconfigure networks in response to changes in the mix of generators. Continued investor confidence is important in achieving these investment outcomes. We are conscious that the rate of return should be set in a manner that is sufficient to attract capital on a long-term sustainable basis, given the opportunity costs, if we are to achieve the NEO and NGO.[27]

ENA agrees with the AER that the appropriate way to balance these considerations is to obtain the best possible estimate of the required return:

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[25] AER, 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 29.
[26] But See Section 3 below for evidence contrary to this proposition.
[27] AER, 2018, Draft Rate of Return Guideline: Explanatory Statement, pp. 28-29.

We consider that the promotion of efficient investment will flow from a decision that reflects well established economic approaches as supported by the available evidence.[28]

Evidence of consumer views

The proposition that current consumers are willing to accept a higher level of risk in exchange for lower prices is inconsistent with the evidence that network businesses have compiled as part of their consumer engagement programs. Many networks have surveyed their consumers on the specific question of the trade-off between price and reliability and the evidence suggests that consumers would prefer lower prices, but not at the expense of reliability. A number of networks have specifically engaged with consumers on the trade-off between price and reliability, and some examples are provided below.

For example, ElectraNet engaged with its Consumer Advisory Panel Members and held two stakeholder forums and interviewed 20 customers and customer representatives. ElectraNet engaged Deloitte to manage an engagement and information gathering process. Deloitte reports that:

Participants were satisfied with the current level or reliability and were supportive of ElectraNet's approach to Operating and Capital Expenditure. However they emphasised that they do not want ElectraNet to reduce expenditure at the expense of the current reliability performance.[29]

Ausgrid engaged Newgate Research, who facilitated 14 focus groups with customers from Sydney, Parramatta, Newcastle Gosford and Singleton, comprising 118 participants. Newgate reports that:

Almost without exception customers are happy with current levels of reliability and responsiveness and typically only experience a blackout every 1-3 years. Most want to maintain the status quo and are unwilling to pay more for better service or less for reduced service levels.[30]

AGN held six workshops with 78 participants in a process facilitated by Deloitte, who report that:

Although participants did not want to invest in improving reliability, they do value the current level of reliability, and are supportive of investment that maintains it. Only one participant was prepared to receive a reduced level of reliability in return for a saving on their gas bill. These responses give a strong indication that customers would like AGN to maintain the current level of reliability into the future.

AGN's largest safety expenditure focuses on replacing gas mains using a risk-based approach. During the 2018-2022 Access Arrangement period AGN is forecasting to replace approximately 300km of gas mains, with the

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[28] AER, 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 29.
[29] https://www.electranet.com.au/wp-content/uploads/report/2016/09/20160905-Report-ElectraNetCustomerInsightsReportDeloitte.pdf. See p. 15.
[30] https://www.ausgrid.com.au/-/media/Documents/Customer-engagement/Customers-at-the-centre/Customer-at-the-Centre-Focus-Group-Report. See p. 5.

majority in inner Melbourne (including the central business district). This work will complete a larger gas mains replacement program that has been running throughout Victoria for a number of years.

Overall, customers felt strongly that the program was a necessary investment into the Victorian gas network to improve the safety of the network and maintain the existing levels of reliability into the future.[31]

AusNet Services retained Colmar Brunton to implement the first phase of its engagement process. This involved five focus groups, structured to cover a range of life stages, held in South Melbourne and Bendigo. Colmar Brunton report that:

When looking at the network trade-off statements, those that resonated most strongly with customers centred around making no compromises on reliability and safety to achieve cost reductions, and AusNet Services undertaking forward planning to factor in and absorb future costs. [32]

Also, 73% of AusNet survey respondents agreed with the statement that:

I would like to have cheaper gas bills, but I am not willing to achieve this at the expense of the reliability or safety of the gas network [33]

and 68% agreed with the statement that:

When it comes to the gas network, reliability and safety are strongly linked (i.e. a leak is a safety risk and may result in an outage). As such, any attempts to reduce the price of gas by lowering the reliability of the network would also mean that the safety of the network is compromised, and this is not acceptable. [34]

Consistent with these outcomes:

» Victoria Power Networks (VPN) surveyed 198 customers across its CitiPower, Powercor and United Energy networks. VPN reports that reliability and affordability rank approximately equally as concerns among customers of their networks, although reliability was of even greater concern for CitiPower customers.[35]

In its May 2018 Submission, the CRG cites a survey conducted by Energy Consumers Australia (ECA) and concludes that:

Energy Consumers Australia's latest Consumer Sentiment Survey shows that only between 29 and 39 percent of residential consumers in the NEM

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[31] https://www.australiangasnetworks.com.au/-/media/files/agn/have-your-say/vic-docs/20160705deloitte-customer-insights-report2016final.pdf?la=en. See pp. 16, 19.
[32]https://www.ausnetservices.com.au/-/media/Files/AusNet/About-Us/Regulatory-Publications/Study-1-Final-Report.ashx?la=en. See p. 39.
[33] https://www.ausnetservices.com.au/-/media/Files/AusNet/About-Us/Regulatory-Publications/Study-1-Final-Report.ashx?la=en. See p. 39.
[34] https://www.ausnetservices.com.au/-/media/Files/AusNet/About-Us/Regulatory-Publications/Study-1-Final-Report.ashx?la=en. See p. 39.
[35] https://talkingelectricity.com.au/wp/wp-content/uploads/2018/08/CPPCUE-RESI-AND-SME-Forum-Report-Final-5-Jul-2018.pdf.

has a positive response on the value for money from their electricity services, the lowest of any of the services surveyed. In comparison, 65 to 76 percent of consumers have a positive response to the existing level of reliability. Consumers have a greater concern about high prices than about reduced reliability.[36]

However, the ECA survey[37] does not ask consumers whether they would accept lower reliability in return for lower prices. It simply reports that consumers are relatively satisfied with their current level of reliability (albeit that satisfaction fell in every state except NSW over the last two years). By contrast, the evidence presented above addresses directly the trade-off between reliability and price and indicates that consumers are not willing to sacrifice reliability in return for lower short-term prices.

The link between allowed returns and reliability and service levels

As set out above, ENA considers that the appropriate way to provide the correct incentives for the investment that underpins reliability and service levels is to set the allowed return equal to the best estimate of the required return, based on market data, and commensurate with the prevailing conditions in the market.

If, however, the allowed return is set below the best estimate of the required return (e.g., because it does not properly consider all market data or because it is not commensurate with the prevailing conditions in the market), NSPs would be forced to respond. For example, the Draft Guideline proposes an allowed return on equity that is 29% lower than the 2013 allowance,[38] and represents the largest ever single reduction in the return on equity by the AER. It would be naïve to expect that any business would not respond to a 29% fall in returns available to shareholders.

As the Chair and Deputy Chair of ENA noted in their 17 August 2018 letter to the Chair of the AER, if this outcome of the Draft Guideline remains unchanged, this would be expected to trigger aggressive re-evaluation by network owners of investment processes and decisions with flow on long-term implications for services to customers.[39]

If the allowed return were set below the best estimate of the required return, the likely responses would be a reduction in research and development expenditure, a reduction on expenditure on new initiatives including optimally integrating, with a long-term perspective, the significant growth in distributed solar and storage, and a reduction in service levels ENA recognises that capital expenditure is affected by a number of considerations including demand and load shape. The point being made here is that setting the allowed return equal to the best estimate of the required return of investors will create the appropriate incentives for the efficient amount of capital expenditure, given all relevant considerations.

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[36] CRG, May 2018, Submission to the Australian Energy Regulator Rate of Return Review, p. 6.
[37] http://energyconsumersaustralia.com.au/wp-content/uploads/Energy-Consumer-Sentiment-Survey-December-2017.pdf.
[38] 4%+0.7×6.5% vs. 2.5%+0.7×6%.
[39] ENA letter, AER Rate of Return Review Process – Draft Guideline, 17 August 2018, p. 3.

2.3 A Guideline that is capable of acceptance by all stakeholders

Throughout the current Guideline process, including consultations with the AER and CRG, ENA has advocated that the collective goal of the current process should be a Guideline that is "capable of acceptance" by all stakeholders. Confidence in the Guideline is critical to the achievement of the NEO and NGO. As the AER notes in the Explanatory Statement[40], investor confidence is required to meet ongoing investment needs in networks in the long terms interests of consumers. We see this goal of a Guideline which is capable of acceptance and therefore has the confidence of all stakeholders as parallel to and necessary for the achievement of those objectives.

As set out in our May 2018 Submission, ENA considers that a Guideline would be most capable of acceptance by all stakeholders, and contribute to the achievement of the NEO and NGO to the greatest degree, if it demonstrates the following features:

- **Based on robust evidence**. All estimates should be based on robust evidence with a focus on evidence from traded market prices. Submissions on a particular point should only receive weight if they are based on robust evidence and they should receive no weight if they are based on what appears to be speculation or conjecture about things that might possibly have had an effect on past data or might possibly have an effect on future data. The evidence should also be commensurate with the prevailing conditions in the market.
- **Transparent**. The Guideline should be transparent in explaining how each parameter estimate has been determined. ENA accepts that the AER will necessarily have to exercise judgment in some places, but that exercise of judgment should be explained so that stakeholders are able to understand how the final estimate was derived from the relevant evidence.
- **Internally consistent**. The assessment of evidence should be applied consistently throughout the Guideline. For example, the AER may consider that a particular piece of evidence does not meet the threshold required to change its current estimate of a particular parameter. In this case, no parameter should be changed on the basis of any weaker evidence. Similarly, the same threshold should be applied when considering whether to increase or decrease a parameter estimate.
- **Consistent over time.** Parameter estimates should only change if there is new evidence to support that change. The same evidence should not lead to different conclusions over time.
- **Based on broad consultation**. All stakeholders should have an adequate opportunity to be heard and the Guideline should properly address all submissions. The Guideline should explain the reasons why each submission was accepted or rejected.
- **Produces stable and predictable outcomes**. ENA supports the general agreement in the Joint Experts' Report in support of a Guideline that produces

[40] At pages 28-29.

stable and predictable outcomes.[41] All stakeholders benefit from stable and predictable outcomes. This implies that the AER should set a high bar when deciding whether to change approach or parameter estimates. A change should only be made when there is strong evidence to support it.

[41] Joint Experts' Report, Item 2.01, p. 14.

3 Context for the guideline review

Key messages

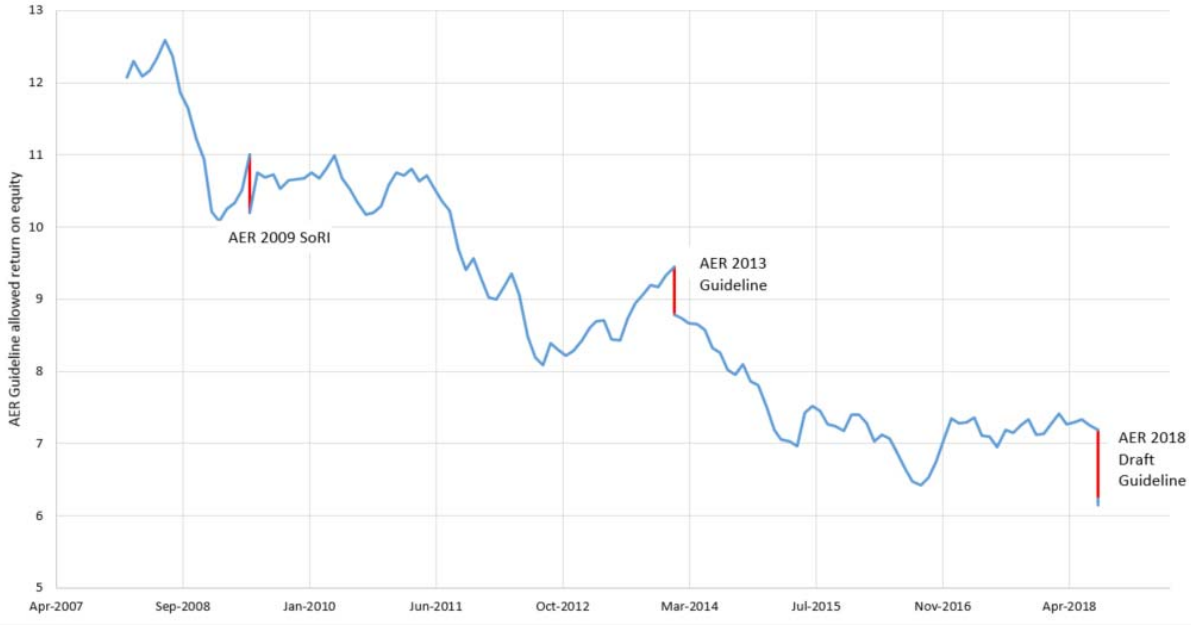
- The material reductions in the allowed return in the 2013 Guideline have already had a substantial effect on NSPs, network revenues, prices and ongoing investment:
  - Allowed returns were reduced materially in the 2013 Guideline.
  - Since the 2013 Guideline, the allowed return on equity has reduced materially due to the decline in the risk-free rate.
  - The 2013 Guideline has materially reduced the return to NSP shareholders relative to each dollar of investment – by 30% on average.
  - Since the 2013 Guideline, RAB growth has been muted.
  - Since the 2013 Guideline, NSPs have systematically underspent AER-approved capital expenditure allowances.
- In this context, it is important to note that the reductions that are embedded in the 2013 Guideline starting point have already had a highly material impact on NSPs.
- This context is relevant to the AER's assessment of whether it is satisfied that the Guideline will or is most likely to contribute to the achievement of the national electricity and national gas objectives to the greatest degree.

3.1 The return on equity allowance has fallen materially in decisions since 2013

The 2013 Guideline implemented material decreases in the allowed return on equity. Figure 1 shows that, since 2013, there have been further material reductions in allowed returns to network service providers as the AER's allowed return on equity has fallen in line with the reduction in government bond yields.

Indeed, in every WACC Review, the AER has reduced materially the allowed return on equity, even as government bond yields have fallen to historical lows. The allowed return on equity under the 2018 Draft Guideline is approximately half of what it was only 10 years ago.

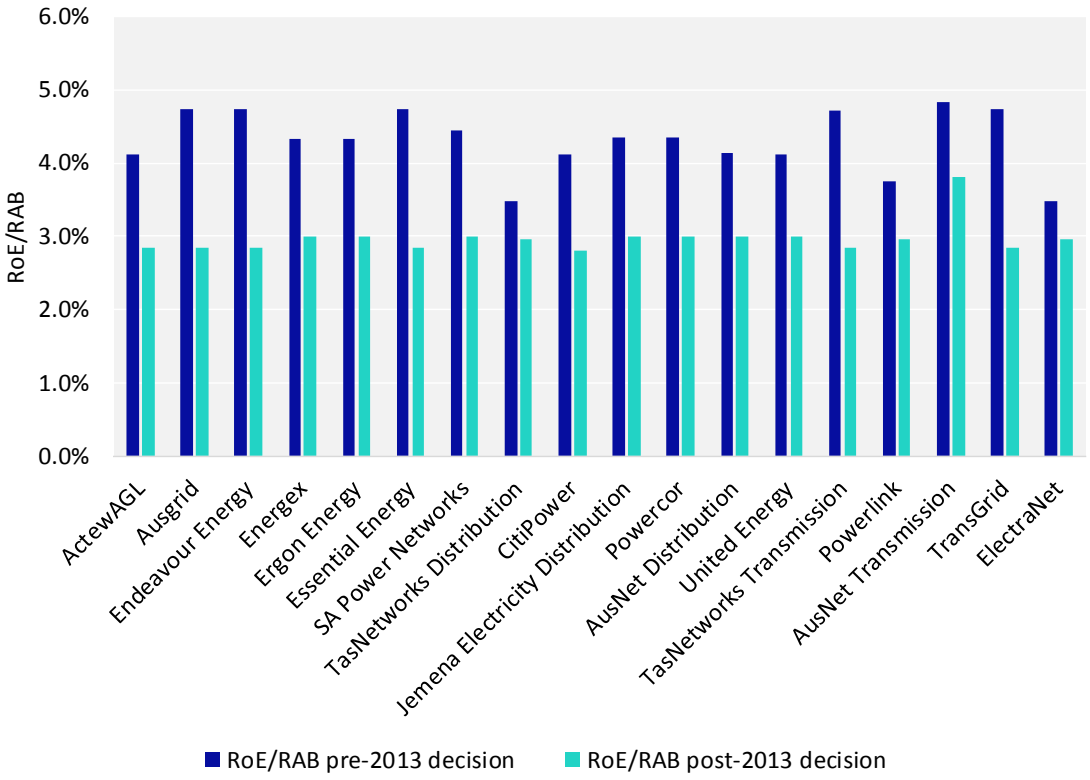
Figure 1: Change in AER allowed return on equity



Source: AER Guidelines; RBA.

The allowed return on equity, as a proportion of the regulatory asset base has also fallen dramatically, representing a shift in the returns earned by owners of networks. This can be seen in Figure 2 below, which presents the return on equity as a fraction of opening RAB for individual electricity networks, comparing the final year of the most recently-completed regulatory control periods under the previous Guideline, to the first year of the first regulatory control periods under the 2013 Guideline. Both return on equity and opening RAB are taken from the AER's post-tax revenue models.

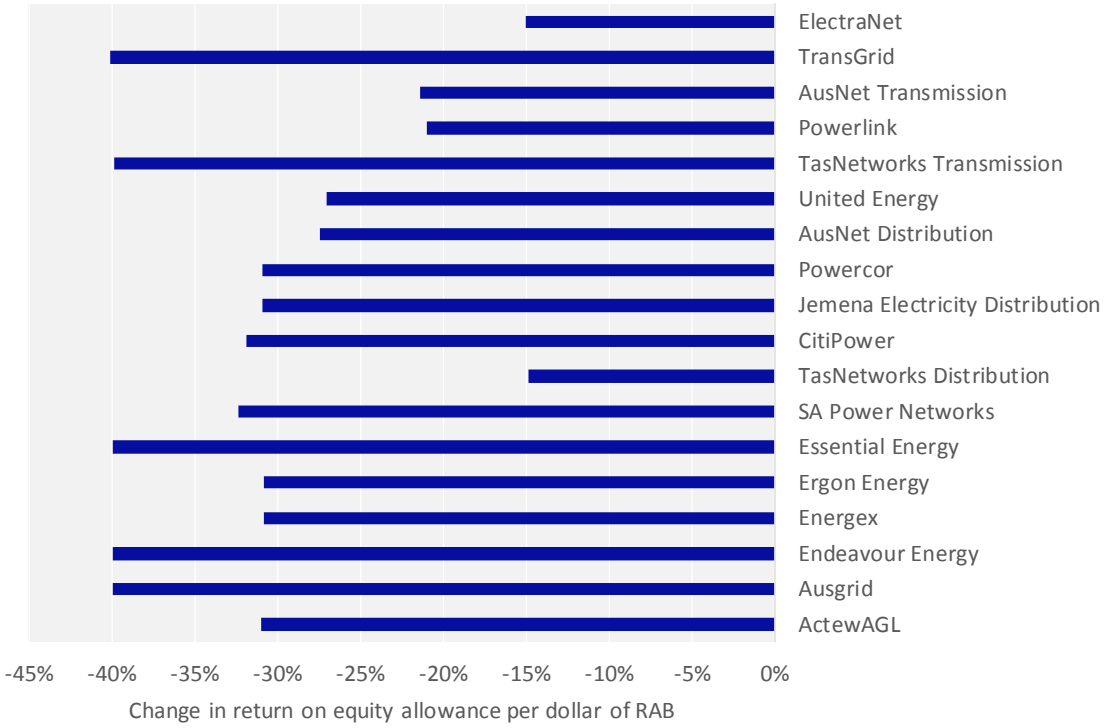
Figure 2: Return on equity as a percentage of RAB, for decisions before and after the 2013 Guideline



Source: AER determinations.

The AER's determinations under the 2013 Guideline yielded substantially lower returns relative to RAB for all network service providers. This is evident in Figure 3 below, which presents the change in the return on equity allowance per dollar of RAB between the last regulatory period before the 2013 Guideline and the first regulatory period under the 2013 Guideline. On average, there was a highly material 30% reduction in the allowed return on equity, relative to RAB.

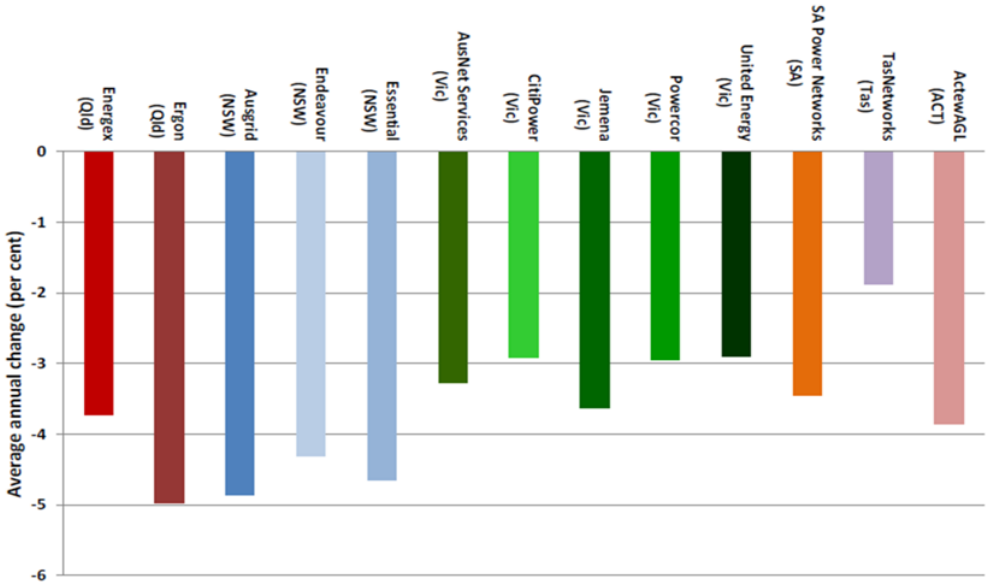
Figure 3: Change in return on equity allowance per dollar of RAB in decisions made since 2013



Source: AER determinations.

The various reductions to regulatory allowances in determinations under the 2013 Guideline have already resulted in material falls in network fees charged to customers, as shown in Figure 4 below.

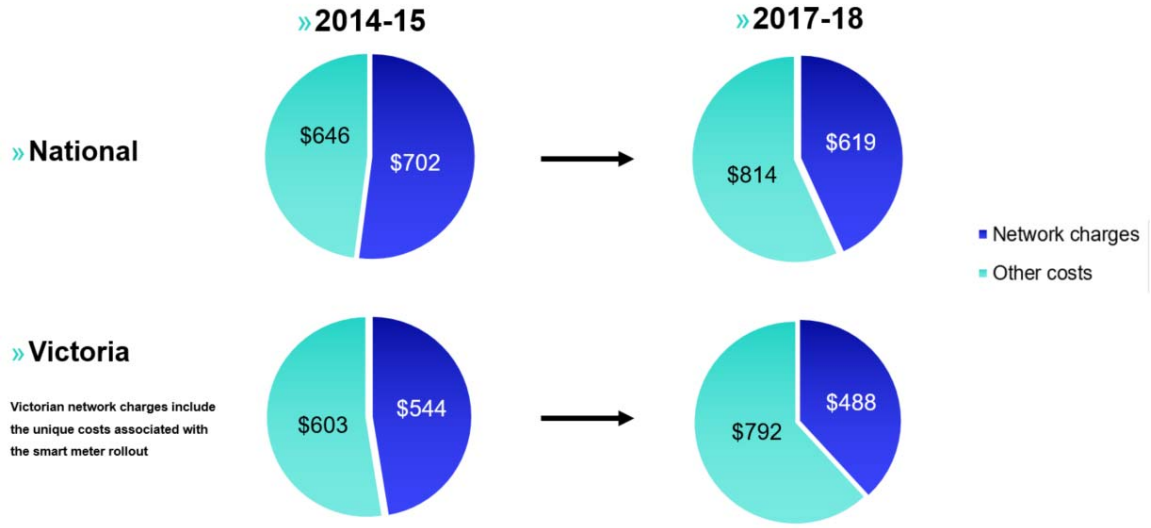
Figure 4: Change in network fees since 2013



Source: AER, November 2017, Annual Benchmarking Report, Electricity distribution network service providers, p. 25.

The result of these reductions is that network fees now amount to a materially smaller portion of customer bills in both absolute and relative terms, as shown in Figure 5 below.

Figure 5: Change in average customer bill composition



Source: AEMC, December 2017, Residential electricity price trends.

In summary, recent increases in customer bills are not at all due to network charges. By contrast, increases to customer bills would have been higher, but for the material *reduction* in network charges.

In this regard, the AEMC has recently concluded that:

> *Wholesale electricity purchase costs are the primary driver of the trends in residential electricity prices with wholesale electricity costs increasing from 2016/17 to 2017/18 and decreasing from 2017/18 to 2019/20.*[42]

3.2 RAB growth since the 2013 Guideline has been modest

At the same time, growth in the RAB has been modest since FY2014.[43] The average nominal increase between 2013-14 and 2016-17 was under 3.8% per annum. Some of this RAB growth represents indexation for outturn CPI inflation. Over the same period, the average rate of CPI inflation was just under 1.9% per annum.[44] Therefore, the average real rate of growth in RAB between 2013-14 and 2016-17 was approximately 1.9% per annum – a modest rate of increase.

Moreover, as explained in ENA's May 2018 submission to the AER, for all decisions made by the AER under the 2013 Guideline, network service providers have overwhelmingly tended to underspend the amount of capex allowed by the AER.[45]

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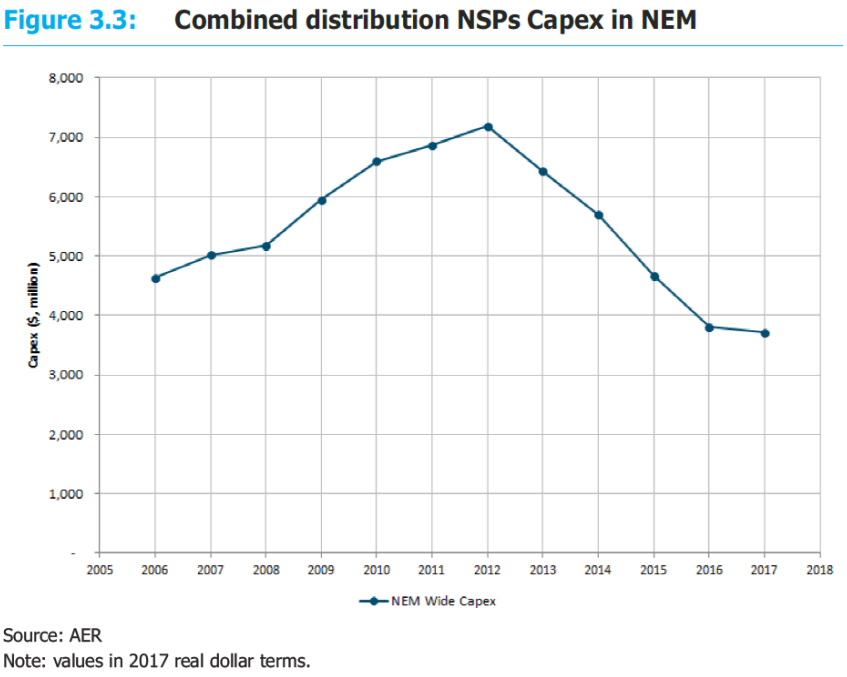
[42] AEMC, December 2017, Residential electricity price trends
[43] The year to June 2014, except for Victorian DNSPs: the year to December 2014.
[44] Outturn inflation data were obtained from the Australian Bureau of Statistics.
[45] ENA, AER Review of the Rate of Return Guideline, 4 May 2018, Figure 5, p. 27.

This implies that RAB growth has actually been lower than that allowed by the AER under determinations made since the 2013 Guideline (all else remaining equal). The widespread trend of network service providers underspending their capex allowances is inconsistent with the proposition that networks' ongoing capital investments demonstrate an incentive to increase their RABs to take advantage of overly-generous rate of return allowances. Rather, systematic outperformance of capex allowances is more consistent with the reverse hypothesis that networks do not consider discretionary capital investments to be adequately compensated in risk-adjusted terms, or that other factors are driving capital investment behaviour.

The AEMC also makes the point that investment incentives would be strongly biased towards capex, rather than opex, if the allowed return is set above the true cost of capital.[46] However, the AEMC reports that capex expenditure has *reduced* markedly in 2013 and thereafter. Indeed capex in 2017 is the lowest on record, as shown in Figure 6 below.

Figure 6: Reduction in CAPEX expenditure since 2013



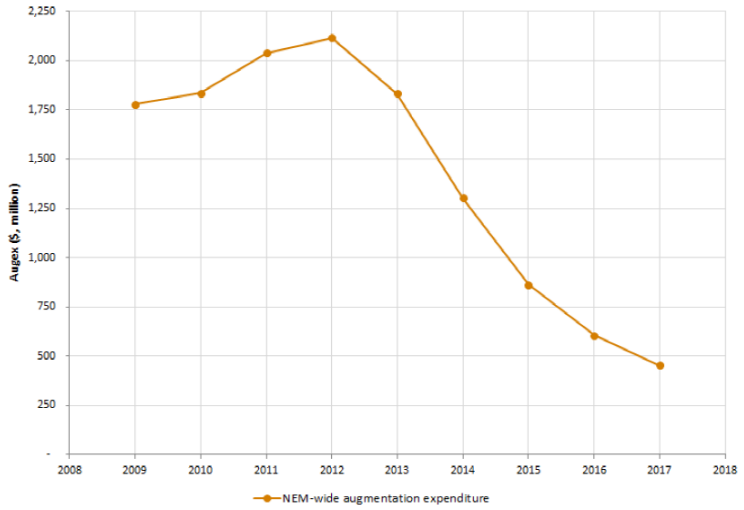
Source: AEMC, 2018, Promoting efficient investment in the grid of the future, Figure 3.3, p. 41.

The AEMC also reports that augmentation capex has reduced to less than a quarter of 2012 levels, as shown in Figure 7 below. That is, more than 85% of the (lower) 2017 capex relates to the replacement of existing assets.

[46] AEMC, July 2018, Promoting efficient investment in the grid of the future, p. viii.

Figure 7: Reduction in augmentation CAPEX expenditure since 2013

Figure 3.5: Combined distribution NSP augmentation expenditure in NEM



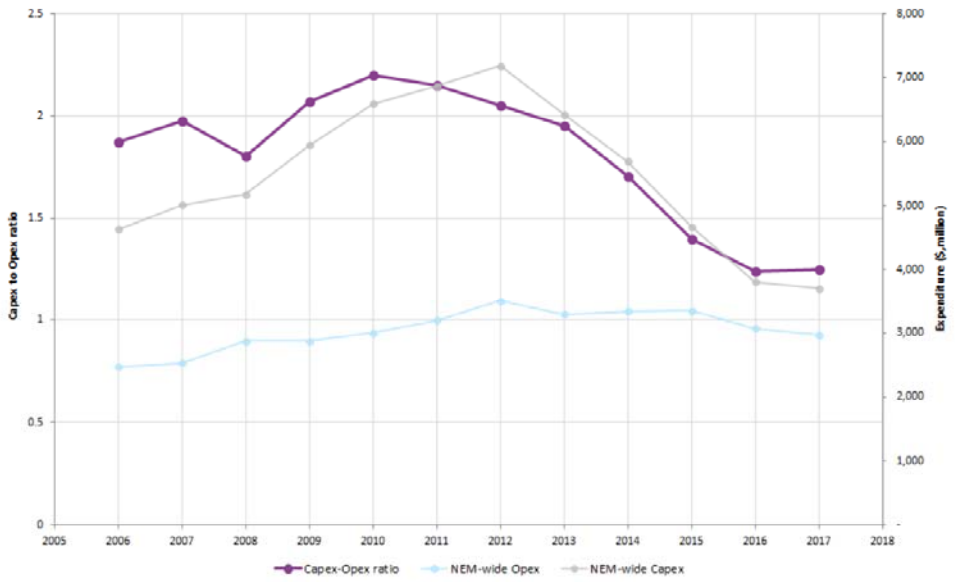
Source: AER
Note: values in 2017 real dollar terms.

Source: AEMC, 2018, Promoting efficient investment in the grid of the future, Figure 3.5, p. 43.

Figure 8 shows that the reduction in capex results in a material decline in the capex/opex ratio as businesses reduce the relative expenditure on capex.

Figure 8: Reduction in capex/opex ratio since 2013

Figure 3.12: Combined distribution NSP capex - opex ratio for NEM



Source: AER
Note: values in 2017 real dollar terms

Source: AEMC, 2018, Promoting efficient investment in the grid of the future, Figure 3.12, p. 50.

This evidence is very clearly inconsistent with the proposition that there is a bias towards capex due to the regulatory allowed return being set in excess of the true cost of capital. Rather, the evidence shows that there has been a very pronounced move away from capex in the period since the 2013 Guideline.

ENA recognises that capex is also affected by considerations including demand and load shape. Thus ENA does not suggest that the material reduction in investment since 2013 is entirely related to the reduction in allowed returns at that time. Rather, ENA simply notes that the evidence is clearly inconsistent with the proposition that the allowed return since 2013 has been so high as to drive inefficiently high levels of capital expenditure.

3.3 Summary of context for this review

During the previous 2013 Guideline review process, ENA and member firms submitted that the AER's 2013 Guideline reached a flawed outcome and would deliver an unreasonably low allowed return on equity. However, the Australian Competition Tribunal has ruled that the AER's approach to the allowed return on equity was open to it. Consequently, ENA does not seek to re-litigate this issue and accepts the 2013 Guideline as being an appropriate starting point for determining the allowed return on equity in the context of an incremental review.

However, the evidence set out above establishes that the material reductions in the allowed return in the 2013 Guideline have already had a dramatic effect on NSPs:

- Allowed returns were reduced materially in the 2013 Guideline.
- Since the 2013 Guideline, the allowed return on equity has reduced materially due to the decline in the risk-free rate.
- The 2013 Guideline has reduced materially the return to NSP shareholders relative to each dollar of investment – by more than 30% on average.
- Since the 2013 Guideline, RAB growth has been muted.
- Since the 2013 Guideline, NSPs have systematically underspent AER-approved capex allowances.

All of this evidence indicates that the 2013 Guideline has already had a material impact on NSPs, materially reducing allowed returns and the incentive to invest.

The NEO and NGO are to promote efficient investment in, and efficient operation and use of networks for the long term interests of consumers. The AER must be satisfied that the new Guideline will, or is likely to, contribute to these objectives to the greatest degree. In satisfying itself that the Guideline meets this threshold test, the AER should take into account the impact of the 2013 Guideline and its subsequent decisions. The evidence set out above presents a clear picture of what has occurred since the reductions in the 2013 Guideline, and that should be taken into account when determining the potential impacts of the further material reductions that are proposed in the Draft Guideline.

ENA submits that the evidence presented above is inconsistent with the proposition that the 2013 Guideline was generous, creating an incentive for NSPs to engage in inefficient capital expenditure – indeed quite the reverse.

ENA also notes that the AER has performed no analysis to date of the potential impacts of the further material reductions that are proposed in the Draft Guideline – the largest ever step change in the allowed return on equity at a time when that allowed return is already at historical lows.

4 Review process: network sector concerns

Key messages

- ENA has several material concerns with the review process to date. The detail of these concerns is documented throughout this submission, with some examples provided here.
- The primary concern is that some aspects of the Draft Guideline are not based properly on market evidence and do not reflect properly the prevailing market conditions. Consequently, ENA considers that the AER has not selected the best possible empirical estimate for some parameters, notably beta, MRP and gamma. ENA agrees with the AER that the NEO and NGO are best achieved by using market data to obtain the best possible empirical estimate of each parameter that is commensurate with the prevailing conditions in the market.
- ENA also has a number of other concerns with the review process to date, including the following examples:
  - **Every change in process reduces the allowed return**: The Draft Guideline proposes a number of changes to the approach taken in the 2013 Guideline. Every one of these further reduces the allowed return on equity.
  - **Process goal of an incremental review appears to have been abandoned**: ENA has engaged in good faith in the review process on the basis that this would, as the AER indicated early on in the Issues Paper, be an incremental review. However, the Draft Guideline proposes a number of very material changes including the effective abandonment of the Foundation Model approach to the return on equity, even though there have been no changes in finance theory or evidence since 2013. The AER states that it still considers its Draft Guideline to be adopting an incremental approach, when that is manifestly not so.
  - **Expert agreement disregarded**: Some agreed positions documented in the Joint Expert Report have been disregarded.
  - **Parameters moving in opposite direction to evidence**: Where the entirety of the AER's own evidence on beta and MRP has unambiguously moved upwards since 2013, the Explanatory Statement has moved the parameter estimates (materially) in the opposite direction.
  - **AER has not properly engaged with the evidence**: In several places, the Explanatory Statement has rejected the weight of well-reasoned evidence (including from its own experts) in favour of what appears to be unsubstantiated assertions and conjectures.
  - **Evidence afforded inappropriate and inconsistent weights**: The Explanatory Statement applies a very high standard to evidence that would

increase allowed returns and a very low standard to evidence that would decrease allowed returns.

- **Conclusions drawn that are inconsistent with the evidence**: In some places, the conclusion that is drawn is inconsistent with the evidence that is considered.

- **Independent review panel process has failed to address the key question relevant to this review**: A process in which panel members are each provided with a large volume of written material, given a short time to consider it, and provided with a vague scope of work which is not consistent with the regulatory test the AER must satisfy in making the Guideline, was never going to produce any useful output. ENA's primary concern with this part of the process is that it has not met the objective of enhancing stakeholder confidence in the review process. The Independent Panel Report is inconsistent with the Panel having even read ENA's submissions (or any other stakeholder submissions) in this process and has resulted in a report which is of very little utility to the AER or stakeholders, and therefore represents a missed opportunity to strengthen the review process.

» The above concerns indicate that the parameter estimates in the Draft Guideline are not the best empirical estimates for use in the Foundation Model and therefore do not produce the best estimate of the required return on equity. They also undermine confidence in the Guideline. The consequence of these concerns is that the resulting Guideline will not promote the NEO and NGO to the greatest degree.

4.1 All changes reduce the allowed return

The Draft Guideline proposes a number of changes to the approach taken in the 2013 Guideline. Every one of these further reduces the allowed return on equity, as summarised in Table 1 below.

Table 1: Effect of changes in approach proposed in the Draft Guideline

Change made	2013 Guideline	2018 Draft Guideline	Directional effect
Foundation model	Other models used to inform SL-CAPM parameters	Other models have no effect on SL-CAPM parameters	↓
Return on equity cross checks: DRP vs ERP comparison	Rejected (indicated allowed return was too low)	Used as primary cross check (taken to support the proposed allowance)	↓
Equity beta: Black CAPM	Used to inform beta point estimate	No effect on beta point estimate	↓

Equity beta: International comparators	Used to inform beta point estimate	No effect on beta point estimate	↓
MRP: Geometric mean	Lower bound of range set 20 bp above highest geometric mean	Lower bound of range set equal to highest geometric mean	↓
MRP: DGM	Used to inform beta point estimate	No effect on beta point estimate	↓
Return on debt: Data source	BBB curves	Weighted average of A and BBB curves	↓
Gamma: Distribution rate	Used ATO 'dividend' estimate	Uses 20-firms estimate	↓
Gamma: Consistency of estimates	Consistent estimates of distribution and utilisation rates	Pairs listed equity distribution rate with all equity ownership estimate	↓

Source: AER, December 2013, Rate of Return Guideline; AER, July 2018, Draft Rate of return Guideline.

4.2 An incremental review

ENA's understanding of an incremental review

ENA agreed with the position outlined in the AER Issues Paper that the Guideline process should not seek to 'reinvent the wheel' for setting the rate of return allowance, and has participated in good faith on that basis. As the AER has noted:

> *…we consider this review should seek to build on the current Guideline rather than start afresh. There are a number of aspects of the current approach that are reliant on market data and empirical analysis, and this material would clearly need to be updated. However, there are a number of aspects of the current approach that are driven by finance theory and available academic literature. We not aware of any significant new developments in this area that might warrant us taking a new approach.*[47]

ENA agreed that the focus should be on incremental improvements rather than a blank slate approach, and that the relevant empirical evidence should be updated.

ENA understood that under an incremental review, the framework that was adopted in the 2013 Guideline, and the approaches for determining the allowed return on equity and debt, would be maintained unless overwhelmingly compelling new evidence had emerged that a change of approach was necessary, and that any new evidence since 2013 would be considered within the AER's existing framework and approaches.

[47] AER Issues Paper, Review of Rate of Return Guideline, October 2017, p. 8.

Implications for the allowed return on equity

In the spirit of the current review being focused on incremental improvements to the current Guideline, ENA accepted that the AER's current Foundation Model approach to the allowed return on equity would be maintained and that the relevant financial models that are a part of that approach would continue to have the same role.

ENA's May 2018 submission noted that:

- There have been no changes to finance theory since 2013 to warrant the AER changing its approach.
- Abandoning the current Foundation Model approach would be inconsistent with the stated intention of an incremental review.
- Abandoning the current Foundation Model approach in favour of a reversion to a mechanistic SL-CAPM approach would mean disregarding relevant evidence that currently has an important role in the process for determining the allowed return on equity. Such an approach would therefore be inconsistent with the NER/NGR, which have been developed to ensure that regulatory determinations best contribute to the NEO/NGO.
- A regulatory approach in which a whole decision-making framework is developed in one Guideline and then effectively abandoned five years later is inconsistent with the principles of stability and predictability, and increases the assessment of regulatory risk.

In this regard, we note that one of the propositions that all Experts appeared to agree with is that:

> *Given the context of the AER's stated objective of making incremental changes to the RORG, the Foundation Model framework should be retained. This gives primacy to the Sharpe-Lintner CAPM, with evidence from other relevant models to inform estimates of individual CAPM parameters as per the 2013 Guideline.*[48]

However, as set out in Section 6 of this submission, the Foundation Model approach has been effectively abandoned in the Draft Guideline.

4.3 Expert agreement has been disregarded

The Explanatory Statement disregards a number of the agreed positions that have been set out in the Joint Expert Report prepared by the independent convener.

For example, the Joint Expert Report documents agreement about relatively less weight being applied to beta estimates for firms that have been delisted for some time. Experts did not consider evidence from delisted firms to be irrelevant, but that evidence from firms that have been delisted for over a decade is less informative than evidence from still-listed firms that include data from the prevailing market conditions.

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[48] Joint Experts' Report, Proposition 2.12, p. 18. DJ "accepts that the AER should use the foundation model as it provides a frame of reference for discussion" but added comments on other matters the AER might consider, including "the consequences of its previous decisions."

ENA considers that there is no reasonable argument against this proposition and this has been clearly conveyed by the Experts.

However, the Explanatory Statement (p. 247) rejects that evidence on the basis that its own expert *may* have expressed some disagreement with that statement if the AER had allowed more time for him to consider it – even though that expert reviewed the final Joint Expert Report and elected not to dissent from that statement.[49]

Similarly, the Explanatory Statement (p. 202) rejects a statement of agreed position that historical excess returns data used to estimate the MRP should use the 'NERA' adjustment, again on the grounds that the same AER expert *may* have disagreed with this statement had more time been available.

The fact that documented positions can be disregarded, on the basis of a conjecture that an expert may have formed a different view if the AER had allowed more time in its process, devalues significantly that form of engagement. It is also inconsistent with a clear, transparent, evidence-based process, and with evidence being treated symmetrically over time. These issues significantly undermine confidence in the review process, the resulting Guideline and any future decisions that would be made by the AER using that Guideline.

4.4 Allowed parameters moving in the opposite direction to all evidence

ENA's May 2018 submission demonstrates that the AER's own evidence and estimation methodology shows that every single domestic beta estimate in the AER's sample has increased since 2013. Figures 7 to 9 of the ENA submission compare (on a like with like basis) the Henry 2014 estimates and the AER's updated estimates. Every one of them has increased. However, the Draft Guideline proposes a material *decrease* in beta from 0.7 to 0.6.

The ENA submission of 4 May 2018 (Table 6, p. 65) also demonstrates that each of the AER's estimates of the MRP has increased since 2013. The Explanatory Statement confirms this evidence:

- The historical excess returns evidence has increased since 2013 (Table 25, p. 215).
- The AER's DGM estimates have increased since 2013 (Table 26, p. 222; Figure 20, p. 223).
- The survey estimates have increased since 2013 (Table 27, p. 226).
- Other regulators' estimates have increased since 2013 (Table 28, p. 232).

However, the Draft Guideline proposes a material *decrease* in the allowed MRP from 6.5% to 6.0%.

[49] The consumer-sponsored expert was also unavailable for some of the period allocated by the AER. However, that expert had advocated that no standard empirical evidence should be used at all – recent or outdated – and that a cash-flow approach should instead be used to derive betas. That approach was rejected by the experts and by the AER.

A decision that is predicated on reaching the best possible estimate, but which moves in the opposite direction to all the evidence is unlikely to support goals of regulatory transparency, confidence, predictability, or reflecting prevailing conditions in the market for equity funds, with consequent impact on regulatory risk.

4.5 Failure to properly engage with the evidence

In a number of areas, the Explanatory Statement rejects the weight of well-reasoned evidence (including from the AER's own experts) in favour of assertions and conjectures. Two examples are provided below.

Arithmetic vs. geometric means

As set out in Section 9 below, in the second concurrent evidence session, a number of experts explained that the AER uses the historical excess returns data to estimate the expected MRP in a setting where no compounding of returns occurs, and that this mathematically requires the arithmetic mean. The experts explained that this is not a matter of opinion, but is the subject of a mathematical proof. The AER's own expert, Dr Lally, has also advised that the arithmetic mean must be used, also providing a mathematical proof to the AER as the basis for that advice. The Explanatory Statement also notes that Partington and Satchell agree that no compounding occurs in the AER process.

However, the Explanatory Statement has material regard to geometric means on the basis of speculation that investors may compute compounded returns in some of the other calculations that they perform (p. 212). Indeed, the influence of geometric means on the final MRP estimate has increased materially relative to the 2013 Guideline.

Thus, one set of evidence involves a group of experts, including one of the AER's own experts (Dr Lally), providing a mathematical proof that the arithmetic mean must be adopted – because there is no compounding of returns in the AER's process. The alternative evidence is mere speculation that investors may consider compounded returns for some different purpose.

Investors may well consider geometric means when estimating the compound return that *has been* earned over some *historical* period. But, mathematically, the arithmetic mean must be used to estimate the *expected* return over a *forthcoming* period – which is the role that is required in the AER's process.

Low-beta bias

ENA's May 2018 submission summarised the extensive evidence of low-beta bias. The empirical evidence is that actual stock returns have systematically and consistently exceeded the SL CAPM estimate in studies over more than 40 years and across all developed markets.

The Explanatory Statement refers to "limitations" of some of the empirical tests that indicate low-beta bias.[50]

The suggestion that there is doubt about these results raises questions about the consistent application of the standard of evidence that the AER requires. ENA considers that it is difficult to conceive of any set of evidence that is more compelling than the evidence of low-beta bias. The contributors to this literature include two Nobel Prize winners and the studies documenting low-beta bias have been published in the very top finance journals over several decades, and the empirical evidence of low-beta bias appears in the standard finance textbooks. Yet the Draft Guideline effectively disregards this evidence, while on other issues accepting evidence of a much less compelling standard (e.g. conjecture without any empirical evidence that investors may consider compounded returns).

ENA considers that the evidence that the observed returns on low-beta stocks are higher than the SL-CAPM suggests is beyond dispute. The suggestion that this empirical evidence may not be settled raises questions about the robustness and symmetry of the analytical approach taken to the assessment of evidence.

Assessment of DGM evidence

The Explanatory Statement expresses a concern about the relative stability of the DGM estimates of the required return on equity. The concern is because relative stability is inconsistent with the AER's view – not supported by the joint experts – that the required return on equity varies one-for-one with changes in the risk-free rate. However, the AER's current preferred view should be tested against the evidence; evidence should not be discarded simply because it does not fit a prior view.

4.6 Inappropriate and inconsistent weight given to some evidence

In a number of areas the AER has applied material weight to evidence against the advice of the joint experts.

Variable growth rate DGM

The Explanatory Statement (p. 219) notes that the Fenebris 'variable growth rate' version of the DGM generally produces nonsensical output. For example, the ENA May 2018 submission notes that this approach produces implausible MRP estimates of less than 2% for Mexico, Brazil and India. More recent MRP estimates from Fenebris are even more fanciful. For example, at the time of this report, Fenebris is reporting an MRP of -0.351% for Turkey.

The Explanatory Statement (p. 219) also notes that Partington and Satchell agree that this approach produces implausible estimates, particularly in the prevailing market conditions.

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[50] AER, July 2018, Draft Rate of Return Guideline, Explanatory Statement, p. 277.

Yet the Explanatory Statement reports estimates from that approach, placing them on an equal footing with the plausible estimates that are produced from the accepted specifications of the DGM (Figure 20, p. 223), including the AER's own specification – to create a sense of divergence between estimates from different DGM specifications.[51]

ATO tax statistics

The ATO has clearly indicated that it publishes reliable data on *credits created* and *credits redeemed*, which is all that is required to obtain an estimate of the utilisation gamma for the average Australian firm. However, the Explanatory Statement continues to disregard this evidence, largely due to concerns about the estimation of *credits distributed*, which is not needed to estimate the AER's 'utilisation" or 'cash flow' gamma.

Inconsistent consideration of evidence

In several places, the Explanatory Statement uses evidence inconsistently. For example, independent expert valuation reports are cited as support for the proposition that market practitioners do not implement the Black CAPM.[52] However, those same reports document that experts do not implement the CAPM in the way the AER implements it (i.e., using the prevailing government bond yield, the historical average MRP, and no additional uplift). Expert reports also do not make any adjustment in relation to gamma. It is not clear why independent expert practice would be relevant to one issue and not others.

4.7 Conclusions drawn are inconsistent with the evidence

In some places in the Explanatory Statement the conclusion that is drawn is inconsistent with the evidence that is considered.

For example, the Explanatory Statement sets out five cross checks for the equity risk premium. The fact that the proposed allowance fails the first four cross checks appears to have no consequence at all. The Explanatory Statement then introduces a new fifth cross check that the AER (and its advisers) argued strongly against in 2013. It is difficult for stakeholders to understand why the debt risk premiums that were so fundamentally inappropriate as a cross check in the 2013 Guideline (at which time they would have supported a *higher* equity risk premium) have now been introduced as a new cross check (where they are now used to support a *lower* equity risk premium). Rather, this highlights that the role of cross-checks under the Foundation Model approach is inherently problematic.

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[51] The accepted specifications of the DGM (from the 2013 Guideline, accepted as part of an incremental review) produce the same range of outputs as in 2013; but with a materially higher mean.

[52] AER, July 2018, Draft Rate of Return Guideline, Explanatory Statement, p. 277.

4.8 Independent review panel process

Failure to meet objective of promoting stakeholder confidence

Network businesses have concerns about the AER's process in relation to the Independent Expert Panel. In particular, there was no opportunity for stakeholders to indicate their particular areas of concern to the Panel or even to pose any questions for the Panel to consider.

The Panel notes that it was established to review the Draft Guidelines as a means of promoting stakeholder confidence in the review process and confidence that the Final Guidelines are capable of achieving the NEO and NGO.[53] However, a process in which Panel members are each provided with a very large volume of written material, given a short time to consider it, and provided with a vague scope of work which does not reflect the relevant regulatory test and no opportunity to physically meet, was always highly likely to result in no useful output being produced. In those circumstances, the Independent Panel process cannot achieve its objective of promoting stakeholder confidence in the review process or resulting final guideline.

The Independent Panel was given the wrong question to consider

As set out in Section 2 above, the objective of the Guideline process is to determine the allowed return that contributes to the NEO and NGO *to the greatest degree*. Under the proposed amendments to the NEL and NGL to give effect to a binding Guideline, the AER may only make an instrument if it is satisfied the Guideline will meet this test.[54]

Thus, it would have been useful for the Independent Panel to opine on whether the Draft Guideline will or is likely to produce, an allowed return that contributes to the NEO and NGO to the greatest degree. However, the Independent Panel was asked to consider a different question – whether the Draft Guideline is supported by sound reasoning based on the available information such that is capable of promoting the achievement of the NEO and NGO.[55] That is, the Panel was asked to test the Draft Guideline against a materially lower threshold than the threshold the AER must apply.

It is well accepted that the nature of the task involved in estimating the rate of return is such that there are potentially a number of outcomes that could meet the NEO and NGO. However, it is critical to remember that the AER's task is to take the approach that it is satisfied will achieve the objectives to the greatest degree. The Panel's scope of work, and therefore its report, provides no useful information on the choice of approaches or estimates that will meet that test. Indeed, the Panel noted specifically that it did *not* consider the appropriate 'greatest degree' question. Indeed, the Panel

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[53] Independent Panel Report, September 2018, page I

[54] See proposed new section 18I of NEL as set out in the *Statutes Amendments (National Energy Laws)(Binding Rate of Return Instrument) Bill* 2018, as introduced into the South Australian Parliament on 2 August 2018.

[55] Independent Panel Report, September 2018, p. I.

has indicated that it did not even form a judgment about whether the proposed regulatory allowance is appropriate:

> *Our role does not extend to forming a judgement about whether the rate of return itself is appropriate or providing further expert analysis on matters that the AER has already considered. Equally, our role is not to propose an alternative value or approach, or to propose our preferred means of promoting the national gas and electricity objectives, or to put forward alternative or amended Guidelines.* [56]

The Panel further states that:

> *The Panel's role is not to propose its preferred means of promoting the national gas and electricity objectives, or to put forward an alternative or amended Guidelines. Instead, its role focuses on providing its own conclusions about whether the Draft Guidelines meet the requirements set down for the Panel. The AER has specified that the Panel's role does not extend to forming a judgement about whether the rate of return itself is appropriate.*

The basis for the Independent Panel's conclusion is unclear.

Further, the AER asked the Independent Panel whether the Draft Guideline is supported by sound reasoning based on the available information such that it is capable of achieving the objectives. However, even if the Guideline is supported by sound reasoning and based on the available information, it does not follow that the Guideline will or is likely to contribute to the achievement of the NEO and NGO to the greatest degree. As the AER states in its Explanatory Statement, the best empirical estimates of each parameter must be used in order to achieve that outcome.

The Panel notes the AER's process to date and then concludes that:

> *However, we have identified a number of areas where the AER's explanations and reasoning supporting its approach to various issues needs to be clarified. We have stated our recommendations in the relevant chapters of this report and we list them at the end of this Executive Summary. If the AER follows these recommendations, then in the Panel's view the resulting Guidelines will be supported by sound reasoning, based on the available information, such that it is capable of promoting achievement of the national gas and electricity objectives.* [57]

It is difficult to determine the basis for this conclusion. For example:

- Having stated that it has not formed "a judgment about whether the rate of return itself is appropriate" the Panel concludes that it may be capable of promoting achievement of the NEO and NGO. It is far from clear how a rate of return that may or may not be appropriate could be capable of promoting the NEO and NGO at all, let alone 'to the greatest degree.'

[56] Independent Panel Report, September 2018, p. II
[57] Independent Panel Report, September 2018, p. II

- The Panel has concluded that the AER has not properly explained its exercise of judgment. The majority of the Panel's recommendations call for further explanation from the AER, and the Panel states that:

  > *There are examples where the AER has exercised judgement, but not explained sufficiently or detailed its reasons for doing so. We are concerned that judgement unexplained risks the regulatory process being arbitrary and unpredictable. It also has the potential to undermine trust in the regulatory process and thereby discourage investment.* [58]

  Indeed, almost every one of the Panel's 30 recommendations begins with "explain" or "clarify" or "identify" or "justify." Having concluded that the AER has not explained or justified its decisions in a number of areas, the Panel then concludes that, if the AER includes explanations of its reasoning, the resulting Guideline will be capable of promoting the achievement of the NEO and NGO.

  However, it is not clear how that conclusion can be reached without considering whether the AER's explanation or justification, when it is revealed, is reasonable or appropriate.

In summary, the Panel appears to have set a very low threshold of requiring the AER to provide *an* explanation for each decision. It does not require that the explanation be reasonable or appropriate, just that there should be one. And the Panel certainly does not test the explanation against the 'greatest degree' test.

'Based on the available information?'

As noted above, the Panel concludes that (subject to the AER providing more explanation, clarification and justification) the Guideline will be "based on the available information."[59] However, the Panel is clear about the fact that it has not considered the available information:

> *In the time available for its assessment, the Panel has not reviewed all the documentation that has been provided to the AER.* [60]

Indeed, as explained below, the Independent Panel Report is inconsistent with the Panel being aware of the information in the ENA submissions to this review, or even having read those submissions. Certainly, the Panel has not considered the reasonableness of the AER's evaluation of the information in the ENA submissions.

Rather, the Panel's approach to determining whether the AER has considered all of the relevant information is to ask the AER whether it has done that:

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

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[58] Independent Panel Report, September 2018, p. III
[59] Independent Panel Report, September 2018, p. II
[60] Independent Panel Report, September 2018, p. 6.

that it has considered all the available information in preparing the Draft Guidelines? [61]

The AER has duly assured the Panel that it "has regard to all of the information that is submitted to it."[62] The Panel has thus concluded that the Draft Guideline is based on the available information.[63] ENA questions the value or relevance of this "self-reporting" or "self-assessment" approach, which would appear to rise no further than a minimum baseline standard for any internal organisational decision assurance process.

The Independent Panel Report is inconsistent with the Panel having read any ENA submission

ENA is particularly concerned that the Panel has apparently found it either impossible or unnecessary to read ENA's submissions into this process. Network businesses have worked very hard to reach consensus positions so that ENA submissions document the entire industry speaking with one voice. However, the Independent Panel Report does not reference any ENA submission or even acknowledge the existence of an industry association participating in the process. The apparent lack of knowledge of the industry's unanimous position is manifest in several places throughout the Independent Panel Report. For example:

- It should be clear to any observer that the role of the DGM is one of the main issues in the entire process. This is abundantly clear in the ENA submission. It was also a major point of discussion in the Concurrent Evidence sessions. However, the Independent Panel Report devotes a mere five lines to this major issue.[64]
- The Independent Panel Report suggests that the Chairmont analysis might support a term of debt less than ten years.[65] However, the ENA submission to the AER's Return on Debt process[66] explained in some detail why that evidence, properly interpreted, supports a term of at least 10 years. However, the Independent Panel Report makes no reference at all to that analysis.
- One of the main themes of the ENA submissions is that the AER's own estimates of beta and MRP have increased since the 2013 Guideline, but the regulatory allowances have declined. The Independent Panel Report does not acknowledge or comment upon this submission.
- The ENA submission on gamma distinguishes clearly between the AER's cash flow interpretation of gamma (which requires a cash flow estimate) and the market value interpretation of gamma (which requires a market value estimate). The Independent Panel Report is apparently unaware of this distinction in

[61] Independent Panel Report, September 2018, p. 6.
[62] https://www.aer.gov.au/system/files/AER-%20Correspondence%20Independent%20panel%20and%20AER%20-%203-12%20July%202018_1.pdf.
[63] Independent Panel Report, September 2018, p. 6.
[64] Independent Panel Report, September 2018, p. 35.
[65] Independent Panel Report, September 2018, Section 8.2.
[66] ENA, May 2018, *Estimating the allowed return on debt*.

recommending that dividend drop-off analysis (a method used to estimate the market value) be used to inform the AER's estimate of gamma.

Similarly, there is no evidence that the Panel has been able or willing to read the submissions of the CRG or the CCP. For example, both of those submissions also deal with the DGM at some length. Thus, the unified industry submission and the primary consumer submissions all identify the role of the DGM as one of the key issues to be resolved in this process, yet the Panel appears to be unaware of this and devotes only five lines to this subject in its report.

The Independent Panel Report is largely focussed on issues that are uncontentious, immaterial, or irrelevant

The Independent Panel Report devotes more attention to a series of 'sideline' issues than to the key issues of concern to stakeholders. For example:

- The Independent Panel Report raises questions about the AER's approach to estimating the risk-free rate.[67] The AER's approach to interpolating between two bonds with terms either side of the 10-year benchmark is standard, uncontroversial and was never a material issue during this review.
- The Independent Panel Report raises the fanciful notion of network businesses covertly manipulating the relevant multi-billion dollar government bond market:

  However, there may be concerns regarding the provider's nomination of the start of the averaging period including whether the service provider could manipulate the market in the two bonds during the averaging period.[68]

- The IPR devotes materially more attention to the number of decimal points that should be used for one parameter, than to the central question of the appropriate role of the DGM (five lines) and to the important question of why the AER's allowance has moved in the opposite direction to the AER's own estimates for beta and MRP (which are not addressed at all).

ENA conclusions

For the reasons set out above, ENA does not consider that the Independent Panel Review has promoted stakeholder confidence. A review process that has no apparent regard to a detailed submission prepared by a key stakeholder is not one that inspires confidence. Indeed, quite the contrary. The output of the Independent Panel Review is, in ENA's view, fundamentally flawed, provides very little utility to the AER or stakeholders, and represents a critical missed opportunity to strengthen the review process.

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[67] Independent Panel Report, September 2018, p. 28.
[68] Independent Panel Report, September 2018, p. 30. The reference to the 'two bonds' in this case is apparently a reference to the two government bonds that the AER uses to interpolate its risk-free rate estimate – even though the statement appears in a section relating to the return on debt.

5 Gearing, credit rating, and return on debt

- ENA notes that the gearing estimate is soundly based on the updated empirical evidence. ENA considers the Draft Guideline in relation to gearing to be capable of acceptance.
- ENA notes that the evidence in relation to credit rating would seem to support a BEE rating within the BBB to BBB+ range. Although the Draft Guideline adopts an outright BBB+ rating, ENA considers this to be within the range that is capable of acceptance.
- ENA considers that the proposed approach to the allowed return on debt is potentially capable of acceptance by many network businesses:
  - ENA agrees with the proposal to maintain the 10-year term of debt, which is supported by the empirical evidence.
  - ENA agrees with the proposal to maintain the trailing average approach to the return on debt allowance.
  - ENA agrees with the proposed approach of using the RBA, Bloomberg and Thomson-Reuters third-party data sources.
  - ENA considers that the proposed weighted-average of the A and BBB estimates from third-party data sources is capable of acceptance. Although the ENA has some concerns about the implementation of the empirical analysis that has been conducted by the AER and its consultants (set out below), these concerns are not so material as to render the proposed approach incapable of acceptance.
  - ENA agrees with the proposed approach of applying the proposed changes on a forward-looking basis so that allowances for historical debt are not changed.
  - ENA agrees with the spirit of the proposal in the Draft Guideline that NSP should be able to nominate a return on debt averaging period of 10 days to 12 months length that ends between 3 and 12 months prior to the start of the relevant regulatory year. However, the wording in the draft Guideline may bring some unintended consequences, so ENA has proposed a wording change.

5.1 Overall return on debt decision capable of acceptance

ENA considers that, overall, the return on debt decision in the Draft Guideline is potentially capable of acceptance by the industry.

In particular, ENA agrees strongly with the AER's draft decision to:

- **Continue with the 10-year transition to the full trailing average approach.** As ENA noted in its previous submission, most networks are now part-way through a transition to the 10-year trailing average approach. This necessitated businesses progressively locking in 10-year debt finance in accordance with the approach set out in the 2013 Guideline. Unwinding these hedging arrangements at this stage by disrupting the transition would impose unnecessary costs on networks and consumers.
- **Maintain a 10-year benchmark term of debt.** ENA agrees with the AER that the conceptual and empirical analysis presented in the Draft Guideline material supports the use of a 10-year benchmark term.
- **Maintain a BBB+ benchmark credit rating.** Once again, ENA agrees that the empirical evidence available to the AER supports a benchmark credit rating of BBB+.

ENA notes further that the AER's decision to maintain these aspects of its 2013 Guideline reflects the current evidence, and promotes continuity, regulatory certainty and predictability.

Whilst ENA accepts the key elements of the return on debt decision in the Draft Guideline, ENA does have concerns with certain aspects of the AER's draft decision. These issues are discussed in turn below.

5.2 Averaging period

The Draft Guideline includes the following conditions in relation to the timing of the return on debt averaging period:

> *18. A return on debt averaging period .... must:*
>
> *(a) finish no earlier than 12 months prior to the commencement of a regulatory year*
>
> *(b) finish no later than 3 months prior to the commencement of regulatory year*
>
> *(c) be observed over a period of 10 or more consecutive business days, up to a maximum of 12 months.*[69]

Under these conditions:

- Averaging periods of 12 months will be able to commence, at the earliest, around 24 months prior to the start of the regulatory year; and
- Averaging periods of 10 days could commence, at the earliest, around 12.5 months prior to the start of the regulatory year.

This creates the following issues:

- Averaging periods commencing 24 months before the start of the regulatory year will not reflect prevailing debt costs; and

[69] AER, July 2018, Draft Guideline, Paragraph 18.

- Networks using shorter averaging periods (usually because they want to raise debt during this period to reduce the risk of mismatch between the debt cost and the debt allowance) can only have averaging periods between 12.5 months and 3 months prior to the start of the regulatory year. This prevents the averaging periods being held in 2.5 months of each calendar year. Networks may already have debt that expires during these 2.5 months in future years, and under the conditions above, will be prevented from managing the risk that the debt costs do not closely match the debt allowance.

To address these concerns, without changing the spirit of the proposed changes, ENA suggests rewording 18 (a) to read:

> *(a) start no earlier than 15 months prior to the commencement of a regulatory year.*

ENA notes that the Independent Panel Report has questioned whether the averaging period needs to remain confidential after the event.[70] The AER's practice has always been to maintain confidentiality over averaging periods. The key reasons for continuing with this approach include the following:

- NSPs are required to nominate averaging periods in advance, so there is no opportunity for any gaming to occur;
- The NSP does not compute the risk-free rate or return on debt allowance. Rather the NSP nominates the averaging period in advance and the AER computes the relevant allowances in a mechanistic way;
- A number of NSPs use the same averaging period every year when they refinance a portion of their debt portfolio as they find that standardised practice to be both efficient and agreeable to their lenders; and
- ENA is unaware of any stakeholders raising concerns about the confidentiality of averaging periods.

That is, the confidentiality of averaging periods does not seem to be a live issue for this review and it is unclear why the Independent Panel would have focussed on this point rather that the many more important issues that *do* require consideration and resolution in this review process.

ENA suggests that the Final Guideline should maintain the current, accepted approach to the confidentiality of averaging periods, explaining the reasons (again) why that longstanding approach has been adopted.

5.3 Use of Chairmont's analysis

ENA's May 2018 response to the AER Discussion Paper raised a number of methodological concerns about Chairmont's analysis of network service providers' actual cost of debt and, by extension, any reliance that the AER has placed on Chairmont's analysis. In summary, the key concerns expressed by ENA were the following:

[70] Independent Panel Report, September 2018, p. 9.

- The Chairmont analysis over-weights short term debt (some of which may actually be undrawn). In order to correctly weight both term and spread data each observation should be weighted by the term of the associated debt instrument;
- The AER should reconsider its exclusion of callable/subordinated debt. Failure to do so has the potential to result in a form of cherry-picking to include short-term high-rated debt but not the higher-cost more flexible debt that makes the issuance of short-term high-rated debt possible. This would understate the true portfolio cost of a network service providers' debt;
- If callable/subordinated debt is excluded from the analysis because it is different to the benchmark, short term debt (and very long term debt) and debt with a credit rating materially different to BBB+ should also be excluded.
- If the AER continues to include short term debt when estimating actual debt costs it should consider whether it has accurately accounted for fees on short term debt when estimating the credit spread and/ or the opex allowance for debt raising costs. One-off fees for short term debt translate into a materially higher annual cost of that debt than for long-term debt. Excluding one-off fees from both short and long term debt tends to understate the true relative cost of short term debt.
- The AER should draw its conclusions in the context that:
  - The AER only has 5 years of debt issuance data and this is affected by the NSW privatisations. The debt portfolio of the industry at any given time will reflect credit spreads on debts issued on debt over a period of decades (from 30 to 60 years);
  - The relationship between the Bloomberg/RBA credit spreads and industry credit spreads prospectively will not necessarily be the same as over the last 5 years. Notably, the most recent data from 2017 and 2018 suggests industry credit spreads have been at or below levels predicted by the Bloomberg/RBA BBB curve.

In response to ENA's submission:

- The AER acknowledged that an approach that takes a simple average of the term of issuance of debt instruments within the five-year sample period may have potential limitations because such an approach may over-weight short-term debt.[71] ENA supports this conclusion.
- The AER acknowledged that it had not included data from 2018 debt issuances, and that inclusion of 2018 data could be considered for future development of the EICSI.[72] ENA supports this conclusion.
- The AER acknowledged that the sample used to construct the EICSI included newly privatised networks, and that debt raising practices during the initial

[71] AER, July 2018, Draft Guideline, Explanatory Statement, pp. 348-349.
[72] AER, July 2018, Draft Guideline Explanatory Statement, p. 459.

acquisition of an asset may not reflect 'business as usual' debt raising practices.[73] ENA agrees with this conclusion.

» The AER concludes that it is not persuaded that it is necessary to change the selection of debt instruments within the EICSI sample by, for example, including callable and subordinated debt,[74] because bond optionality can affect materially both the cost of debt and the interpretation of the term of debt in a way that is difficult to control for reliably.[75] ENA disagrees with this conclusion. As ENA explained in its May 2018 response to the AER's Discussion Paper, the reason for issuing a portion of the portfolio in callable and subordinated debt is typically to reduce the overall risk of the portfolio. The exclusion of callable and subordinated debt, while including short-term debt, has the potential to result in a form of cherry-picking, whereby the analysis includes short-term high-rated debt but not the higher cost, more flexible debt that makes the issuance of the short-term high-rated debt possible. The AER has not addressed this concern in the Draft Guideline.

ENA considers that the selection of bonds used within the sample used to construct the EICSI should be selected in a consistent way. If short-term bonds are to be included, then callable and subordinated debt should not be excluded as issuance of the latter facilitates the issuance of the former.

The AER has concluded in the Draft Guideline that third party data are relatively transparent and testable, that the concerns raised by stakeholders about the EICSI require further consideration and analysis and, therefore, that the EICSI should not be used determinatively but rather only as a 'sense check.'[76] ENA agrees with this conclusion and encourages the AER to undertake significant consultation with stakeholders about how the reliability and usefulness of the EICSI should be improved before it is given any weight in the setting of return on debt allowances.

Treatment of fees

In reviewing the approach to setting the cost of debt allowance, there is a need to review the benchmark approach to setting the opex allowance for debt raising costs. This is to ensure that the impact of fees is fully and consistently captured across both components. Currently, for some businesses with benchmark characteristics, the opex allowance methodology (which has not been reviewed for ten years) materially undercompensates for debt raising costs.

There needs to be consistency between the analysis relied upon to change the implementation of the benchmark credit rating (where that analysis currently includes bank debt) and the approach to setting debt raising costs (which currently does not have regard to bank debt). This point was raised by the ENA in its presentation of 22

[73] AER, July 2018, Draft Guideline Explanatory Statement, p. 351.
[74] AER, July 2018, Draft Guideline Explanatory Statement, p. 344.
[75] AER, July 2018, Draft Guideline Explanatory Statement, pp. 455-466.
[76] AER, July 2018, Draft Guideline Explanatory Statement, p. 344.

June 2018. The AER's methodology does not include upfront costs, undrawn fees nor the costs associated with managing financial derivatives.

Disregarding fees in excess of the AER debt raising costs allowance, including upfront fees and commitment fees, has a material effect on the estimated per annum cost of short term debt in particular, because there is a shorter period over which to spread the cost of the fees. These fees are incurred on every issue of short term debt, so that over 10 years they could be many times the amount allowed for in the AER's debt raising cost allowance. This is important because the AER's 27bp 'outperformance' estimate relies heavily on the inclusion of short term debt. If all fees are included then the AER's estimated 'outperformance' will be substantially eliminated. Until the analysis has been done the impacts of this are unclear – however, the limited information in the AER's dataset indicates the value of this is 13bp, prior to the inclusion of debt management costs that are not included in the AER's dataset or compensated through the debt raising cost allowance, such as fees associated with the debt hedge portfolio and debt prefunding costs.

As a first step, ENA has recommended that the AER seeks full and consistent data on fees. This should include all debt transaction costs (including those associated with hedging instruments and overhead costs at the portfolio level - such as those associated with maintaining a credit rating).

PTRM timing benefits

The Explanatory Statement gives one third weight to the A curve notwithstanding the uncertainty around the cost of fees in excess of the debt raising allowance which are omitted from the AER's analysis. The AER states that some portion of debt raising costs included in the ENA analysis are already compensated for by virtue of benefits built into the timing assumptions of the PTRM and that this justifies excluding these fees in the AER's estimate of costs incurred by businesses.[77]

However, as outlined above, it would be a superior approach to quantify properly the impact of fees and also the PTRM timing benefits for the purposes of this decision. This would inform whether the conclusion can indeed be drawn that the PTRM timing benefits outweigh the impact of fees.

The AER overestimates materially the level of the PTRM timing benefits. Based on an Allen Consulting Group (ACG) report from 2002 the AER estimates that PTRM timing benefits are around 1.8% of revenues.[78] However, the PTRM timing benefits are proportional to the WACC. If the WACC is zero then there are zero PTRM timing benefits. The ACG report was written at a time when the allowed rate of return was more than double the current level (based on the AER Draft Guideline and current market conditions). The ACG 1.8% of revenue figure cannot be applied in the current circumstances. Moreover, the AER arrives at its estimated 46bp value of timing benefits by dividing (the overestimated) 1.8% of revenues by 60% of RAB for AusNet

[77] AER, July 2018, Draft Guideline Explanatory Statement, pp. 456-457.
[78] AER, July 2018, Draft Guideline Explanatory Statement, p. 457.

services in a recent decision. It is not obvious why the AER allocates 100% of the PTRM timing benefits to the debt portion of the RAB. If maintained, ENA considers that it would be useful for the AER to explain this in the Final Guideline.

It is also important to recognise that the existence of PTRM timing benefits are currently used as a reason not to provide compensation for debt prefunding costs. Debt prefunding costs are the costs of the debt that must be raised several months before a debt instrument expires, to ensure funding continuity. While both debt instruments are current, the business will incur additional debt costs. Pre-funding is a requirement of credit rating agencies to reduce refinancing risk.

Debt prefunding costs are not captured in the AER analysis which is on an instrument-by-instrument basis. As debt prefunding funding costs are the costs associated with having debt that is in excess to asset funding requirements this cost does not show up when analysing issuance on an instrument-by-instrument data. A full comparison of industry debt raising/management costs and PTRM timing benefits should either: a) directly include debt prefunding costs; or b) remove the portion of PTRM timing benefits that are currently used by the AER to notionally fund debt prefunding costs.

Outliers from early 2016

The AER's results are also heavily influenced by the inclusion of 9 short term bonds issued around the beginning of 2016 when the RBA 5-year spread was materially higher than both the Bloomberg and Thomson Reuters' estimated spreads and the RBA's own 10 year spread. The unusually high RBA estimated spread caused these bond issues to have the highest 'outperformance' in the AER sample and they account for around 25% of the AER's total estimated outperformance over 5 years. The AER is not minded to make any adjustment for this period – stating that it is "impractical and potentially asymmetrical to selectively remove observations from within those curves."[79]

ENA does not necessarily dispute this. However, the fact that this phenomenon exists and is a material influence on the AER's overall estimate of outperformance is, at a minimum, a factor that the AER should have regard to when considering the level of confidence that it can have that its results are statistically robust.

5.4 Implementation of the benchmark credit rating

The Draft Guideline proposes to adopt a weighted average of the broad-BBB (2/3rd) and broad-A (1/3rd) curves offered by Bloomberg (BVAL), RBA and Thomson Reuters.[80] The key piece of evidence the AER relies on to support this decision is a comparison of credit spreads for debt instruments within the EICSI against the spreads on BVAL and RBA broad BBB curves at matched terms.

The AER finds that debt within the EICSI is raised at, on average, approximately 27 basis points less than equivalent debt estimated using an average of the BVAL and

[79] AER, July 2018, Draft Guideline Explanatory Statement, p. 459.
[80] AER, July 2018, Draft Guideline Explanatory Statement, p. 459.

RBA broad BBB curves.[81] The AER concludes from this that network service providers have outperformed the current approach to setting the return on debt allowance to a material extent, even after issuance of debt a shorter terms has been controlled for.[82] By contrast, the AER finds that a weighted average of the broad BBB and broad A curves provides a much closer fit (an average difference of 9 basis points) to the matched-term spreads of instruments within the EICSI. For consistency, the comparison should be redone to include the Thomson Reuters curve in the benchmark.

The AER's decision in the Draft Guideline to give some weight to the broad A- curve is capable of acceptance by many network businesses. However, as noted above, the key piece of evidence the AER relies on in order to support this decision is the EICSI. ENA reiterates that it has methodological concerns about the construction of the EICSI, which need to be resolved before that evidence is given any material weight by the AER.

ENA also notes that the benchmark BBB+ is adopted as the median rating from a sample of comparator firms. The analysis in the AER's May 2018 Discussion Paper was careful not to include duplicates – different financing entities from the same firm and with the same rating were not included as separate entries.[83] This analysis produced a median credit rating in the BBB to BBB+ range.[84] However the Explanatory Statement reintroduces those duplicate entries. For example, the AusNet A- rating is included four times.[85] It is not clear why these duplicates have been reintroduced. Whereas ENA considers the benchmark BBB+ credit rating to be capable of acceptance, it notes the AER's conclusion that the data, without duplicates, supports a rating in the BBB to BBB+ range.[86]

5.5 Selection of third party data sources

The AER has decided in the Draft Guideline to apply equal weight to the BVAL, RBA and Thomson Reuters data when determining the return on debt allowance, but to not use S&P data at this time.[87] ENA supports the AER's decision to not use third party data published by S&P.

Consistent with its May 2018 response to the Discussion Paper, ENA continues to have significant concerns about the S&P data:

» The S&P curve is constructed using bonds issued by overseas firms. This is at odds with the Benchmark Efficient Entity (BEE), which the AER has defined as an Australian firm. Any yield curves used to estimate the return on debt allowance for the BEE should reflect the way in which the BEE would issue debt. Australian

[81] AER, July 2018, Draft Guideline Explanatory Statement, p. 361.
[82] AER, July 2018, Draft Guideline Explanatory Statement, p. 361.
[83] AER, May 2018, Discussion Paper: Estimating the allowed return on debt, Table 4, pp. 14-15.
[84] AER, May 2018, Discussion Paper: Estimating the allowed return on debt, Table 5, p. 16.
[85] AER, July 2018, Draft Guideline Explanatory Statement, Table 42, pp. 341-342.
[86] AER, May 2018, Discussion Paper: Estimating the allowed return on debt, Table 5, p. 16.
[87] AER, July 2018, Draft Guideline Explanatory Statement, p. 353.

corporates, including regulated network service providers, issue debt both domestically and overseas. The RBA and Bloomberg yield curves are constructed using bonds issued by Australian corporates domestically (and, in the case of the RBA curve, overseas), so reflect well the debt raising approach adopted by the BEE.

- The S&P data has only a very short history available, which makes it unsuitable for the purpose for setting the allowed rate of return (e.g., using the historical trailing average approach) and does not allow sufficient back testing of the data to check its reliability.
- The S&P curve appears to produce materially different estimates of the return on debt than either the RBA or Bloomberg curves, which are very consistent with one another. The AER acknowledges in the Draft Guideline that:

  > *S&P Global's Australian-dollar-denominated curves produce outcomes which are materially different to the other curve providers and to our expectations.*[88]

- The significant divergence in outcomes between the S&P curve and the BVAL and RBA curves alone provides grounds for cautious treatment of the S&P data. However, the scant public information available to stakeholders on the precise methodology and data used by S&P means that stakeholders cannot comment meaningfully on the marked differences between the curves. The AER notes that disaggregation of the reasons for the differences between the curves is complex given the proprietary nature of curve estimation approaches, and that the AER has been unable to reconcile the differences between the curves.[89]

The AER published a submission from S&P on 27 August which set out adjustments it had made to its bond selection criteria, which has involved using a new third-party source of bond pricing data and has extended the coverage of bonds. According to S&P, this has reduced the gap between S&P's curves and those from other participants.

While this appears to be a positive step for S&P, in the absence of access to the data to enable analysis of the robustness of the curve (as has been performed for the other 3 third party data curves that the AER intends to rely on), ENA cannot support the inclusion of the series in setting the return on debt allowance. In addition, the incremental benefit of including a fourth curve is relatively low compared to the administrative costs.

The availability of this submission so late in the process severely limits the ability of stakeholders to engage with the material. While ENA views the overall debt 'package' outlined in the Draft Guideline as being capable of acceptance, ENA considers that this package should exclude the use of the S&P curve. Were the AER minded to rely on the S&P curve, the ENA would not continue to view the package as capable of acceptance. ENA would also be concerned that the Independent Panel's review of the

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[88] AER, July 2018, Draft Guideline Explanatory Statement, p. 357.
[89] AER, July 2018, Draft Guideline Explanatory Statement, p. 357.

debt component of the Guideline would have far less meaning, as it would not have considered whether the use of the S&P curve is appropriate.

For these reasons, ENA continues to hold the view that the S&P data should not be relied on by the AER for the purpose of setting allowances.

5.6 Selection of the term of debt

Summary

ENA supports the AER's continued use of a 10-year term to maturity for the following reasons:

- The empirical evidence remains supportive of a 10-year term.
- The conceptual basis for long-term (10-year) debt remains valid – the assets that are being financed are long-lived and refinancing risk is a key concern that is efficiently managed by issuing long-term debt with staggered maturities.
- Maintaining a 10-year term would be consistent with the AER "committing to a debt term for the period nominated" in its 2013 Guideline.
- Maintaining a 10-year term would recognise that network businesses are partway through a transition to a 10-year trailing average allowance and have taken steps to align their debt portfolios accordingly.
- Maintaining a 10-year term would avoid the complexity of having to develop a new set of transition arrangements to be applied to the current set of transition arrangements – as the current transition to a 10-year trailing average portfolio would have to be re-set to a different maturity.
- Maintaining a 10-year term would be consistent with regulatory stability and predictability, given that the AER has adopted a 10-year term in all decisions since its inception.

The AER's rationale for adopting a 10-year term to date

Since its inception, the AER has adopted a 10-year term of debt for all of the firms that it regulates. In its 2013 Rate of Return Guideline materials, the AER explained that a 10-year term:

- Has a strong conceptual basis relating to the nature of the assets and the materiality of refinancing risk;
- Is supported by the empirical evidence; and
- Is consistent with regulatory stability and predictability and with the AER's "commitment" in moving to a 10-year trailing average allowance.

Conceptual basis

In relation to the conceptual basis for a 10-year term, the AER stated that:

> *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 risk. 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.[90]

The AER also observed that:

A significant proportion of regulated energy assets are long-lived. We observe that electricity transmission lines and gas pipelines are depreciated for regulatory purposes over as long as 60 years.[456] *Accordingly, we consider that the entity will seek to fund the long-lived energy assets with longer debt tenors in order to manage refinancing and interest rate risk. By issuing longer term debt the entity reduces the frequency with which it must approach the market, thereby reducing the risk associated with not being able to secure funding at the time when it is required, or at rates that are higher or lower than those it currently pays. In approaching the market less frequently there is less risk associated with changing interest rates, which reduces the volatility in debt servicing costs and the likelihood of mismatch between the business' cash flows and its debt servicing obligations.*[91]

Empirical evidence

In its 2013 Guideline materials, the AER observed that the empirical evidence supported its 10-year term:

Based on observed practice we have assessed that the businesses' debt portfolio weighted average term at issuance is 8.7 years (ranging between 6.7 years to 16.3 years). We observe that businesses are securing bank debt with an average term at issuance of 4.3 years, issuing Australian bonds with an average term of 9.7 years and offshore bonds of 9.7 years.[92]

The AER also considered evidence in relation to the term (at issuance) of debt held by NSPs regulated by the AER. The AER concluded that the average term (at issuance) of all debt was 8.7 years and the average term (at issuance) of corporate bonds was 9.7 years.[93] The AER also noted that issuances tended to be somewhat shorter during the GFC, due to a reduction in the availability of long-term debt over that period, which had the effect of temporarily lowering the average term of debt. The AER noted that more stable periods with lower rates was more conducive to issuing longer-term debt:

While this is a point in time estimate, we note that it has not changed considerably since the 2009 WACC Review, where the average term at issuance was 9.1 years. There are indications that the current market environment is favourable for issuing longer-term debt due to the low prevailing interest rates and increased appetite for corporate debt

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[90] AER, 2013, Rate of Return Guideline Explanatory Statement, p. 136.
[91] AER, 2013, Rate of Return Guideline Explanatory Statement, p. 138.
[92] AER, 2013, Rate of Return Guideline Explanatory Statement, p. 136.
[93] AER, 2013, Rate of Return Guideline Explanatory Statement, pp. 141-143.

domestically. This would lead us to expect that the current environment is supportive of businesses issuing longer tenors.

The AER concluded that:

> *We therefore consider that an average term of issuance around nine years is reasonably stable over time.*[94]

Regulatory commitment in relation to trailing average approach

The AER also noted in its 2013 Guideline materials the interaction between the 10-year trailing average approach and the use of a 10-year term of debt:

> *Accordingly, in moving to a trailing average approach we consider that we are committing to a debt term for the period nominated. To change the benchmark debt term in response to updated debt portfolio information would not be conducive to regulatory stability. In light of this, in order to ensure that the benchmark efficient entity is able to recover its efficient financing costs consistent with the allowed rate of return objective, we propose to use a 10 year debt term for the purposes of estimating the return on debt and for setting the period of the trailing average.*[95]

Current consideration of the AER's rationale for a 10-year term

All of the reasons that the AER put forward to support the use of a 10-year term of debt in its 2013 Guideline currently apply with equal or stronger force. As explained below:

- The conceptual basis remains the same;
- The empirical evidence continues to support a 10-year term; and
- Any movement away from a 10-year term would now result in a severe breach of regulatory stability and the regulatory commitment to adopt a 10-year term that was made in the 2013 Guideline.

Conceptual basis

The long-lived nature of the assets in question and the existence of refinancing risk remain just as relevant as at the time of the 2013 Guideline. Consequently, the conceptual basis for considering that the benchmark efficient entity would issue long-term (10-year) debt remains valid.

Empirical evidence

ENA considers that the empirical evidence, properly evaluated, remains supportive of a 10-year term. That evidence is set out in the following sub-section.

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[94] AER, 2013, Rate of Return Guideline Explanatory Statement, p. 142.
[95] AER, 2013, Rate of Return Guideline Explanatory Statement, p. 137.

The AER's commitment to making a 10-year term

In its 2013 Guideline, the AER stated that its movement to a trailing average allowance for the return on debt involved the AER "committing to a debt term for the period nominated" and was "conductive to regulatory stability." Since the 2013 Guideline:

- The AER has set the term of debt to 10 years in every draft and final decision that it has made; and
- The AER has determined that the benchmark efficient return on debt is commensurate with a 10-year trailing average and most businesses are currently part-way through a transition to this benchmark.

Consequently, a change to the term of debt would be even more inconsistent with regulatory stability given that, since the 2013 Guideline, there have been five more years of decisions in which the AER has set the term of debt to 10 years.

Moreover, making a change to the allowed term of debt even before businesses could complete their transition to the 10-year trailing average approach would represent a material breach of the regulatory commitment "to a debt term for the period nominated." Most businesses are only in the initial years of the 10-year period nominated in the 2013 Guideline, so another change to a different term would be materially inconsistent with what businesses have been reasonably working towards since the 2013 Guideline.

Moreover, a change in the term of debt would seem to require a new set of transition arrangements to be applied to the current set of transition arrangements. This is because, under the transition set out in the 2013 Guideline, the benchmark efficient firm will be part way through building up a staggered-maturity portfolio of 10-year debt. If a different term was adopted now, the existing 10-year debt would presumably have to be liquidated by the benchmark efficient firm and gradually replaced with debt of a different term.

The alternative would be for the AER to allow the existing 10-year debt that has been put in place in accordance with the current AER approach to remain until it matures, to be replaced by debt of the new maturity. But this would involve a different regulatory allowance for different firms, depending on how far through the transition period they are. Either way, any departure from the standard 10-year term would be complicated, costly, and inconsistent with principles of regulatory stability.

Updated empirical evidence

ENA considers that the empirical evidence, properly evaluated, remains supportive of a 10-year term.

The Chairmont analysis[96] (Graph 3) shows the average term of debt for issuances over the 4-year period of 2014-2017. That analysis shows some variation in terms – being greater than 9 years in the most recent period, but with shorter terms in early 2014

[96] Chairmont, 28 April 2018, *Aggregation of return on debt data*, report for the AER.

and early 2016. ENA considers that there are two key issues that must be considered when interpreting the Chairmont analysis:

- **Method of averaging**: Chairmont appear to have compiled its average over all debt issuances that were made in the previous 12-month period, ignoring the term of any debt that was not refinanced during that period. For example, consider a firm that behaves exactly in accordance with the AER's assessment of the benchmark efficient approach to debt financing. That firm will have a staggered-maturity portfolio of 10-year debt, of which 10% will be refinanced each year. It may also have one or more tranches of short-term debt for liquidity and/or working capital purposes – assume for this example that such debt is rolled over every 3 months. In this case, in any 12-month period, there will be:
  - four observations of the short-term debt being refinanced;
  - one observation of a 10-year bond being refinanced; and
  - zero weight given to the nine 10-year bonds that were not refinanced during the period.

  Thus, the short-term debt will be materially over-represented and the majority of the long-term debt will be omitted from the calculation entirely. This would result in a downwardly-biased estimate of the term of debt, even for a company that was replicating the AER's 10-year trailing average benchmark approach.
- **Effect of recent privatisations**: When a NSP is sold, the new owner (or long-term lessee) must raise the entire debt portfolio afresh at the time of the transaction. A new owner who intended to replicate the AER's 10-year trailing average debt allowance as closely and as quickly as possible would, at the time of the transaction, issue 10% of the total requirement in 1-year debt, 10% in 2-year debt, and so on. As each tranche matures, it would be replaced by 10-year debt. In this way, a full 10-year trailing average portfolio will be in place after 10 years. Of course, this means that the average maturity at the time of issuance would be 5.5 years, even though the firm is seeking to replicate exactly the AER's benchmark 10-year term.

  In practice, it is likely to be uneconomical for a firm to issue ten separate tranches of debt at one time. However, it remains the case that such firms tend to issue a mixture of short-, medium-, and long-term debt to finance such transactions, and to replace maturing debt with long-term debt. Indeed, it is not uncommon for some debt at the time of the transaction to be issued on a bridge financing basis, pending its replacement with longer-term debt soon after the transaction is complete.

  The fact that the Chairmont sample includes a number of such transaction-related debt issuances is a further reason why the average term of debt estimated by Chairmont is a downwardly-biased estimate.

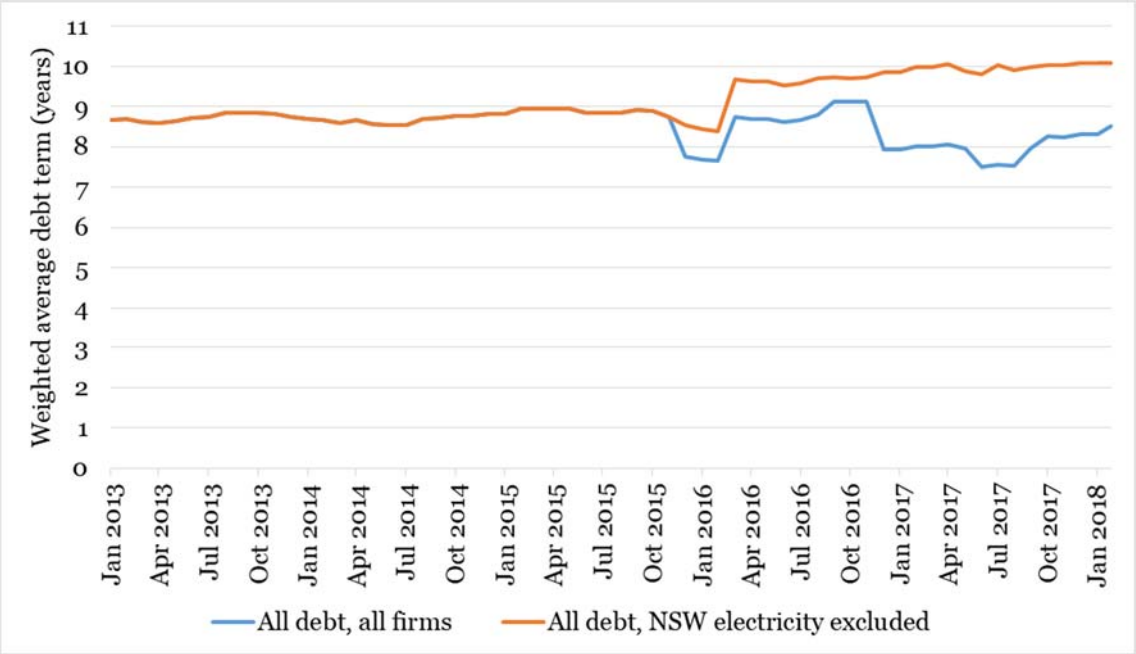
The downward biases set out above can be corrected by:

» Computing the average term to maturity by averaging over all debt for the industry debt portfolio (with and without recently privatised NSW businesses and/or for each NSPs balance sheet) at the end of each month, rather than over all issuances. That is, the balance sheet of each NSP is observed at the end of the month, all debt on that balance sheet is documented, together with its term at issuance, and the average is taken over all of that debt and/or over all NSPs in the sample. This corrects for the over-weighting of short-term debt that is frequently refinanced, and the underweighting of long-term debt that was not refinanced during each rolling 12-month period.

» Giving little weight to debt raised in relation to the completion of corporate transactions.

When these corrections are made, the evidence supports a 10-year term of debt, as illustrated in Figure 9 below.

Figure 9: Corrected estimates of term of debt



Source: Corrected version of Chairmont analysis of average term to maturity. Includes all debt, including callable debt, at date of final maturity

6 Return on equity approach

Key messages

- Consistent with the AER's stated intention of the current review being focused on incremental improvements to the current Guideline, ENA accepts that the AER's current Foundation Model approach should be maintained and that the relevant financial models should continue to have the same role. ENA notes that there have been no advances in finance theory to warrant a change in the use of the various relevant financial models.
- ENA agrees that the overriding objective of the Guideline process is to provide an allowed rate of return which contributes to the NEO and NGO to the greatest degree, and that this is done by:
  - Obtaining the *best possible* estimate of the required return of investors;
  - That is based on *market evidence*; and
  - Is *commensurate with the prevailing conditions* in the market.
- ENA agrees with the statements in the Joint Experts' Report that:
  - *Stability and predictability* are important principles in the regulatory context that benefit all stakeholders. In the current context, this implies that changes to parameter estimates should only be made in response to strong evidence. [97]
  - The final parameter estimates should be *transparent*, in the sense that all stakeholders are able to understand the reasons for the adoption of each parameter estimate.[98]
  - The assessment of the updated evidence must be applied *consistently and symmetrically* throughout the review. [99]

6.1 Foundation Model approach

Background to the Foundation Model approach

In its 2013 Guideline, the AER developed what it called a "Foundation Model" approach for setting the allowed return on equity. The AER has determined that there are three "relevant financial models" that it should have regard to, with each model having a specific role in the process:

- The Sharpe-Lintner CAPM (SL-CAPM) is used as the foundation model. Ultimately, the SL-CAPM parameters are estimated and inserted into the SL-CAPM formula.

[97] Joint Experts' Report, Proposition 2.01, p. 14.
[98] Joint Experts' Report, Proposition 5.19, pp. 51-52.
[99] Joint Experts' Report, Proposition 2.01, p. 14.

- Evidence from the Black CAPM is used to inform the equity beta that is used in the SL-CAPM formula. This step is designed to address evidence of the systematic bias in SL-CAPM estimates (whereby the returns of low-beta stocks are systematically higher than SL-CAPM predictions).
- Evidence from the Dividend Growth Model (DGM) is used to inform the estimate of the MRP that is used in the SL-CAPM formula. This step is designed to ensure that proper regard is given to the evidence of forward-looking required equity returns (commensurate with the prevailing conditions in the market) that is embedded in traded market prices.

Thus, the AER's Foundation Model approach consists of a combination of what the AER has deemed to be the three relevant financial models – each with a specific role to play in the process of determining the allowed return on equity.

The AER has stated that the Foundation Model approach that it has developed:

> *…draws on the key elements from a number of models, but recognises that all models are incomplete and that some approaches provide greater insight than others*[100]

and that:

> *…we consider this approach will deliver a robust estimate of the expected return on equity that will maximise the likelihood of our overall rate of return achieving the allowed rate of return objective.*[101]

In its 2013 Guideline, the AER concluded that the use of a single financial model, having no regard to the evidence from the other relevant financial models, would be "transparent, replicable and simple to implement,"[102] but that such an approach should be rejected as it "may be too prescriptive."[103]

In relation to the Foundation Model approach that the AER has developed, ENA notes that:

- Under the current NER and NGR, regard must be had to all relevant financial models and that a mechanistic implementation of one single model to the exclusion of all other evidence would not contribute to the achievement of the ARORO or the NEO/NGO to the greatest degree. Under the proposed amendments to the NER and NGR to give effect to a binding Guideline, the requirement to have regard to all relevant financial models is maintained. A better estimate will be arrived at if the allowed return on equity is informed by all relevant financial models and evidence.
- In its 2013 Guideline process, the AER gave detailed consideration to the determination of the set of "relevant financial models" and the appropriate role of each model within the regulatory process. This included the assessment of each

[100] AER, 2013, Draft Rate of Return Guideline: Explanatory Statement, p. 55.
[101] AER, 2013, Draft Rate of Return Guideline: Explanatory Statement, p. 55.
[102] AER, 2013, Draft Rate of Return Guideline: Explanatory Statement, p. 55.
[103] AER, 2013, Draft Rate of Return Guideline: Explanatory Statement, p. 55.

proposed financial model against a set of criteria that the AER developed for that purpose.

- The *PIAC-Ausgrid* Tribunal held that it was open to the AER to have regard to all relevant financial models by assigning those models the role that each plays within the AER's Foundation Model approach. The Tribunal rejected the submission that the AER erred in giving material weight to the Black CAPM and DGM within the context of its Foundation Model approach.
- The AER has consistently adopted its Foundation Model approach, with the three relevant financial models each taking the role set out in the 2013 Guideline, in all of its decisions since 2013.
- ENA is unaware of any new evidence that is relevant to the role of any financial model within the Foundation Model approach. In its 2013 Guideline process, the AER considered the relative strengths and weaknesses of the various models and accordingly assigned each financial model a specific role in the Foundation Model approach. ENA is unaware of any new revelations of strengths or weaknesses that have not already been considered when the Foundation Model approach was developed. In this regard, the AER has stated that:

> *there are a number of aspects of the current approach that are driven by finance theory and available academic literature. We not aware of any significant new developments in this area that might warrant us taking a new approach.*[104]

Of particular relevance to the operation of the Foundation Model approach is the PIAC-Ausgrid Tribunal's consideration of that point. The Tribunal notes that the Foundation Model approach involves a package of models in which:

> *the SL CAPM was to be used as the foundation model, the Black CAPM was to be used to inform the parameter estimate of the equity beta for use in the SL CAPM, dividend growth models (DGMs) were to be used to inform the parameter estimate of the market risk premium (MRP) for use in the SL CAPM.*[105]

The Tribunal highlighted that the AER had not made the error of relying exclusively on one model, but simply used that model as a starting point, to be informed by the other relevant financial models:

> *As its Final Decisions disclose, it was well alive to the SL CAPM providing a starting point only. Whilst it used the SL CAPM as its foundation model, the AER did not then adopt its outcome without careful consideration of other sources of information. As noted, expert advice supported that as a starting point. The AER's approach in this regard does not lead to the view that it assumed the SL CAPM does not have strengths or weaknesses, or that other models do not have strengths or weaknesses. Its subsequent*

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[104] AER Issues Paper, Review of Rate of Return Guideline, October 2017, p. 8.
[105] *PIAC-Ausgrid*, [2016] ACompT 1, Paragraph 654.

analysis shows that it was not "locked in" to one model, relied on to the exclusion of all others.[106]

In the spirit of the current review being focused on incremental improvements to the current Guideline, ENA has accepted that the AER's current Foundation Model approach should be maintained and that the relevant financial models should continue to have the same role. In this regard, ENA agrees with the general view of the Experts that an incremental review of the Guideline should take the current Foundation Model approach as given, and focus on the updating of parameter estimates in light of new evidence since 2013.[107]

Draft Guideline approach to the Foundation Model

The Explanatory Statement documents the effective abandonment of the Foundation Model approach. The Black CAPM no longer has any impact on the estimate of equity beta[108] and the DGM no longer has any impact on the estimate of the MRP.[109]

The Explanatory Statement purports that the AER continues to use its Foundation Model, on the basis that the Black CAPM and DGM still have the same role in the process; it is just the weight applied to them that has changed. However, that claim is transparently incorrect. Both the Black CAPM and DGM have been eliminated from playing any role in determining the allowed return on equity – neither model has any impact at all on any of the AER's parameter estimates.

The AER's claim that it is still using the Foundation Model approach, but that the weight on the Black CAPM and DGM has been reduced to zero, appears to critically obscure the actual decision process, rather than achieve the goal of an explanatory statement in transparently outlining how its decision was reached. Where factors or evidence is given a zero weight, that is, they have no actual impact on the decision reached, it is not possible to describe this evidence as being "used" in the decision process in any meaningful sense. In this case, where such evidence has been given zero-weight, or has had no actual impact on the Draft Guideline, it is unsustainable and harmful to the goals of regulatory predictability and transparency for the AER to maintain that the Foundation Model has been applied.

Under the AER's new interpretation of 'Foundation Model,' the Black CAPM and DGM may or may not be used to inform the SL-CAPM parameters from time to time. Those models had a material role in the 2013 Foundation Model, but their role has been reduced to zero in the 2018 implementation of the Foundation Model. This would seem to be quite inconsistent with the principles of regulatory stability and predictability – particularly when there has been no new evidence to warrant such a change.

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[106] *PIAC-Ausgrid*, [2016] ACompT 1, Paragraphs 719-720.
[107] Joint Experts' Report, Proposition 2.12, p. 18. DJ "accepts that the AER should use the foundation model as it provides a frame of reference for discussion" but added comments on other matters the AER might consider, including "the consequences of its previous decisions."
[108] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 283.
[109] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 216.

The approach proposed in the Draft Guideline is, in practical effect, a mechanistic implementation of the SL-CAPM whereby:

» The equity beta is based on domestic comparators and no other evidence has any impact; and

» The MRP is based on historical excess returns and no other evidence has any impact.

That is, under the approach set out in the Draft Guideline, the AER is indeed "locked in to one model, relied on to the exclusion of all others." [110]

Previous AER considerations

The AER has previously proposed that a mechanistic SL CAPM approach should be mandated. For example, in 2011 the AER submitted a rule change request in the following terms:

> *The AER proposes to apply a consistent and streamlined approach to determining the rate of return across all electricity networks and gas pipelines. As part of this, the AER proposes that the NGR require that the cost of equity be calculated using the CAPM (similar to the current provisions in the NER).*[111]

This approach was rejected by the AEMC as being inconsistent with promoting the long-term interests of consumers. Indeed, the AEMC amended the NER and NGR to require regulators to have proper regard to all relevant financial models, not just the SL CAPM, leading to the development of the Foundation Model approach.

The Draft Guideline, however, effectively reverts back to a mechanistic SL CAPM approach, whereby a single source of evidence is used to estimate each parameter[112] and the output of the SL CAPM formula is then adopted without adjustment.

Problems with a mechanistic CAPM approach

ENA submits that the proposed mechanistic CAPM approach is problematic for the following reasons:

» The effective abandonment of the current Foundation Model approach is inconsistent with the stated intention of an incremental review.

» Abandoning the current Foundation Model approach in favour of a mechanistic SL-CAPM approach would mean disregarding relevant evidence. Such an approach would therefore be inconsistent with the NER/NGR (maintained in the proposed amendments to give effect to a binding Guideline), which have been developed to ensure that regulatory determinations best contribute to the

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[110] *PIAC-Ausgrid*, [2016] ACompT 1, Paragraphs 719-720.
[111] AER, September 2011, Rule change proposal: AER's proposed changes to the rate of return provisions of the National Gas Rules, p. 11.
[112] Historical excess returns are used to determine MRP and regression analysis applied to the AER's set of domestic comparators is used to determine beta. No other evidence has any impact on these parameter estimates.

NEO/NGO. It would also be inconsistent with the analysis of the PIAC-Ausgrid Tribunal as noted above.[113]

» A regulatory approach in which a whole framework is developed in one Guideline and then effectively abandoned five years later is inconsistent with the principles of stability and predictability, and will increase the assessment of regulatory risk for current and prospective capital providers.

In this regard, we note that one of the propositions that all Experts appeared to agree with is that:

> *Given the context of the AER's stated objective of making incremental changes to the RORG, the Foundation Model framework should be retained. This gives primacy to the Sharpe-Lintner CAPM, with evidence from other relevant models to inform estimates of individual CAPM parameters as per the 2013 Guideline.*[114]

ENA recommendation

ENA submits that the Foundation Model approach should be restored, with the Black CAPM and DGM being used to inform the estimates of beta and MRP, respectively.

6.2 General approach to setting key parameters

The best estimate in the prevailing market conditions

As noted in Section 3 above, ENA agrees that the overriding objective of the Guideline process is to provide an allowed rate of return that contributes to the NEO and NGO to the greatest degree, and that this is done by:

» Obtaining the *best possible* estimate of the required return of investors;

» That is based on *market evidence*; and

» Is *commensurate with the prevailing conditions* in the market.

In this regard, the Explanatory Statement states that:

> *we consider efficient financing costs are reflected in the prevailing market cost of capital (or WACC) for an investment with a similar degree of risk.*[115]

Consequently, when considering the approach to estimating each return on equity parameter, the relevant questions to consider are:

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[113] A move away from the current Foundation Model approach would open a whole range of issues including the best way to estimate beta and MRP under the new approach, whether beta should be estimated mechanistically from a large sample of firms as in the New Zealand Commerce Commission's implementation, whether MRP should be estimated by assigning specific weights to individual estimates as in the QCA implementation, and so on.
[114] Joint Experts' Report, Proposition 2.12, p. 18. DJ "accepts that the AER should use the foundation model as it provides a frame of reference for discussion" but added comments on other matters the AER might consider, including "the consequences of its previous decisions."
[115] AER, 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 77.

- Does this estimate reflect the prevailing conditions in the market?
- Is this estimate based on market evidence?
- Is this the best possible estimate? Has all of the relevant evidence been considered properly in the process of making that estimate?

Application in the context of an incremental review

In the context of an incremental review, ENA submits that the appropriate approach to the updating of the key return on equity parameters is as follows:

1. **Starting point**: The starting point is the parameter that was adopted by the AER in its last review. This reflects the AER's assessment of the best estimate of that parameter to use in its Foundation Model approach – based on all of the relevant evidence at the time of its last review. In its 2013 Guideline, the AER determined that the relevant evidence at the time supported a best beta allowance of 0.7 and a best MRP allowance of 6.5%.
2. **Review new evidence:** The next step is to consider the new evidence that has become available since the last review. This involves setting out all of the evidence that informed the estimate at the time of the last review and documenting how each component of the relevant evidence has evolved since then.
3. **Determine whether parameters should be changed:** The final step is to determine whether the updated evidence warrants making a change to the prevailing parameter estimate. This would depend upon the consistency of the evidence (i.e., has the preponderance of evidence moved in one direction) and on the materiality of any movement in the evidence. It would also depend on the regulator's consideration of the importance of regulatory stability and predictability.

ENA agrees with the statements in the Joint Experts Report that:

- Stability and predictability are important principles in the regulatory context that benefit all stakeholders. In the current context, this implies that changes to parameter estimates should only be made in response to strong evidence.[116]
- All parameter estimates should be transparent, in the sense that all stakeholders are able to understand the reasons for the adoption of each parameter estimate. ENA accepts that a regulator will have to exercise judgment in some areas, but that does not absolve the regulator from explaining how that judgment was exercised.[117]
- The assessment of the updated evidence must be applied consistently and symmetrically throughout the review. For example, it would be inconsistent to maintain one parameter estimate in the face of strong evidence for change, but to

[116] Joint Experts' Report, Proposition 2.01, p. 14.
[117] Joint Experts' Report, Proposition 2.01, p. 14 and 5.19, pp. 51-52.

alter another parameter on the basis of weaker evidence. Similarly, the same threshold should be applied for parameter increases and decreases.[118]

[118] Joint Experts' Report, Proposition 2.01, p. 14.

7 Return on equity cross checks

Key messages

- The Draft Guideline sets out five cross checks that can be applied to test the reasonableness of the proposed 3.6% equity risk premium.
- Four of those cross checks involve a comparison of the 3.6% figure with other numerical estimates of the equity risk premium. The proposed allowance fails every one of those cross checks. Indeed, the *lower band* of the range for each alternative estimate is higher than 3.6%
- The Explanatory Statement also introduces a new cross-check – a comparison of the difference between the allowed ERP and DRP observed at two points in time. There are several fundamental problems with this cross check including:
  - The AER has previously argued strongly *against* applying this cross check;
  - The AER's consultants have advised that the relationship between ERP and DRP is not stable and that the two may even move in the opposite direction, in which case a comparison at two points in time would be either irrelevant or misleading;
  - No explanation is provided for why the DRP cross check has now become relevant;
  - The average differential over the period of the 2013 Guideline is 230 bp, which is materially *higher* than the proposed differential of 171 bp; and
  - A comparison between a DRP at a high point in the cycle (2013) with a DRP at a low point in the cycle (2018) is misleading.
- ENA considers that any objective and reasonable assessment of this evidence would conclude that the proposed 3.6% ERP is not supported by the cross checks.
- ENA submits that an ERP of 4.55% (i.e., unchanged from the 2013 Guideline) would be more consistent with the cross check evidence.

7.1 Cross checks of the equity risk premium

Section 5.4.1 of the Draft Guideline sets out a number of cross checks applied to determine the reasonableness of the allowed return on equity. The key comparison is made in relation to the equity risk premium, being the product of the equity beta and the market risk premium.

Since the AER has adopted the approach of fixing the equity risk premium (ERP) for the life of the Guideline (and all decisions made during the tenure of the Guideline), it is the ERP that is the appropriate basis for comparison. That is, the AER implicitly assumes that the market sets the required return on equity by adding a fixed premium to the prevailing risk-free rate – that the risk-free rate varies over time, but the equity risk premium that is added to it is a fixed constant. Consequently, it is the fixed constant equity risk premium that is the point of comparison.

The AER has also previously noted that the equity risk premium is the appropriate point of comparison:

> *The critical allowance for an equity investor in a benchmark efficient entity is the allowed equity risk premium over and above the estimated risk-free rate at a given time. Under the standard application of the SLCAPM, this equals the MRP multiplied by the equity beta. Hence, we have compared equity risk premium estimates where appropriate.*[119]

The Draft Guideline proposes an equity risk premium of 3.6%, being the product of an equity beta of 0.6 and a market risk premium of 6%. ENA's May 2018 Submission proposed an unchanged ERP of 4.55%, being the product of a beta of 0.7 and MRP of 6.5%.[120]

In the remainder of this section, we review the various equity risk premium cross checks of the proposed 3.6% figure that are set out in the Draft Guideline.

7.2 The Wright approach

The first cross check considered in the Draft Guideline is the Wright approach to estimating the MRP. The Draft Guideline reports a MRP range of 7.46% to 9.96% using the Wright approach,[121] which can be compared directly with the proposed MRP of 6.0%.

The Wright approach is a method for estimating the MRP – it has nothing whatsoever to do with the estimation of equity beta. Thus, the Wright approach provides no information at all about the reasonableness of the proposed equity beta of 0.6. Consequently, having determined that the equity beta is 0.6, the Wright approach produces an estimate of the equity risk premium of 4.4% to 5.9% – reflecting the Wright estimates of the MRP.

This range is materially higher than the proposed equity risk premium of 3.6%. Thus, the proposed equity risk premium fails this reasonableness cross check.

ENA considers that using a beta of 0.4 when computing the Wright ERP and using a beta of 0.6 when computing the Guideline MRP produces a meaningless comparison. The Wright approach does nothing but produce an alternative estimate of the MRP, which is materially above the proposed allowance. Any suggestion that the Wright evidence is in any way consistent with the proposed allowance would be misleading.

7.3 Estimates from other regulators

The Draft Guideline also considers a cross check against the equity risk premiums allowed by other Australian regulators. The results indicate that the proposed 3.6%

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[119] AER, Jemena Gas Networks Final Decision, Appendix 3, p. 39.
[120] ENA, May 2018, Response to discussion papers and concurrent expert evidence sessions.
[121] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, Table 21, p. 183. 10.1% - 2.64% = 7.46%. 12.6% - 2.64% = 9.96%.

equity risk premium is below that allowed by any regulator in any decision over the relevant period.[122] The Draft Guideline recognises that:

> *Figure 11 shows our estimate of the equity risk premium of 3.6 per cent is below those from other regulators*[123]

but explains the reason for giving little weight to that evidence as follows:

> *However, we note that, with the exception of the ERA, other Australian regulators do not set revenue determinations for regulated distribution and transmission energy network services.*[124]

ENA considers that this statement overstates the differences between the Draft Guideline and other regulatory determinations for two reasons:

- The MRP is a market wide parameter that is independent of the type of firm being regulated; and
- In the majority of the regulatory decisions that are considered, the regulator has stated that the firm in question is in the same risk class as energy network businesses or lower.

Thus, there is no real reason to consider that the higher estimates from other regulators are driven by a risk differential.

The Draft Guideline notes that the ERA does have precisely the same task as the AER in relation to regulated energy network businesses. In its Draft Guideline, the ERA does not set out a MRP estimate, but does adopt a like-with-like beta of 0.79 for equity geared to 60%.[125] This is consistent with an equity risk premium of 4.73% even holding the MRP at the AER's proposed figure of 6.0%.

Since every one of the other regulatory estimates examined materially exceeds the proposed 3.6% allowance, and because the mean of the other regulatory estimates is approximately 2% higher than the proposed allowance, it is clear that the equity risk premium proposed by the AER fails this reasonableness cross check.

7.4 Estimates from brokers

The Draft Guideline next considers a cross check against the equity risk premiums used in broker research reports. Since the proposed 3.6% allowance includes the assumed benefit of imputation credits, it must be compared with broker estimates on the same basis.

The Draft Guideline reports that the equity risk premium used by brokers ranges from 4.1% to 4.9%.[126]

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[122] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, Figure 11, p. 184.
[123] AER, Jemena Gas Networks Final Decision, Appendix 3, p. 39.
[124] AER, Jemena Gas Networks Final Decision, Appendix 3, p. 39.
[125] $\frac{0.7 \times 0.45}{0.4} \times 6\%$.
[126] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, Table 22, p. 184.

The Draft Guideline also shows that the average equity risk premium adopted by brokers has been more than a full percentage point above the proposed 3.6% allowance for the entire period examined by the AER.[127] In relation to the average broker estimates, the Draft Guideline concludes that:

> *Our equity risk premium estimate is below the bottom of the unadjusted range.*[128]

It is, of course, even further below the bottom of the 'adjusted' range, which is the relevant comparison because the adjusted estimates are those that include the assumed value of imputation credits, as does the proposed 3.6% allowance.

The Explanatory Statement goes on to consider individual unadjusted estimates from a number of brokers. However, it would be wrong to compare these figures (which *do not* include the benefit of imputation) with the 3.6% figure (which *does* include the benefit of imputation). The AER appears to have estimated that imputation credits represent approximately 0.6% of the equity risk premium allowance. Consequently, the unadjusted broker estimates should be compared with an ex-imputation estimate of approximately 3.0%. Every one of the individual broker estimates is materially above this figure.

Since the range of broker estimates is materially above the proposed 3.6% allowance, and because the mean broker estimate is materially above the proposed allowance for the entire period examined by the AER, it is clear that the proposed equity risk premium fails this reasonableness cross check.

7.5 Independent expert valuation reports

The Explanatory Statement also considers a cross check against the equity risk premiums used in independent expert valuation reports. As for broker research reports, since the proposed 3.6% allowance includes the assumed benefit of imputation credits, it must be compared with estimates on the same basis. However, the AER has stated that it is not confident that it has sufficient information to compute an appropriate adjustment to reflect the value of imputation credits, so the cross check is performed with raw estimates that do not reflect the assumed value of imputation credits that is reflected in the 3.6% allowance.

The Explanatory Statement reports that the unadjusted equity risk premiums used in independent expert valuation reports relating to comparator firms are uniformly above the proposed 3.6% figure. Indeed, the 3.6% figure is below even the lower bounds used by independent experts. And the independent expert estimates do not reflect the AER's assumed value of imputation credits. Thus, there is very clear evidence that the proposed equity risk premium is below that used by independent experts.

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[127] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, Figure 12, p. 185.
[128] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 185.

The Explanatory Statement places most weight on the most recent report, which provides a range of 4.44% to 4.62%, unadjusted for the assumed value of imputation credits, which is also materially above the proposed allowance.[129]

Since the range of independent expert estimates is materially above the proposed 3.6% allowance, even before any adjustment is applied to reflect the assumed value of imputation credits, it is clear that the proposed equity risk premium fails this reasonableness cross check.

The Explanatory Statement notes correctly that there have been only 13 relevant reports and that nine of those were prepared by Grant Samuel. ENA agrees that this is relevant to the weight to be afforded to this particular cross check. However, the size of this sample should be weighed against the fact that the *lower bound* reported in *every one* of the available reports is higher than the proposed 3.6% allowance, *even before* any adjustment for the assumed value of imputation credits.

7.6 Comparison with the debt risk premium

New cross check added

The Explanatory Statement introduces a new cross check of the equity risk premium that was not used in the 2013 Guideline or in any decision to date – the allowed equity risk premium is compared against the contemporaneous debt risk premium (also known as the 'credit spread'), being the difference between the yields on BBB-rated debt and government bonds.

AER's previous assessment of the relationship between equity and debt risk premiums

In its 2013 Guideline materials, the AER set out its reasons for placing no material reliance on any comparison between debt and equity premiums:

> *Academic literature offers some theoretical basis for considering credit spreads. The literature explores the ability of credit spreads to explain equity returns as well as excess returns (the MRP). As such, credit spreads reflect economic and finance principles. However, we have expressed concerns in the past about the empirical support for this analysis. There is a body of evidence suggesting this analysis is not robust. Also, we have expressed concerns about the comparability of credit spreads to equity premiums.*[130]

The AER has also previously stated that the credit spread/debt risk premium should be given little weight when estimating equity risk premiums:

> *...there is no consensus in academic literature on the direction or magnitude of the relationship between observed credit spreads and the MRP. The lack of academic consensus on the direction of any relationship casts doubt on the reliability of drawing any conclusions on the MRP from*

[129] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 186.
[130] AER, December 2013, Rate of Return Guideline: Explanatory Statement: Appendices, p. 95.

observable debt premiums. Moreover, the inability to reliably quantify the magnitude of any relationship limits its usefulness in a regulatory framework. For these reasons, the AER has given limited weight to credit spreads when estimating the MRP.[131]

On this point, the AER has previously relied on advice from McKenzie and Partington, who suggest that equity and debt risk premiums may actually move in *opposite* directions:

[T]here are competing theoretical and empirical models which support both positive and non-positive relations between the debt risk premium and the equity risk premium. There is no clear consensus, but the weight of evidence may somewhat favour a non-positive relation. What is clear, given the mixed evidence, is that the relation is not strong and stable.[132]

This advice has led the AER to conclude that the premise that equity and debt premiums move together in a stable manner is a fundamentally incorrect assumption.[133]

Role of the DRP cross check in the current Guideline

The current Explanatory Statement does not cite any new evidence or analysis on the relationship between debt and equity risk premiums. Nevertheless, the debt risk premium is now said to be:

...a valuable relative indicator of the reasonableness of our ERP. [134]

Moreover, the comparison with the DRP appears to have become the predominant cross check. The proposed equity risk premium fails the other cross checks, but that is said to be outweighed by the DRP cross check evidence (a point that is considered in more detail below).

ENA submits that it is difficult for stakeholders to understand why the debt risk premiums that were assessed as so fundamentally inappropriate in the 2013 Guideline (at which time they would have supported a *higher* equity risk premium) have now been introduced as a new, predominant cross check (where they are now used to support a *lower* equity risk premium). This significant reversal of AER approach, arrived at without discussion of any evidence that would alter its previous approach, does not appear to be consistent with the goal of demonstrating clearly an objective assessment of evidence, and regulatory predictability or transparency.

Evaluation of the DRP cross check evidence

The current Explanatory Statement compares the margin between the equity and debt risk premiums at two points in time, showing that the margin is higher now than at the time of the previous Guideline in December 2013. This appears to be

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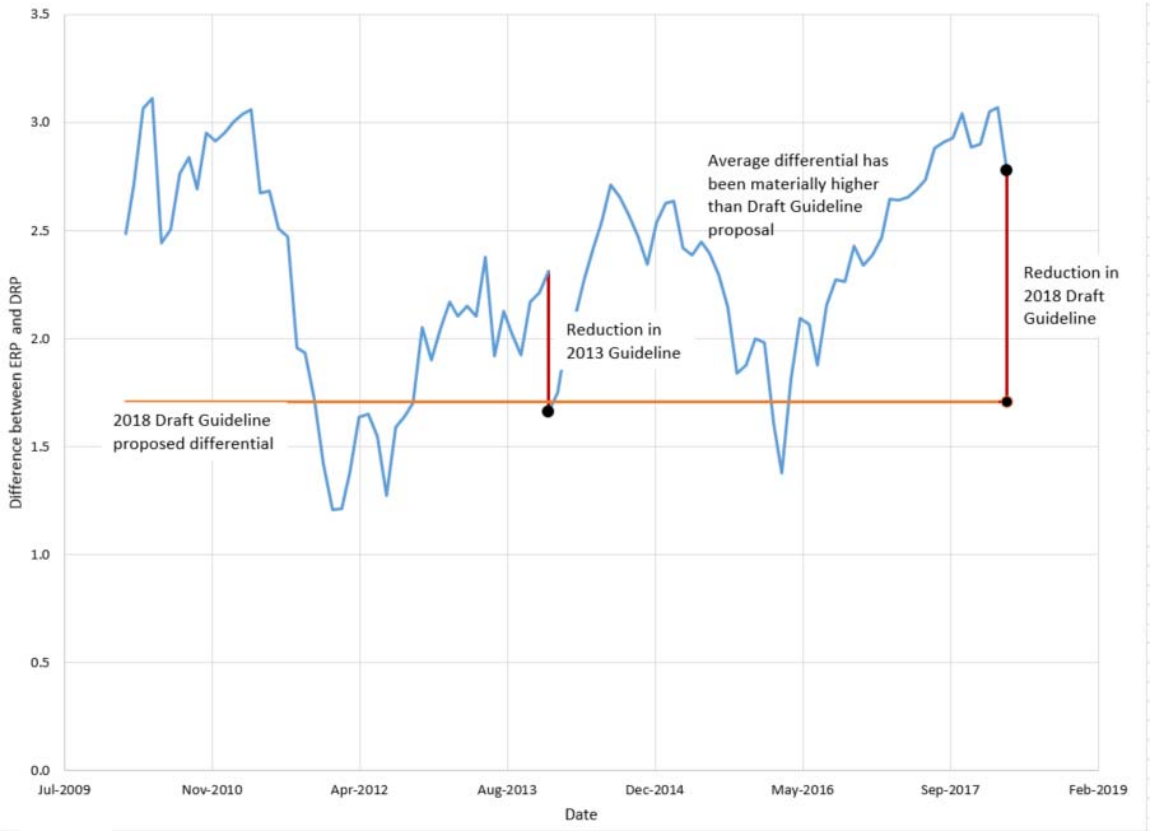
[131] AER, March 2013, Final decision: Access arrangement final decision: APA GasNet Australia (Operations) Pty Ltd 2013-17, Part 3, p. 48.
[132] M. McKenzie and G. Partington, *The relationship between the cost of debt and the cost of equity*, March 2013, p. 10.
[133] AER, March 2013, Final decision: Access arrangement final decision: APA GasNet Australia (Operations) Pty Ltd 2013-17, Part 3, p. 49.
[134] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 188.

interpreted as a 'pass' for the cross check, because the equity risk premium allowance has increased relative to the DRP allowance.

Setting aside the issues that the AER has previously raised about the relationship between the ERP and DRP, there are a number of problems with the comparison at two points in time:

» The Explanatory Statement compares the proposed differential of 1.71% with the differential at a single point in time in December 2013. Figure 10 below shows that the differential in December 2013 is in the bottom decile of observations since January 2010. The average differential over the period since December 2013 between the allowed ERP and the RBA BBB DRP is 230 bps, which is materially *higher* than the proposed differential of 171 bps.

Figure 10: Difference between RBA DRP and AER allowed ERP



Source: AER determinations; RBA.

» Figure 15 in the Explanatory Statement[135] shows that the debt risk premium has moved materially as market conditions change. Just since 2013, the DRP has dropped by 200 basis points, increased by 150 basis points and then dropped by 150 basis points again. By contrast, the AER's approach is to set a constant equity risk premium for the duration of each Guideline period. Thus, if the DRP is

[135] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 188.

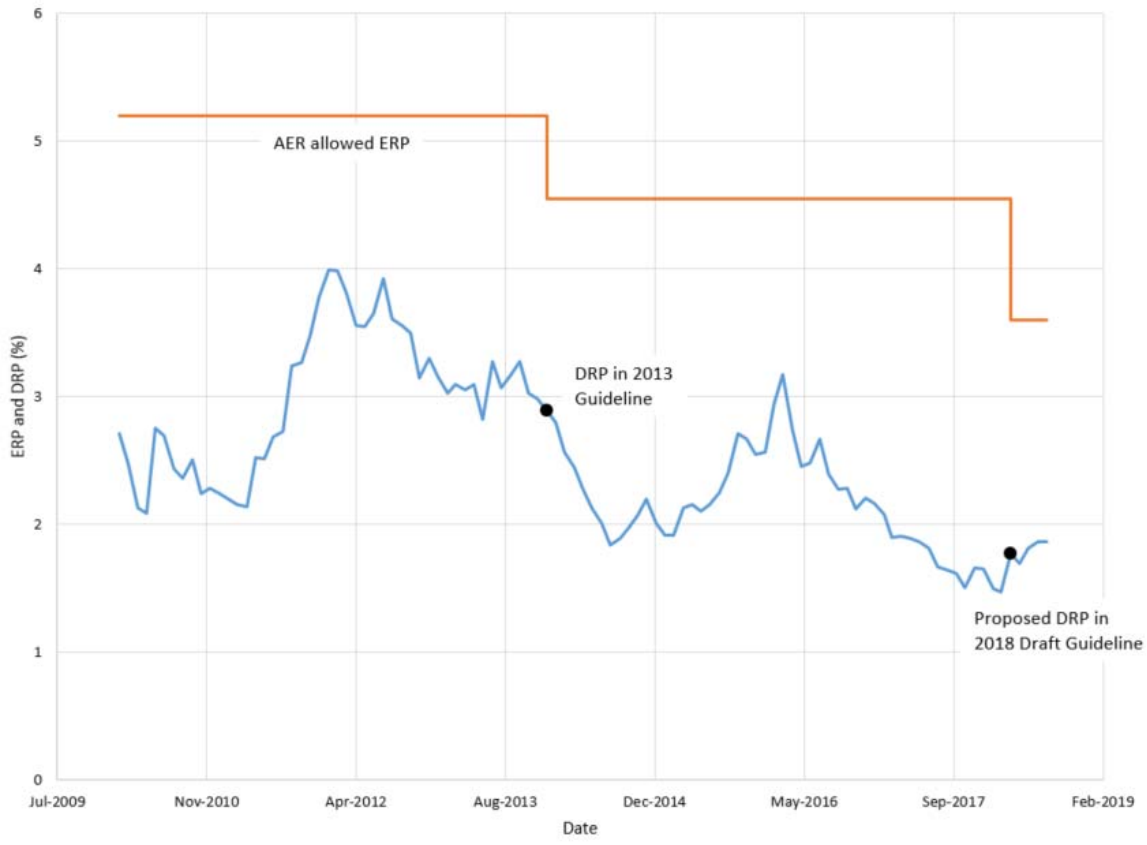
considered to be informative about the ERP, and if the DRP exhibits material volatility during a Guideline period, it is unclear why a constant ERP would be adopted.

» The AER's approach is to maintain a fixed constant ERP for all decisions made within the Guideline period. This is being compared with the BBB debt risk premium, which changes materially over time. Thus, it is logical to expect that:

- The differential will be low when the DRP rises (as the ERP stays fixed); and
- The differential will be high when the DRP falls (as the ERP stays fixed).

The AER's figure compares a point at the end of 2013 (when the DRP was at a relative high point in the cycle) with a point in early 2018 (when the DRP was near its minimum), as illustrated in Figure 11 below.

Figure 11: RBA DRP and AER allowed ERP



Source: AER determinations; RBA.

A comparison between a DRP at a relatively high point in the cycle with a DRP at a low point in the cycle is misleading:

- In late 2013, the DRP was near the high point of the cycle and subsequently fell – so the differential between the ERP and DRP increased (ERP held constant and DRP declined); and

- In early 2018, the DRP is near the low point of the cycle and starting to rise – as this happens, the differential between the ERP and DRP is falling (ERP held constant and DRP rising).

Thus, the Explanatory Statement is comparing a 2013 differential that was at the low end of the cycle (and rising) with a 2018 differential that is at the high end of the cycle (and falling).

7.7 Conclusions in relation to the AER's cross check evidence

The AER has previously explained why it considers that cross checks should be applied at the level of the equity risk premium.

The Explanatory Statement sets out a number of cross checks that can be applied to test the reasonableness of the proposed 3.6% equity risk premium (inclusive of the AER's assumed value for imputation credits).

Four of those cross checks involve other numerical estimates of the equity risk premium. The proposed 3.6% allowance fails every one of those cross checks – the alternative estimates are all higher than 3.6%. Indeed, the lower band of the range for each alternative estimate is higher than 3.6%, as set out in Table 2 below. ENA's May 2018 Submission proposed that an equity risk premium of 4.55%, in line with the 2013 Guideline, was capable of acceptance. Table 2 shows that an ERP of 4.55% is more in line with the AER's cross checks.

Table 2: Comparison of allowed equity risk premium across jurisdictions

Cross check	Proposed equity risk premium	Source
Draft Guideline proposed ERP	3.6%	Draft Guideline, p. 125.
'Capable of acceptance' ERP	4.55%	ENA May 2018 submission. Maintained from 2013 Guideline.
Wright estimate of MRP	4.4 to 5.9%	Table 21, p. 183. MRP range of 7.4 to 9.9%; Equity beta of 0.6.
Other regulators' estimates	4.2 to 9.36%	Figure 11, p. 184.
Broker estimates	4.1 to 4.9%	Table 22, p. 184.
Independent expert reports	4.44 to 4.62%	KPMG report for DUET, p. 186. Does not include gross-up for imputation.

Source: AER, July 2018, Draft Guideline, Section 5.4.2.

In explaining how these cross checks are used to determine whether the allowed return contributes to promoting the NEO and NGO, the AER has previously stated that:

> *In addition to the pricing model used, the estimates of return on equity and equity risk premiums are consistent with the ranges used in broker reports, valuation reports, other regulators' decisions, and surveys of market practitioners. A significant portion of this information comes from market practitioners that may be investors themselves, or may advise investors.*[136]

The fact that the proposed allowance now fails the AER's cross checks would therefore be relevant to its consideration of whether that proposed allowance is one that contributes to the NEO And NGO to the greatest degree.

The Explanatory Statement also introduces a new cross-check – a comparison of the difference between the allowed ERP and DRP observed at two points in time. There are several fundamental problems with this cross check including:

- The AER has previously argued strongly against applying this cross check, however, no explanation is provided of why the DRP cross check has now become relevant;

136 https://www.aer.gov.au/system/files/AER%20presentation%20on%20achieving%20the%20NEO%20.pdf.

- The AER's consultants have advised that the relationship between ERP and DRP is not stable and that the two may even move in the opposite direction, in which case a comparison at two points in time would be either irrelevant or misleading;
- The average differential over the period of the 2013 Guideline is 230 bp, which is materially higher than the proposed differential of 171 bp; and
- A comparison between a DRP at the high point in the cycle with a DRP at the low point in the cycle is potentially misleading.

Nevertheless, the Explanatory Statement concludes that:

> *We recognise the equity risk premium ranges from the Wright approach, valuers' and other regulators' decisions are above the ERP we have estimated. By contrast, our ERP for this decision represents an increase in comparison to the DRP. Once their strengths and weaknesses of the available cross checks are considered, we do not see a case for making further adjustment to the result calculated using the SLCAPM.* [137]

ENA considers that this conclusion is not supported by any reasonable or objective assessment of the cross check evidence.

ENA submits that an ERP of 4.55% (i.e. unchanged from the 2013 Guideline) would be more consistent with the cross check evidence.

7.8 International comparisons of equity risk premium

ENA has engaged John Earwaker (September 2018)[138] to prepare a report that compares the AER's proposed ERP of 3.6% with the ERP that is allowed by regulators overseas. Earwaker begins by comparing past, present and proposed ERPs from the AER and Ofgem. Figure 12 below shows that the AER has materially decreased the ERP allowance at each of its WACC reviews, whereas the Ofgem allowance has been more stable and is expected to increase.

ENA notes that Ofgem determines a real rate of return allowance, whereas the AER determines a nominal rate of return allowance.[139] In addition, Ofgem's latest estimate of the return on equity assumes a gearing range of 50% to 65%, which differs from the AER's proposed benchmark gearing level of 60%.[140] These differences mean that Ofgem's published return on equity data, reported by Earwaker, are not directly comparable to the AER's. If Ofgem's data were presented on a more like-for-like basis with the AER's (by converting real returns to nominal returns, and re-levering equity betas using a gearing level of 60%), Ofgem's current midpoint estimate of the ERP would be 5.83% rather than the 5.25% midpoint figure implied by Earwaker's analysis.

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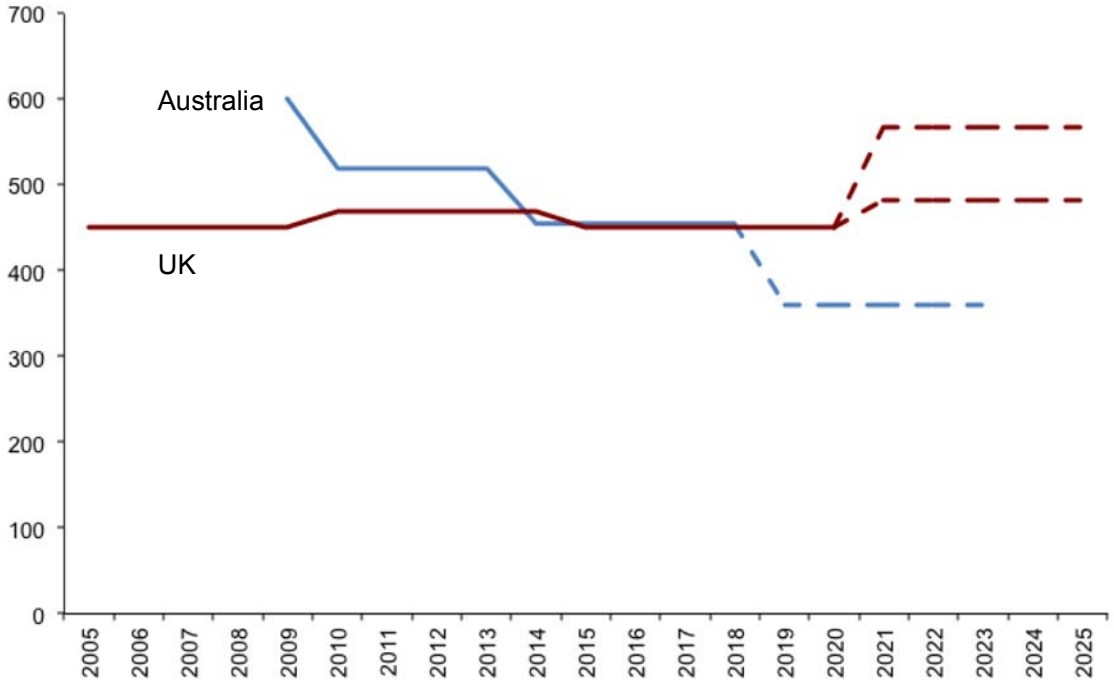
[137] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 189.
[138] Earwaker, J., September 2018, The AER's draft WACC Guideline: An international perspective.
[139] RIIO-2 Framework Consultation: Our approach to setting price controls for GB gas and electricity networks, March 2018, Table 4, p. 90.
[140] See the analysis relied on by Ofgem, produced by its adviser on rate of return issues: CEPA, Review of cost of capital ranges for Ofgem's RIIO-2 for onshore networks, February 2018, Table 7.1, p. 71.

Figure 12: Equity risk premium allowances: AER vs. Ofgem



Source: Earwaker, September 2018, Figure 1, p. 4.

In relation to the comparability between the two figures, Earwaker concludes that:

> *I therefore disagree with the blunt assertion in the AER's explanatory paper that international comparisons are invalid "because of the issues surrounding differences in regulatory procedures and tasks". If the AER is coming up with a lower cost of equity premium than Ofgem, despite the basic similarities in the regulatory regimes and despite similarities in companies' exposures to risk, this is an unexpected result that is worthy of further attention.*[141]

A similar analysis in relation to the ERP allowed by the New Zealand Commerce Commission (NZCC) produces a similar outcome, as shown in Figure 13 below.[142] It is worth noting that Earwaker's estimates of the ERP applied by the NZCC are understated because those estimates represent midpoint estimates, whereas in practice (when setting revenue allowances for regulated energy networks) the NZCC estimates a rate of return range and adopts an estimate equivalent to the 67th percentile of that range,[143] which is by definition higher than the midpoint.

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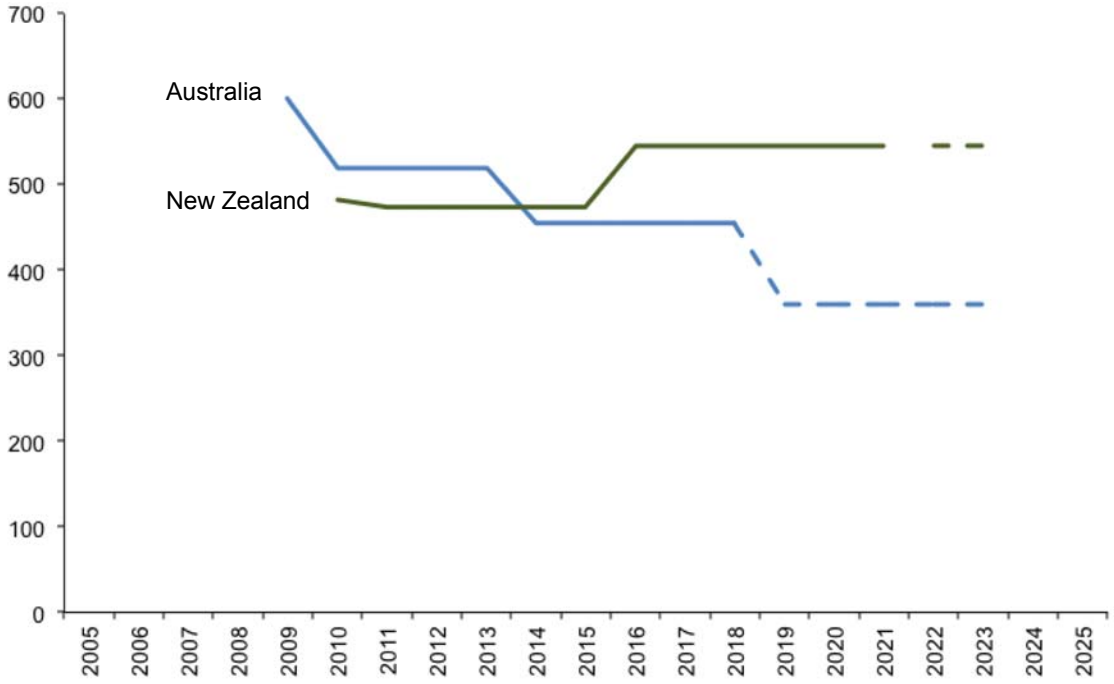
[141] Earwaker, September 2018, p. 6.
[142] Earwaker's analysis of the NZCC's determination of the ERP focusses on the NZCC's Input Methodologies decisions rather than its cost of capital determinations under the Information Disclosure regime. However, ENA notes that the NZCC's cost of capital determinations for Information Disclosure purposes follow precisely its Cost of Capital Input Methodology.
[143] See: NZCC, Electricity Distribution Services Input Methodologies Determination 2012, 3 April 2018.

Figure 13: Equity risk premium allowances: AER vs. New Zealand Commerce Commission



Source: Earwaker, September 2018, Figure 2, p. 7.

Earwaker also considers ERP allowances for US and Canadian regulators (averaged over federal and state/provincial regulators) and reports the results that are summarised in Table 3 below.

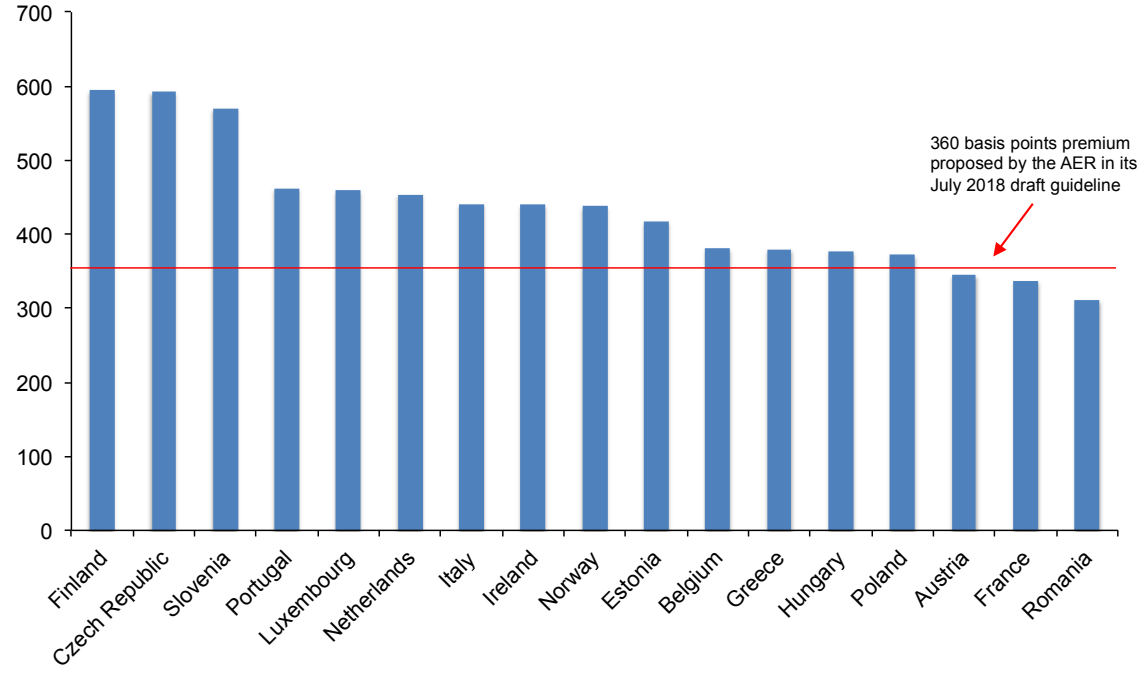
Table 3: Equity risk premium allowances in US and Canada

Country	Year	Average ERP allowance
US	2015	5.61%
	2016	5.83%
	2017	5.46%
Canada	2015	6.54%
	2016	6.71%
	2017	6.31%

Source: Earwaker (2018), Table 5, p. 9.

Earwaker then considers an expanded set of European regulatory return allowances. Figure 14 shows that the AER is effectively proposing to place Australia in the company of countries such as Romania and Lithuania in setting such low regulatory return allowances.

Figure 14: Equity risk premium allowances: European regulators (basis points)



Source: Earwaker, September 2018, Figure 3, p. 8.

The ERP estimates in Figure 14 above tend to understate the regulatory ERP allowances because it is common for European regulators to set the risk-free rate allowance above the prevailing government bond yield. That is, the ERP relative to the prevailing government bond yield is generally higher than the figures set out above. For example, the Austrian regulator has allowed a risk-free rate of 3.27% at a time when the prevailing 10-year government bond yield was 2.00%.

ENA notes that the comparison with regulators overseas paints a very clear picture – the AER's proposed ERP is materially below that allowed by other comparable regulators and is being reduced markedly at a time when other regulators are maintaining or increasing their allowances.

Having compared the rate of return determinations of several regulators overseas to the AER's Draft Guideline, Earwaker makes the following observations:

> *The picture that emerges from the above discussion is one in which the AER is repeatedly taking extreme positions in its draft WACC guidelines. I am always very hesitant to say that one approach to WACC estimation is definitively 'right' and another approach is definitively 'wrong' and it is not my intention to take any such position in this paper. However, I do think it is important for regulators to be 'in the pack' with expert opinion, and yet it appears that the AER's draft guidelines on the cost of equity, taken as a package, are pushing right to the very boundary of what until now could have been regarded as mainstream regulatory thinking.*
>
> *In this regard, the contrast between the 2018 draft guidelines and the previous 2013 guidelines is quite stark. In the space of five years, there has*

not been a huge shift in the evidence base – if anything, the data is pointing towards there having been a small increase in the cost of equity capital relative to the return on riskless assets. I would therefore characterise the move from a 455 basis point premium over the risk-free rate to a premium of only 360 basis points as a switch from a middle-of-the-road reading of the evidence to a very stretching, possibly over-stretched, take on the cost of equity.[144]

Having made these observations, based on the available international evidence, Earwaker recommends that the AER should move to a more moderate position in the Final Guideline:

This suggests to me that the AER may wish to move to a more moderate position in December. This might involve:

- *giving more credence to the possibility that the MRP is not a fixed number, but can move higher when the risk-free rate is relatively low; and*
- *placing more weight on the latest empirical estimates of regulated network betas, as an up-to-date indicator of investor perceptions of risk.*

The net effect of such changes is that the 360 basis points referred to above would increase to a number which is more easily recognisable as the premium that investors require when they make equity capital available to regulated firms.[145]

ENA endorses the conclusions reached by Earwaker.

[144] Earwaker, September 2018, p. 12.
[145] Earwaker, September 2018, p. 12.

8 Equity beta

Key messages

- The Explanatory Statement states that the AER's empirical analysis of domestic comparators supports a range of 0.4 to 0.8 and a point estimate of 0.6.[146]
- Unlike the 2013 Guideline, evidence from overseas comparators and the Black CAPM is not used to inform the selection of a point estimate, which remains at 0.6.[147]
- ENA's May 2018 Submission documents that all of the AER's empirical beta estimates have increased since 2013.[148] The Draft Guideline accepts that the equity beta estimates have increased since 2013.[149]
- The reduction in the allowed equity beta (from 0.7 to 0.6) is in the opposite direction to the movement in the empirical evidence. It results from a change to the AER's approach to determining the allowed beta, not from an update of the relevant evidence.
- In relation to the international evidence:
  - ENA notes that the evidence on overseas comparators supports an equity beta materially above 0.6.
  - The 2013 Guideline sets out the reasoning for using the international evidence to inform the selection of a point estimate from within the range for beta. The current Explanatory Statement uses precisely the same reasoning to now support *not* using the international evidence to inform the selection of a point estimate.
  - Since the 2013 Guideline, the sample of domestic comparators has reduced to three and the stale estimates from delisted firms are now another five years out of date, so the relative importance of the international evidence would seem to have increased.
- In relation to the evidence from the Black CAPM and low-beta bias:
  - ENA notes that the evidence from the Black CAPM continues to support selecting an equity beta point estimate above the mid-point statistical estimate.
  - The 2013 Guideline sets out five reasons for using the Black CAPM evidence to inform the selection of a point estimate from within the range for beta. The current Explanatory Statement sets out the same five reasons to now support *not* using the Black CAPM evidence to inform the selection of a point estimate.

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[146] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 307.
[147] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, pp. 272-274.
[148] ENA, May 2018, Response to discussion papers and concurrent expert evidence sessions, Section 7.3.5.
[149] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 297.

- ENA submits that the empirical evidence of low-beta bias is compelling. It has been published in the top journals over several decades by leading researchers (including two Nobel Prize winners) and it appears in standard textbooks.
- ENA considers that the reasons that have been proposed for disregarding low-beta bias are weak when weighed against the compelling evidence. They are based on conjecture and supposition and are inconsistent with the relevant evidence.

» ENA submits that an objective and balanced assessment of the relevant evidence supports an equity beta of a least 0.7. The AER's estimate of 0.6 is not the best empirical estimate, does not have proper regard to all the relevant evidence or to prevailing conditions in the market for equity funds therefore cannot contribute to the achievement of the NEO and NGO to the greatest degree,

8.1 ENA's understanding of the Draft Guideline

ENA understands that the proposed equity beta of 0.6 has been arrived at in the following manner:

» **Regression estimates from domestic comparators support a range of 0.4 to 0.8.**[150]

The AER has applied the same regression approaches to estimating equity beta to the same set of nine comparator firms that were considered when developing the 2013 Guideline. This exercise produces estimates for individual firms and for various portfolios. The AER concludes that this evidence supports a range of 0.4 to 0.8.

» **Point estimate of 0.6 is selected from domestic comparator evidence.**[151]

The Explanatory Statement concludes that:

> *...our empirical study, which is based on a variety of estimation periods, supports an empirical range of 0.4–0.8 and a point estimate of 0.6.*[152]

» **International evidence now has no effect.**[153]

In the 2013 Guideline, international evidence was used to inform the selection of a point estimate from within the preliminary range. The Explanatory Statement concludes that the international evidence should no longer be used in this way, but will rather be used in "a qualitative role similar to conceptual analysis."[154] The Explanatory Statement concludes that (like conceptual analysis) the international evidence is consistent with an equity beta below 1, and therefore (qualitatively)

[150] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 243.
[151] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 243.
[152] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 307.
[153] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, pp. 272-274.
[154] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 273.

supports the proposed estimate of 0.6, which also has the quality of being less than 1.

» **Black CAPM evidence now has no effect.**[155]

In the 2013 Guideline, the theory of the Black CAPM was used to inform the selection of a point estimate from within the preliminary range. The Explanatory Statement concludes that the Black CAPM should no longer be used in this way, and that the AER's current review:

> *...supports not moving our point estimate (towards the top of the observed range) for the theory of the Black CAPM* [156]

and that the Black CAPM evidence will not be used to make any adjustment to the empirical estimates:

> *...we do not consider that an uplift beyond the empirical estimates for our comparator set is warranted* [157]

concluding that:

> *...we do not consider it appropriate to use the (theory of the) Black CAPM when selecting our estimates.* [158]

In summary, a point estimate of 0.6 is selected from within the range of 0.4 to 0.8 that is derived from the analysis of domestic comparators and neither the international evidence nor the Black CAPM evidence has any effect on that estimate.

In its 2013 Guideline process, the AER conducted a 'conceptual analysis' from which it concluded that the equity beta for the BEE is likely to be less than one. The analysis recognised that the equity beta has two components – the asset beta and leverage – and concluded that the BEE has a lower-than-average asset beta and higher-than-average leverage. The AER then concluded that high financial leverage does not necessarily result in equivalently high financial risk because the risk of default and bankruptcy is low. NSPs have made many submissions explaining the flaws in that argument,[159] however it is repeated in the current Draft Guideline.[160]

The Independent Panel has considered that point and concludes that:

> *This statement is incorrect as a matter of basic corporate finance theory and practice. The Panel agrees that low default risk is a good thing. But financial risk does not depend on the likelihood of default. It depends on the fixed cost of servicing debt. The higher the fixed cost, the higher the*

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[155] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, pp. 272-274, 301.
[156] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 283.
[157] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 244.
[158] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 284.
[159] See, for example, https://www.aer.gov.au/system/files/SA%20Power%20Networks%20-%20M.13_PUBLIC_Frontier_Review-AER%20conceptual%20analysis%20for%20equity%20beta_%20June%202015.pdf.
[160] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 111.

(percentage) volatility and beta of the residual claim, which is equity. Financial risk can be large even when the risk of default is zero.[161]

ENA agrees with the Independent Panel's view on this point for the reasons provided in previous submissions to the AER. ENA submits that the AER should recognise that it's 'conceptual analysis' has no proper basis.

8.2 Updated empirical estimates

Empirical estimates have increased since the 2013 Guideline

ENA's May 2018 Submission summarises the change in the evidence that has become available since the 2013 Guideline. The new evidence produces an unambiguous increase in all equity beta estimates. The ENA submission documents that:

- Every estimate for every firm that remained listed after the 2013 Guideline has since increased (see Figure 7 in the ENA May 2018 submission);
- Every estimate for every portfolio that consists of firms that have remained listed after the 2013 Guideline has since increased (see Figure 8 in the ENA May 2018 submission); and
- Every estimate for every firm that remained listed after the 2013 Guideline is higher when estimated over the most recent five years, than when estimated over periods that contain older data (see Figure 9 in the ENA May 2018 submission).

The clear conclusion is that the evidence that has become available since 2013 supports an increase in beta estimates.

This increase in beta estimates is recognised in the Explanatory Statement:

Empirical estimates have increased since 2013[162]

and:

We observe some increase in estimates since the 2013 Guidelines.[163]

The ERA has also recently undertaken the task of estimating the equity beta for electricity and gas transmission and distribution businesses in Australia. The ERA also focuses its analysis on domestic comparators and has concluded that the recent evidence supports an increase in its equity beta allowance. Having adopted an equity beta of 0.7 (geared to 60%) in its 2013 Guideline, the ERA now adopts an equity beta of 0.79 (based on gearing of 60%) in its July 2018 Draft Guideline.[164]

In summary, the empirical evidence supporting an increase in the domestic equity beta estimates appears to be uncontentious.

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[161] Independent Panel Report, September 2018, p. 38.
[162] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 297.
[163] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 244.
[164] The ERA adopts an equity beta of 0.7 geared to 55%, which equates to an equity beta of 0.79 geared to 60% using the AER's process for re-levering.

ENA notes that the Draft Guideline proposes a material *reduction* in the allowed beta (from 0.7 to 0.6), in circumstances where the AER's own beta estimates have uniformly *increased*, and where an estimate that is commensurate with the prevailing market conditions is being sought. ENA consider this to be difficult to reconcile with an objective evidence-based approach.

The increase in empirical beta estimates is understated by the retention of delisted firms

ENA notes that the increase in empirical beta estimates that is documented and accepted in the Explanatory Statement is understated by the fact that all but three of the comparator firms are now delisted, so their empirical estimates are frozen in time forever. Indeed, the majority of the AER's sample were already delisted at the time of the 2013 Guideline, so it is impossible for their estimates to have increased since then. A third of the AER's sample have now been de-listed for over a decade, so it is difficult to see how they can contribute meaningfully to an estimate of the required return on equity in the *prevailing* market conditions.

ENA considers the movement in equity beta estimates, for those comparator firms that still exist, to be relevant evidence. For all of the firms that survived beyond 2013, the equity beta estimates have increased. But this is diluted by the fact that the estimates for the delisted firms have (obviously) not changed.

The problem here can be explained by a simple analogy. Suppose temperatures are recorded at nine weather stations, but six ceased providing data some years ago. The three that remain record steadily increasing temperatures over a number of years. Would it be appropriate to estimate the change in temperature by taking a weighted-average, with six stations recording no increase and three recording some increase? Or would the uniform increase observed for the three operating stations receive more weight than the void of data from the other six?

Moreover, having observed temperatures steadily increasing at the three remaining weather stations, and with no new data forthcoming from the six defunct stations, would be reasonable to conclude that the temperature had actually dropped—simply because the last recorded temperature readings at the now non-functioning stations happened to be lower than present readings?

As set out above, the AER's task is to estimate an equity beta that is commensurate with the prevailing conditions in the market. This is not to say that the older data are irrelevant. However, it would be reasonable to consider the fact that, where recent estimates are available, they are uniformly higher than in 2013. It is reasonable to consider this evidence when determining the weight to be applied to estimates that were frozen in time 10 years ago.

The Explanatory Statement notes that the AER gives "most weight to the longest estimation period"[165] and that, although the evidence from live firms indicates an

[165] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 243.

increase in beta, it is particularly the evidence from the longest estimation period that is used to support an estimate below 0.7:

> *We observe some increase in estimates since the 2013 Guidelines. However, the overall empirical results, particularly the longest estimation period, support a value of less than 0.7.*[166]

The Explanatory Statement also notes that:

> *…estimates for the longest estimation period have shown marginal increases* [167]

which is, of course, an inevitable consequence of material increases for the few live firms and no change in the estimates of the (majority) de-listed firms which have had no opportunity to change in any direction.

The Explanatory Statement concludes that:

> *…estimates for the longest period fall in the range 0.4 to 0.8.* [168]

Thus, the Explanatory Statement places material weight on data from the longest period, which dates back to January 1990. Whereas the estimates for the longest period generally fall in the range of 0.4 to 0.8, the estimates that include more recent data lie at or above the top end of this range.

If the goal is to obtain an estimate that is commensurate with the prevailing conditions in the market, there are two features that would raise concerns about a beta estimate:

- A beta estimate is less likely to reflect the prevailing market conditions if it is based largely on data that is more than 10 years out of date; and
- A beta estimate is more likely to reflect the prevailing market conditions if it includes data from the most recent 5-year period.

Figure 15 below shows the relationship between these two characteristics and the AER's portfolio equity beta estimates. The two relevant variables are defined as follows:

- The **proportion of data older than 10 years** is the ratio of (a) number of weeks of data from more than 10 years ago, to (b) the total number of weeks of data used to produce the estimate; and
- The **proportion of recent 5 years missing** is the ratio of (a) the number of weeks in the most recent five-year period for which data is unavailable, to (b) the total number of weeks in the most recent five-year period (5×52).

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[166] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 244.
[167] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 261.
[168] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 244.

Figure 15 shows that lower beta estimates are only obtained from methods that (a) include very old data, and (b) exclude the most recent data (i.e., points in the front left corner of the figure).

Figure 15 also shows that a movement towards more recent data results in materially increased beta estimates. When the influence of very old data is reduced, and when the most recent data are included, the beta estimates are materially higher (i.e., points in the back right corner of the figure).

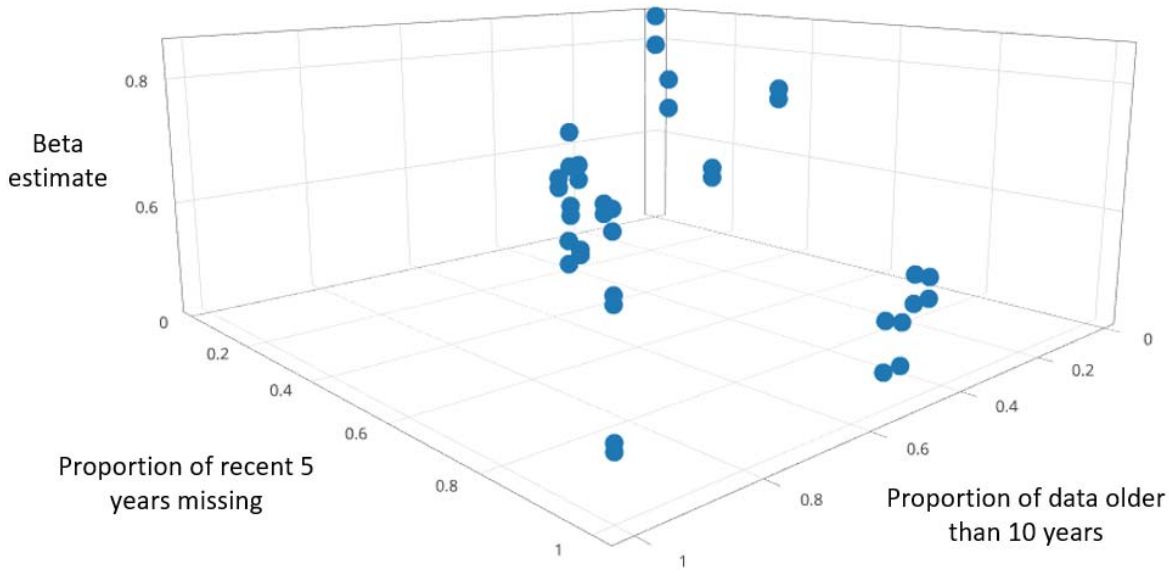
Thus, the range of 0.4 to 0.8 and the point estimate of 0.6 is difficult to reconcile with the requirement to produce an estimate that is commensurate with the prevailing conditions in the market. Those estimates largely rely on including data that are more than ten years old and excluding data that are less than five years old.

It is important to note that ENA does not advocate an approach that considers data from the most recent five years only. The volatility in beta estimates over time and the low precision of beta estimates are well-known in the regulatory setting. Rather, ENA notes that the AER's conclusions in relation to beta appears to give isproportionately:

- high weight to data that are more than 10 years out of date; and
- low weight to the more recent data.

A reasonable and objective consideration of the empirical evidence does not support a material reduction being applied to the allowed equity beta.

Figure 15: Relationship between data used and AER equity beta estimates



Source: AER, 2018, Draft Rate of Return Guideline, Explanatory Statement, Table 31, p. 252.

8.3 The importance of the change in approach to beta

The ENA submission of 4 May 2018 proposes that, under an incremental review where the data is updated but the 2013 Foundation Model approach to equity beta is otherwise maintained, the evidence would support an increase to the equity beta allowance – such as that provided in the ERA's Draft Guideline. Logically, if the same approach to distilling an equity beta point estimate is applied, and if all of the relevant estimates have increased, the result would be an increase in the final figure that is reached.

However, the AER's approach to estimating equity beta has changed in two material respects – the international evidence and the Black CAPM evidence no longer have any impact on the allowed equity beta. The effect of those changes has been a material reduction in the allowed equity beta, from 0.7 to 0.6, in spite of the empirical estimates of beta increasing since 2013. Consequently, the rationale for the international and Black CAPM evidence now being excluded from the process of setting the allowed equity beta has become very important.

8.4 International evidence

Updated international evidence

The international evidence that the AER has most recently considered is summarised in Table 4 below. This evidence very clearly supports an equity beta materially above 0.6.

Table 4: International evidence to which the AER has regard

Source	Estimate	Notes
Frontier Economics, January 2016	0.88	Weekly estimates
	0.77	Monthly estimates
SFG/CEG, June 2013	0.88	Individual firm estimates
	0.91	Portfolio estimates
Damodaran, March 2016	1.09	Mean individual firm estimate
PwC, March 2015	0.88	Estimates for NZ DBs
Brattle Group, March 2013	0.71	European firms estimate
	1.01	US firms estimate
	0.80	European + US firms estimate

Source: AER, November 2017, APA VTS Final Decision, Attachment 3, Table 3-30, p. 3-260.

The Explanatory Statement notes that the approach of the New Zealand Commerce Commission (NZCC) is to use a broad sample of international comparators to estimate equity beta. The NZCC also currently adopts equity beta allowances materially above 0.6, as set out in Table 5 below.

Table 5: New Zealand Commerce Commission equity beta allowances based on evidence from international comparators

Sector	Equity beta (60% gearing)
Electricity transmission	0.87
Electricity and gas distribution	1.00

Source: NZCC, July 2018, Cost of capital determination for disclosure year 2019.
Note: NZCC equity beta estimates have been re-levered using the AER's benchmark gearing level of 60% and the Brealey-Myers formula.

The Explanatory Statement also sets out a summary of international estimates.[169] ENA has been unable to replicate those figures and notes that they are inconsistent with the (higher) figures set out above. In particular, given that the AER has adopted a similar sample to that used by the NZCC, it is surprising that the AER's estimates are lower than the NZCC estimates above. ENA has advised the AER of this replication difficulty and continues to investigate this issue.[170]

The rationale for the change in approach to international evidence

The Explanatory Statement concludes that international evidence has no real role to play in determining the allowed equity beta:

> *International energy network estimates and other Australian infrastructure firms possess a range of differences to a service provider in the provision of regulated energy services. We are not persuaded that they should be included in our comparator set or used to inform a point estimate within our range.*[172]

The rationale for now changing the role of the international evidence is said to be as follows:

> *International energy firms deviate from our view of a benchmark efficient entity with a similar degree of risk as a relevant service provider in the provision of regulated energy services because they do not operate within Australia. Differences in regulation of businesses, the domestic economy, geography, business cycles and a number of different factors are likely to result in differences between equity beta estimates for similar businesses*

[169] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, Figure 27, p. 274.
[170] The AER has provided ENA with a spreadsheet model that performs the beta calculations for a set of international comparators, which ENA is evaluating.
[172] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 263.

between countries. It is difficult to assign quantitative impacts to these qualitative factors.[173]

However, this same list of issues was considered in the 2009 and 2013 WACC Reviews, where it was expressed in almost identical terms:

> *In the 2009 WACC review, we noted the difference in regulation of businesses, the regulation of the domestic economy, geography, business cycles, weather and a number of different factors are likely to result in differences between equity beta estimates for similar businesses between countries. It is difficult to assign quantitative impacts to each of these qualitative factors.*[174]

That is, the 2009 and 2013 WACC Reviews set out a number of reasons why international comparators are relatively less informative than domestic comparators in relation to the equity beta for the BEE. This has previously led the AER to use that evidence (among other evidence such as the Black CAPM) to support the selection of a point estimate at the top of the preliminary range. The *same list* of issues are now advanced as reasons to *not* use the international evidence in that way.

ENA does not understand how the same list of issues can be used:

- To support using the international evidence to inform the selection of the equity beta point estimate in the 2009 and 2013 Guidelines; and
- To support *not* using the international evidence to inform the selection of the equity beta point estimate in the 2018 Guideline.

This would not seem to be consistent with the important principles of regulatory stability, transparency and predictability.

The new qualitative role for international evidence

In the 2009 and 2013 Guidelines, the international evidence was given a qualitative role rather than being used in any numerical calculation of equity beta. The international beta estimates were observed to be systematically materially higher than the domestic estimates. This was used to support selecting a point estimate from the top of the range of domestic estimates.

The current Explanatory Statement notes that the international evidence continues to produce beta estimates that are materially higher than the domestic estimates. However, the qualitative role has now changed. No longer are the international estimates compared with the domestic estimates, but rather the international estimates are now considered to support the domestic estimates because both are less than one.

ENA does not understand the logic of considering the international evidence in this binary way – whether it is above or below one. That appears to be a highly artificial approach that now results in that evidence having no impact at all.

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[173] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 267.
[174] AER, December 2013, Rate of Return Guideline: Explanatory Statement: Appendices, p. 60.

The obvious qualitative use of the international evidence is to compare it against the domestic estimates, as the AER has done in past Guidelines. It is not clear to ENA why the international evidence would no longer be used in that way.

The relative importance of international evidence

Since the 2013 Guideline:

- The sample of domestic comparators has reduced to three; and
- The stale estimates from delisted firms are now another five years out of date.

Thus, the relative importance of the international evidence would seem to have increased.

By contrast, the Explanatory Statement now places 100% weight on the smaller and more out-of-date domestic sample and the international evidence has no effect on the equity beta estimate at all. This change would seem to go in the opposite direction of the evidence – as one source of evidence becomes smaller and more out-of-date, it would logically receive relatively *less* weight; not be elevated to 100% weight.

8.5 Black CAPM evidence

The Black CAPM and low-beta bias

The Explanatory Statement distinguishes between the theoretical Black CAPM evidence and the empirical evidence of low-beta bias:

- There is an *empirical* aspect of this body of evidence – the relationship between beta and observed returns has a higher intercept and a flatter slope than the SL-CAPM suggests, such that the SL-CAPM systematically understates the observed returns on low-beta stocks; and
- There is a *theoretical* aspect of this body of evidence – the Black CAPM, which was derived in response to the empirical evidence, demonstrates that a change to SL-CAPM assumptions produces a higher intercept and a flatter slope, consistent with the empirical evidence.

Because the Explanatory Statement distinguishes between these two elements of the evidence, the (theoretical) Black CAPM evidence is considered in this section and the (empirical) low-beta bias is considered in the next section.

Consideration of the Black CAPM and low-beta bias

We explain in some detail below that the evidence in relation to the Black CAPM and low-beta bias does not relate to the estimates of beta themselves, but to the way in which the SL-CAPM converts those betas into estimates of the required return on equity. The SL-CAPM understates the returns on low-beta stocks even if those betas are estimated perfectly.

For this reason, the Independent Panel suggests that the evidence in relation to the Black CAPM and low-beta bias might be better addressed when selecting the allowed

equity risk premium, rather than when estimating the equity beta.[175] This recommendation is consistent with the 'multi-model' approach proposed during the 2013 Guideline review – the Black CAPM should be estimated, rather than used to inform the beta used in the SL-CAPM.

For the avoidance of doubt, ENA does not advocate the multi-model approach for this review. ENA accepts that the context of this review is one where the SL-CAPM Foundation Model approach established by the AER in the 2013 Guideline is to be used. Under the Foundation Model approach, the role of the Black CAPM evidence is to inform the beta estimate for use in the Foundation Model.[176] Consequently, the Black CAPM evidence must be considered when determining the beta that, when inserted into the SL-CAPM, would produce the best estimate of the required return on equity.

The change in the role of the Black CAPM evidence

The Explanatory Statement notes that the Black CAPM has a material role in the 2013 Guideline and in all subsequent AER decisions – it has been used (together with international evidence) as the basis for selecting a point estimate at the top end of the preliminary range derived from domestic comparators. For example:

> *In the 2013 Guidelines and subsequent regulatory decisions, we used the theory of the Black CAPM (to account for potential market imperfections that may cause actual returns to diverge from expected returns) to select a point estimate towards the upper end of our empirical range.*[177]

As noted above, the Draft Guideline proposes that the Black CAPM will now have no impact at all on the AER's allowed equity beta:

> *…we do not consider it appropriate to use the (theory of the) Black CAPM when selecting our estimates.* [178]

No change in evidence

There has been no change to the Black CAPM evidence in any respect since the 2013 Guideline. In this area there have been no developments in financial theory, in which case "the theory of the Black CAPM" and the "theoretical principles underpinning the Black CAPM" remain identical to the evidence considered in 2013.

The current Explanatory Statement also notes that there have been no submissions suggesting that there have been any relevant developments in the evidence in this area:

> *We note submissions have not raised substantively new material to those considered in the 2013 Guidelines and subsequent regulatory decisions. As*

[175] Independent Panel Report, p. 24.
[176] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 39.
[177] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 275.
[178] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 284.

a result, we continue to note the shortcomings of the Black CAPM identified in the 2013 Guidelines. [179]

The current Explanatory Statement re-states the same list of "shortcomings" that was identified in the 2013 Guideline, as summarised in Table 6 below.

Table 6: Restatement of issues with Black CAPM

2018 Explanatory Statement	2013 Guideline
Not explicitly used in practice, Explanatory Statement, pp. 282-284.	Not explicitly used in practice, Appendices, p. 17.
Difficult to reliably estimate zero-beta premium, Explanatory Statement, pp. 282-284.	Difficult to reliably estimate zero-beta premium, Explanatory Statement, p. 85; Appendices, p. 16.
Based on unrealistic assumption, Explanatory Statement, pp. 282-284.	Based on unrealistic assumption, Explanatory Statement, p. 85; Appendices, p. 17.
Can produce counter-intuitive results, Explanatory Statement, pp. 282-284.	Can produce counter-intuitive results, Appendices, pp. 17, 70.
Does not meet assessment criteria well, Explanatory Statement, pp. 282-284.	Does not meet assessment criteria well, Appendices, p. 16.

Source: AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement; AER, December 2013, Rate of Return Guideline: Explanatory Statement and Appendices.

Table 6 demonstrates that no new "shortcomings" of the Black CAPM have been identified by the AER in the present review. Rather, the same list of shortcomings has been identified as was set out in the 2013 Guideline. In the 2013 Guideline, this list was used as a reason for not using the Black CAPM to explicitly estimate the required return on equity, but rather to have regard to the Black CAPM in a qualitative way by selecting the beta point estimate at the top of the range. That is, the AER recognised that the Black CAPM evidence supported a return on low-beta equity higher than the SL-CAPM estimate, but the AER had concerns about being able to reliably estimate just how much higher the return should be. Consequently, the AER used that evidence in a qualitative way when selecting the equity beta point estimate.

The current Explanatory Statement proposes that the Black CAPM evidence will *not* be used when selecting the equity beta point estimate.

ENA does not understand how, without evidence or explanation of any change in the relevant finance theory or practice, the same list of issues can be used:

[179] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, pp. 281-282.

- To support *using* the Black CAPM evidence to inform the selection of the equity beta point estimate in the 2013 Guideline; and
- To support *not using* the Black CAPM evidence to inform the selection of the equity beta point estimate in the 2018 Guideline.

This would seem to be incompatible with the important principles of regulatory stability, transparency and predictability.

Moreover, a number of the issues that the AER identified in 2013 relate specifically to the empirical implementation of the Black CAPM, provided as support for the AER's approach to using the Black CAPM evidence in a qualitative way. And the other issues are not supported by the evidence, as set out in Table 7 below.

Table 7: Response to the shortcomings of the Black CAPM identified by the AER

Issue raised	Response
Not explicitly used in practice.	The key implication of the Black CAPM is that an intercept should be above the prevailing risk-free rate. Market practitioners, independent expert valuation reports, survey respondents, and other regulators all use higher intercepts. They also do not estimate the parameters of the Black CAPM, but the use of a higher intercept is qualitatively consistent with the Black CAPM evidence.[180]
Difficult to reliably estimate zero-beta premium.	This is irrelevant if the Black CAPM evidence is being used in a qualitative way. Every estimate of the zero-beta premium is positive, the only question is about the size of the positive premium.
Based on unrealistic assumptions.	The assumptions underpinning the SL-CAPM are more unrealistic than those underpinning the Black CAPM. In any event, the proper test of an economic model is its ability to explain the data. The Black CAPM is clearly superior on this criterion – it was developed in response to evidence that the SL-CAPM does *not* explain the data well. Subsequent equilibrium models that are based on even more realistic assumptions also produce expectations that are consistent with the observed low-beta bias.[181]
Can produce counter-intuitive results.	Some empirical estimates suggest a very large zero-beta premium. But this is irrelevant if the Black CAPM evidence is being used in a qualitative way. In the 2013 Guideline the AER's use of the Black CAPM evidence did *not* produce counter-intuitive results.

[180] See, for example, AER, July 2018, Draft Rate of Return Guideline, Explanatory Statement, Figure 18, p. 207. The same point is made in the KPMG 2017 Valuation Practice survey, which reports that 82% of respondents 'always' or 'often' apply an intercept above the prevailing risk-free rate.
[181] For example the AER cites the Hong and Sraer model in this regard: AER, December 2013, Rate of Return Guideline, Explanatory Statement, pp. 286-287.

Does not meet assessment criteria well.	The assessment criteria in question are the ability to reliably estimate the model parameters (which is irrelevant if the evidence is being used only in a qualitative manner) and the use of the evidence in practice (which is addressed above).

Source: AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement; AER, December 2013, Rate of Return Guideline: Explanatory Statement and Appendices.

8.6 Low-beta bias

Approach to low-beta bias in the 2013 Guideline

As noted above, there are two aspects to this body of evidence. The Black CAPM is the theoretical aspect of the evidence; it was developed in response to the empirical evidence of low-beta bias – the relationship between beta and observed returns has a higher intercept and a flatter slope than the SL-CAPM suggests.

In its 2013 Guideline materials, the AER stated that its approach to equity beta was informed by the empirical as well as the theoretical evidence:

> *Theoretical and empirical evidence, however, supports using the Black CAPM, to some extent, in the process for estimating the return on equity. As such, we will use the Black CAPM to inform the selection of the equity beta.*[182]

The 2013 Guideline materials also stated that the AER's approach to setting the equity beta would go some way towards mitigating the empirical evidence of low-beta bias:

> *We consider that our implementation of the Sharpe–Lintner CAPM recognises the empirical criticisms of the model. For example, using the Black CAPM theory to inform our equity beta estimate may mitigate possible low beta bias.*[183]

ENA considers that the same empirical criticisms of the SL-CAPM apply today and submits that the Black CAPM, used in the same way as in the 2013 Guideline, would continue to mitigate against low-beta bias.

Recognition of low-beta bias

There is broad recognition of the empirical evidence that the relationship between beta and observed returns has a higher intercept and a flatter slope than the SL-CAPM suggests.

ENA's May 2018 submission summarises some of the evidence of low-beta bias, noting that it is so well accepted that it appears in standard textbooks.[184]

Most concurrent session experts agreed with the proposition that:

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[182] AER, December 2013, Rate of Return Guideline, Explanatory Statement, p. 58.
[183] AER, December 2013, Rate of Return Guideline, Explanatory Statement, Appendices, p. 12.
[184] ENA, May 2018, Response to discussion papers and concurrent expert evidence sessions, Section 7.3.5.

> *There is sound evidence that low-beta stocks have exhibited higher returns than the S-L CAPM predicts.*[185]

The Explanatory Statement also accepts the empirical evidence:

> *We acknowledge that ex-post return data can indicate that actual returns exceed expected returns for low beta stocks.* [186]

Thus, there is broad acceptance and general recognition of the empirical evidence.

The Explanatory Statement then provides four reasons to support the approach of giving no weight to the empirical evidence of low-beta bias, each of which is considered below.

Issues with the statistical and empirical analysis

The Explanatory Statement refers to limitations of some of the empirical tests that indicate low-beta bias.[187] As ENA's May 2018 submission notes, this explanation seems highly unlikely given the quality of the researchers involved (Black, Jensen, Scholes, Fama, MacBeth, etc.), the fact that the evidence has been documented in papers spanning several decades and markets, and the fact that the result is so well-accepted that it appears in standard textbooks.

The suggestion that there is doubt about these results[188] raises real questions about the consistent application of the standard of evidence that the AER requires. ENA considers that it is impossible for any stakeholder to present any evidence that is more compelling than the evidence of low-beta bias. The contributors to this literature include two Nobel Prize winners and the studies documenting low-beta bias in many countries have been published in the very top finance journals and the empirical evidence of low-beta bias appears in the standard finance textbooks.[189]

ENA considers that there is no serious dispute about the evidence that the observed returns on low-beta stocks are higher than the SL-CAPM suggests. The suggestion that this evidence is not settled indicates that the evidence has not been assessed in the Draft Guideline in a sound or objective manner and that the AER is considering making decisions in direct variance to one of the most well-established empirical results in the field of financial economics.

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[185] Joint Experts' Report, Proposition 5.21, p. 52. No experts disputed the existence of the empirical evidence, but instead stated that the size of the bias is difficult to reliably quantify.
[186] AER, July 2018, Draft Rate of Return Guideline, Explanatory Statement, p. 277.
[187] AER, July 2018, Draft Rate of Return Guideline, Explanatory Statement, p. 277.
[188] AER, July 2018, Draft Rate of Return Guideline, Explanatory Statement, p. 277.
[189] Black, F., M.C. Jensen, and M. Scholes, 1972, "The Capital Asset Pricing Model: Some empirical tests," in *Studies in the Theory of Capital Markets,* Michael C. Jensen, ed., New York: Praeger, 79–121. Friend, I., and M. Blume, 1970, "Measurement of portfolio performance under uncertainty," *American Economic Review*, 60, 561–75. Fama, E.F., and J.D. MacBeth, 1973, "Risk, return, and equilibrium: Empirical tests," *Journal of Political Economy*, 81, 607–636. Fama, E.F., and K. French, 2004, "The Capital Asset Pricing Model: Theory and evidence," *Journal of Economic Perspectives*, 18, 25–46. Berk, J. and P. DeMarzo, 2014, *Corporate Finance,* 3rd global ed., Pearson. Brealey, R.A., S.C. Myers, and F. Allen, 2011, *Principles of Corporate Finance,* 10th ed., McGraw-Hill Irwin.

Use in practice

The Explanatory Statement states that the AER's analysis of broker reports and expert valuation reports indicates that few reports adjust the rate of return for low beta bias.[190]

However, it is very common (indeed more common than not) for these expert reports to make adjustments to their implementation of the SL-CAPM that are entirely consistent with the empirical evidence of low-beta bias and the theoretical evidence of the Black CAPM. As noted above, this evidence suggests that the SL-CAPM should be modified by increasing the intercept term. It is very common for expert reports to do exactly that – either by using a risk-free rate above the prevailing government bond yield, or by adding an additional intercept term. That is, it is very common for experts to modify the SL-CAPM to reflect the expert's belief that the SL-CAPM provides an inadequate estimate of the return that investors would actually require in the market. This adjustment is consistent with the low-beta bias and Black CAPM evidence.

Moreover, this raises a number of questions about whether evidence is being assessed in a balanced and consistent manner:

- If evidence of the practice adopted in expert reports is relevant when considering low-beta bias, should it not also be relevant when considering other aspects of the Guideline? For example, it is rare for an expert report to implement the CAPM in the way the AER implements it (i.e., using the prevailing government bond yield, the historical average MRP, and no additional uplift). And expert reports do not make any adjustment in relation to gamma. It is not clear why expert practice would not also be relevant in these other areas.
- If the reports routinely make an adjustment that is entirely consistent with low-beta bias, but they do not specifically mention the low-beta bias evidence, what inference should be drawn? One possible conclusion is that it is the actual practice of using a higher intercept that is most important. By contrast, one conclusion that would not seem to be reasonable is that the expert reports support the AER's approach to implementing the SL-CAPM – because it is rare for an expert report to adopt the AER's approach to determining the required return on equity.

The 'economic conditions / beta estimates are not biased' proposition

The Explanatory Statement cites a point made by Partington and Satchell which proposes that the empirical evidence does not result from a bias in the estimates of beta.[191] This point is set out in the following paragraph from the relevant Partington and Satchell report:

> *There is considerable evidence that, historically, low beta assets outperform; that is if we fit a time-series regression to a portfolio of such*

[190] AER, July 2018, Draft Rate of Return Guideline, Explanatory Statement, p. 277.
[191] AER, July 2018, Draft Rate of Return Guideline, Explanatory Statement, p. 277.

assets, we find evidence of a positive intercept (alpha). This has a number of explanations and one among many interpretations is that the betas of the assets are biased downwards. However, there are numerous other explanations that do not imply a bias in beta. In a study using US data, Muijsson, Fishwick, and Satchell (2014), beta is estimated in a number of different ways, for both low and high beta portfolios, conditioning on various information such as interest rate and market movements. What Muijsson et. al. find is that, whilst alpha moves a great deal from information set to information set, beta for a given portfolio remains remarkably constant. Whilst this is not conclusive and might not apply to the Australian context, it does suggest that it may not be bias in beta that explains non-zero alphas, but that it has more to do with economic conditions.[192]

The point here is that there are two potential explanations for the empirical evidence that low-beta stocks systematically generate higher returns than the SL-CAPM would suggest:

- **Explanation 1: The problem lies in the empirical estimation of beta**

  One possible explanation is that the betas are under-estimated. That is, the true beta is above the empirical estimate. In this case, if the return is consistent with the true (higher) beta, there will appear to be out-performance relative to the (lower) empirical estimate of beta.

- **Explanation 2: The problem lies in the SL-CAPM being inconsistent with real-world required returns**

  The alternative explanation is that the SL-CAPM (which is a very simple theoretical economic model) may not fully capture the returns that investors require. Thus, even if betas can be estimated perfectly, the model (that converts beta into expected returns) may be inadequate.

When NSPs have raised the issue of low-beta bias and the Black CAPM it has been in the context of the second explanation – the SL-CAPM produces downwardly biased estimates of the required return on low-beta stocks. Consequently, during the 2013 Guideline process, NSPs submitted that the Black CAPM was a relevant financial model that should be estimated. While the AER agreed that the Black CAPM was a relevant financial model, it decided it would be used to inform the selection of a beta point estimate.

Partington and Satchell raise the possibility that the observed evidence may not be due to problems in estimating beta – which is a point that relates to the first explanation. But the first explanation above was never the rationale anyway. The rationale was that the SL-CAPM is imperfect. This is obvious from the fact that in 2013 the AER had regard to the theory of the Black CAPM – an alternative theoretical model that posits a different relationship between beta and expected returns.

In summary, Explanation 1 is irrelevant, because it has not been relied upon in giving weight to the empirical evidence of low-beta bias and the theoretical evidence of the

[192] Partington, G. and S. Satchell, May 2015, Report to the AER: Return of equity and comment on submission in relation to JGN, p. 17.

Black CAPM. Partington and Satchell simply raise the prospect that Explanation 1 might not hold, but that is not (and never has been) the basis for giving weight to the evidence of low-beta bias and the Black CAPM.

Moreover, the Muijisson, Fishwick and Satchell (2014) paper that is cited above documents that low beta bias is more pronounced during periods of low interest rates:

> *We observe that low beta portfolios outperform high beta portfolios at times of low interest rates.*[193]

Thus, to the extent that 'economic conditions' are relevant, the current economic conditions (of record low interest rates) would suggest that low-beta bias might be even more pronounced.

Observed returns may not reflect investor expectations

The Explanatory Statement draws a distinction between the (ex ante) returns that investors expect/require and the (ex post) returns that actually occur in the market.[194] The Explanatory Statement notes that the CCP raised this point:

> *The CCP16 noted the low beta bias is based on ex-post empirical assessment of actual outturns which is not an unbiased estimate of ex-ante expectations.*[195]

This point can be explained via a simple example. Suppose investors expect a particular asset to produce a payoff of $110 one year from now, and they consider that a 10% return would be appropriate. In this case, investors would price that asset at $100, expecting to receive their (ex ante) required return of 10%. Suppose that at the end of the year the actual payoff from the investment is $105. In this case, the (ex post) observed return is 5%. Thus, there is a difference between the ex post observed return and the ex ante required return.

Over time, investors will continue to price assets on the basis of their required return. In some cases, the actual return will turn out to be higher than they expected/required and in some cases it will be lower – for a host of different reasons. But over a period of time, the average observed return will reflect the expected/required return that investors used when pricing the asset. That is, if investors price assets to generate an expected return of 10%, we would expect to observe a realised return of 10% on average over time. Thus, the average observed return over a period of time reflects the return that investors expect/require. Indeed, this is the whole basis for using observed market data for *any* parameter estimation purpose.

In relation to low-beta bias, there are two potential interpretations:

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[193] Muijsson, C., E. Fishwick and S. Satchell, 2014, Taking the art out of smart beta, University of Sydney Working Paper, p. 2.
[194] AER, July 2018, Draft Rate of Return Guideline, Explanatory Statement, p. 277.
[195] AER, July 2018, Draft Rate of Return Guideline, Explanatory Statement, p. 277.

- Low-beta stocks earn higher average returns than the SL-CAPM suggests because investors price them to earn a higher average return. That is, on average, the observed returns embody information about the returns that market investors require; or
- Investors determine their expected/required return in accordance with the SL-CAPM, and the observed returns on low-beta stocks across multiple markets and time periods have been higher due to chance.

The fact that the empirical evidence of low-beta bias has been documented for decades and is discussed in standard textbooks is strong evidence in favour of the former explanation.

There is also an issue in relation to the balanced and consistent evaluation of evidence. For example, there appears to be little to support the proposition that observed (ex post) stock returns provide relevant information about the (ex ante) returns that market investors actually require – for all purposes other than the assessment of low-beta bias. For example, observed returns are used in historical excess returns estimates of MRP and in regression estimates of beta because they are considered by the AER to embody information about the returns that market investors require. It is inconsistent to suggest that the same (ex post) returns are then unreliable indicators of the required return only when considering low-beta bias.

Moreover, the attached Frontier Economics report (Attachment 2) considers the approaches that have been taken to estimate ex ante expected returns directly. Evidence from the United States indicates that the same relationship that is observed in realised returns (a higher intercept than the SL-CAPM suggests) is also observed in expected returns derived from analyst forecasts. The Frontier Economics report also establishes that the US result also holds in the Australian data. Thus, there is evidence available in relation to expected returns and that evidence is consistent with the low-beta bias that is observed in realised returns.

8.7 Response to consumer submissions

The CRG submission

The CRG submission of May 2018[196] proposed that the equity beta should be set:

> *...to approximately 0.2-0.5 with the point estimate being in the lower end of the range*[197]

with a proposed point estimate of 0.3.[198]

The CRG submits that the AER's empirical estimates of beta should be adjusted down for the following reasons:

[196] Consumer Reference Group, May 2018, Submission to the Australian Energy Regulator Rate of Return Guideline Review.
[197] CRG Submission, p. 48.
[198] CRG Submission, p. 48.

- The set of comparator firms that the AER considers is "biased"[199] and those comparator firms are exposed to "risks that the networks are not exposed to";[200] and
- There is an upward bias in equity beta estimates "from the imposition of volatility on defensive stocks from share market actions by share traders."[201]

The CRG Submission does not explain the process by which the proposed downward adjustment is made, how the downward adjustment is quantified, or how it results in an equity beta point estimate of 0.3. Thus the 0.3 figure appears to have no basis and is not the outcome of any estimation process. It also falls outside of the AER's wide beta estimation range. Consequently, it should receive no weight in the AER's considerations.

The CCP submission

The Explanatory Statement follows the CCP submission in relation to beta, adopting the 0.6 beta proposed by the CCP for the reasons suggested by the CCP. Consequently, the CCP has been addressed in responding to the Explanatory Statement above.

8.8 ENA submission in relation to equity beta

ENA considers that a balanced review of the evidence does not support any reduction to the equity beta estimate. Rather, if the AER is minded to change this parameter, the evidence would support an increase.

ENA considers that an estimate that has proper regard to the *prevailing conditions in the market* should have regard to the strong and consistent evidence that beta estimates have increased since the 2013 Guideline.

ENA considers that an estimate that is *based on market evidence* should have regard to the compelling market evidence of low-beta bias and the strong international evidence that supports a higher beta.

ENA considers that the *best possible estimate* of beta is one that has incorporated properly all of the relevant evidence. In relation to beta, there is strong evidence of an increase in estimates since 2013, strong international evidence of betas materially above 0.6, and compelling evidence of low-beta bias.

In summary, the proposed 0.6 figure relies disproportionately on outdated data from firms that are no longer listed and are therefore incapable of contributing any new market evidence on the prevailing beta. The 0.6 figure cannot be supported if any real weight is applied to:

- the international evidence;
- the theoretical Black CAPM evidence;

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[199] CRG Submission, p. 48.
[200] CRG Submission, p. 48.
[201] CRG Submission, p. 48.

- the empirical evidence of low-beta bias;
- the evidence that beta estimates have uniformly increased since 2013.

An estimate that gives no weight to any of this evidence cannot be considered to be the best possible estimate of beta which has regard to prevailing market conditions, and consequently would not contribute to the NEO and NGO to the greatest degree.

9 Market risk premium

Key messages

- The Explanatory Statement states that the arithmetic mean of historical excess returns supports a range of 6.0% to 6.5%.[202]
- Some regard is then given to geometric mean returns in adopting a point estimate of 6.0% from the historical excess returns data.[203]
- No other evidence is considered to be sufficient to warrant moving from the preliminary point estimate of 6.0%.
- All of the estimates that the AER considers have increased since the 2013 Guideline.
- The reduction in the allowed MRP (from 6.5% to 6.0%) is in the opposite direction to the movement in the empirical evidence. It results from a change to the AER's approach to determining the allowed MRP, not from an update of the relevant evidence.
- In relation to the historical excess returns evidence:
  - ENA considers that no reasonable, objective assessment of the evidence that is discussed in the Explanatory Statement could result in material weight being applied to geometric means. Certainly, there is no basis for materially *increasing* the weight applied to geometric means since the 2013 Guideline. This is not a matter of opinion, but is the subject of a mathematical proof provided by one of the AER's own experts.
  - ENA submits that the historical excess returns evidence supports a range of 6.0% to 6.5% with a mid-point of 6.25%. This is the AER's range for arithmetic mean estimates.
- In relation to the DGM evidence, ENA notes that:
  - All of the AER's DGM estimates have increased materially since the 2013 Guideline;
  - The Draft Guideline proposes that the DGM will no longer have any effect on the MRP allowance;
  - The key reason that is cited for the change in the AER's approach is the divergence of estimates from specifications of the DGM that adopt a different long-term growth rate. This appears to be a reference to the 'variable growth rate' approach, which the AER's own experts caution against as the results it produces are implausible. But for that approach, there is no divergence of estimates – the range of the AER's DGM estimates is tighter than in 2013;

[202] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, Table 25, p. 215.
[203] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 209.

- The Explanatory Statement sets out three points of concern about the DGM that the AER has considered many times before, most recently in November 2107. The AER has consistently concluded (after considering those concerns) that the DGM evidence warranted an increase of 0.5% to the historical estimate. There is no basis for using those same considerations to now reject any use of DGM evidence entirely;
- The Explanatory Statement sets out three new concerns with the DGM evidence. However, ENA considers that, when properly considered, there is no merit in any of these reasons:
  - The Explanatory Statement notes that long-run growth rate is sensitive to the estimate of long-run inflation. However, there is no suggestion that any figure other than 2.5% would ever be used for that purpose;
  - The Explanatory Statement suggests that forecasted dividends should be reduced in relation to dividend reinvestment schemes. However, that proposal implicitly assumes that all reinvested funds simply evaporate; and
  - The Explanatory Statement expresses a concern about the relative stability of the DGM estimates of the required return on equity because that is inconsistent with the AER's view that the required return on equity varies directly with changes in the risk-free rate. But the AER's view should be tested against the evidence; evidence should not be discarded simply because it fails to conform to a pre-determined view of the operation of the relevant markets.
- The DGM evidence has the great benefit of providing an estimate of the MRP that is commensurate with the prevailing conditions in the market.

- ENA considers that there is no valid reason for effectively eliminating the role of the DGM evidence.
- ENA considers that the only reasonable interpretation of the survey evidence is that the MRP in the prevailing market conditions is materially above 6.0%.
- ENA considers that any reasonable objective review of the evidence from other regulators would conclude that this evidence strongly supports an MRP above 6.0% in the prevailing market conditions.
- ENA considers that an objective and balanced assessment of the relevant evidence supports a market risk premium of a least 6.5% in the prevailing market conditions.
- The AER's estimate of 6.0% is not the best estimate, does not have proper regard to all the relevant evidence or to prevailing conditions in the market for equity funds and does not contribute to the NEO/NGO to the greatest degree.

9.1 ENA's understanding of the Draft Guideline

ENA understands that the proposed MRP of 6.0% has been arrived at in the following manner:

- **Historical excess returns support a range of 5.0% to 6.5% with a point estimate of 6.0%.**[204]

  The Explanatory Statement states that:

  > *Consistent with the approach used in the 2013 Guidelines and updated evidence, we have set a range of 5.0 – 6.5 per cent from the historical excess returns data, with a point estimate of 6.0 per cent.* [205]

- **Arithmetic means support a range of 6.0% to 6.5%.**[206]

  The Explanatory Statement considers arithmetic means over five historical periods, all of which range between 6.0% and 6.5%.

- **The lower bound estimate of 5.0% is the geometric mean estimate for the period starting in 1883.**[207]

  The Explanatory Statement states that:

  > *Currently we base our estimate primarily on arithmetic returns, and have regard to the highest value from our set of geometric averages when forming a 'floor' of a potential point estimate. We acknowledge the potential downward bias of the geometric returns in this method, but also take into account the extra information the geometric average returns when determining an estimate for the MRP.*[208]

- **The point estimate of 6.0% gives some weight to arithmetic means and some weight to geometric means.**[209]

  The Explanatory Statement states that:

  > *In deriving our observed estimate of historical excess returns, we consider both arithmetic and geometric averages over multiple time periods.*[210]

  Material weight has been applied to the geometric means in order to reduce the point estimate from 6.25% (the mid-point of the range from arithmetic means) to 6.0%.

- **The DGM evidence is not considered to warrant a change to the preliminary point estimate.**[211]

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[204] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 209.
[205] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 209.
[206] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, Table 25, p. 215.
[207] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 212.
[208] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 212.
[209] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 209.
[210] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 209.
[211] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 216.

The Explanatory Statement reports estimates of the AER's preferred construction of the DGM that are materially higher than 6.0%, but considers that evidence does not warrant any change to the 6.0% preliminary point estimate.[212]

- **The survey evidence is not considered to warrant a change to the preliminary point estimate.**[213]

  The Explanatory Statement reports that the most recent survey evidence reports MRPs that are materially higher than 6.0%, but considers that evidence does not warrant any change to the 6.0% preliminary point estimate.[214]

- **The conditioning variable evidence is not considered to warrant a change to the preliminary point estimate.**[215]

  The Explanatory Statement reports a range of conditioning variable evidence and concludes that it provides no clear directional signal.[216]

- **The evidence from other regulators is not considered to warrant a change to the preliminary point estimate.**[217]

  The Explanatory Statement reports that other recent regulatory estimates of MRP are generally above (and, on average, materially above) 6.0%, but considers that evidence does not warrant any change to the 6.0% preliminary point estimate.[218]

- **The Wright approach to estimating the MRP is given no weight.**[219]

  The Explanatory Statement reports that the Wright approach is used as a return on equity cross check (see Section 2 above) and will not be used to inform the estimate of MRP.[220]

9.2 The AER's MRP estimates have increased since the 2013 Guideline

ENA's submission of May 2018 summarises the change in the relevant MRP evidence since 2013. Table 6 (p. 65) of that submission demonstrates that the updated data supports higher MRP estimates for all methods. The Explanatory Statement also demonstrates that all methods now support a MRP estimate that is the same or higher than at the time of the 2013 Guideline, as set out in Figure 16 below, which contains historical excess returns, DGM, survey and other regulatory estimates of the MRP.

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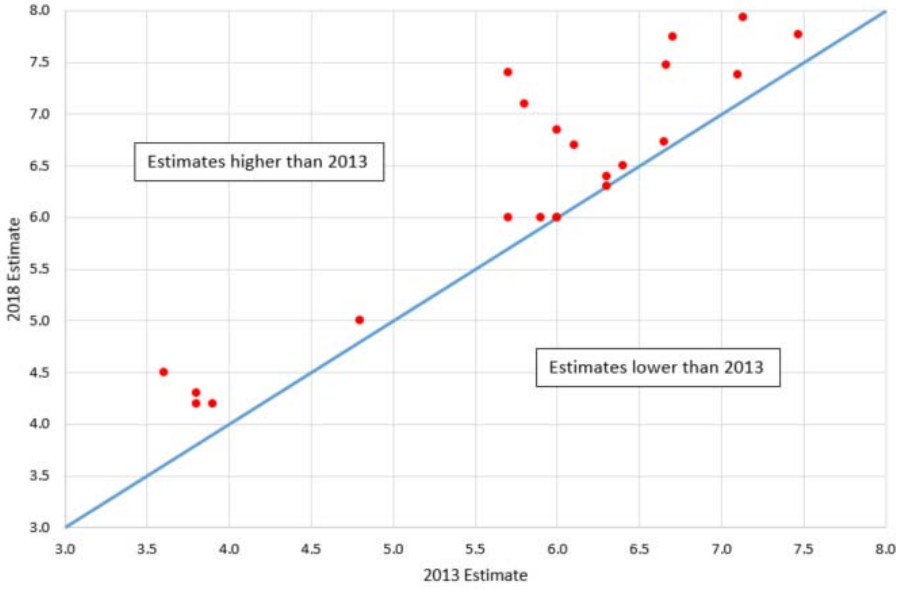
[212] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, Section 7.3.3.
[213] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 223.
[214] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, Section 7.3.4.
[215] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 223.
[216] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, Section 7.3.4.
[217] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 232.
[218] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, Section 7.3.6.
[219] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 234.
[220] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, Section 7.3.7.

Figure 16: Comparison of AER 2013 and 2018 estimates of MRP



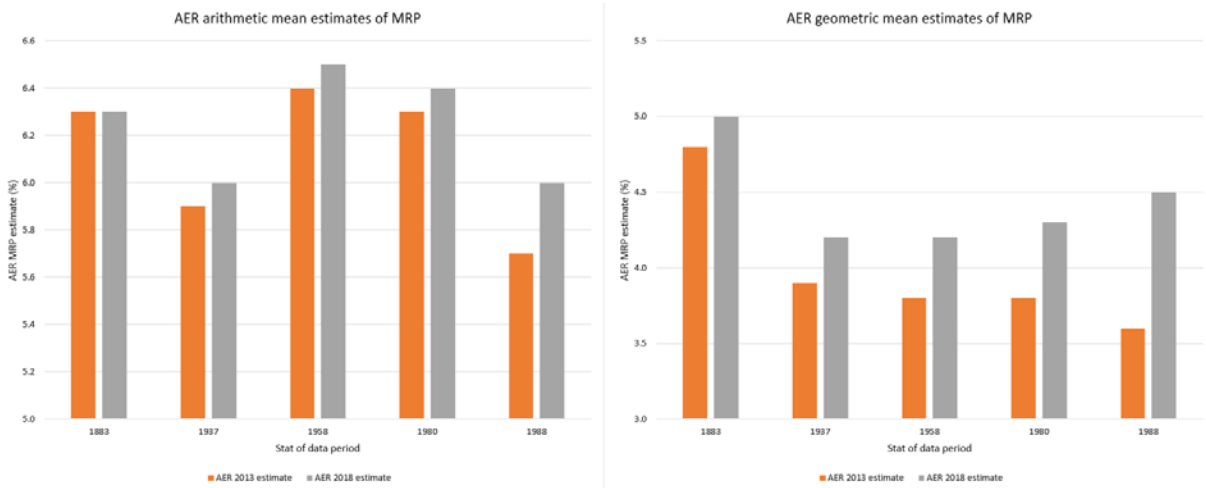
Source: AER, 2013, Rate of Return Guideline, Explanatory Statement, Appendices; AER, 2018, Draft Rate of Return Guideline, Explanatory Statement.

9.3 Historical excess returns

Increase in estimates since 2013

The Explanatory Statement documents the increase in the historical excess returns estimates of the MRP that have occurred since 2013, as shown in Figure 17 below. Every estimate has increased since 2013.

Figure 17: Comparison of AER 2013 and 2018 historical excess returns estimates of MRP

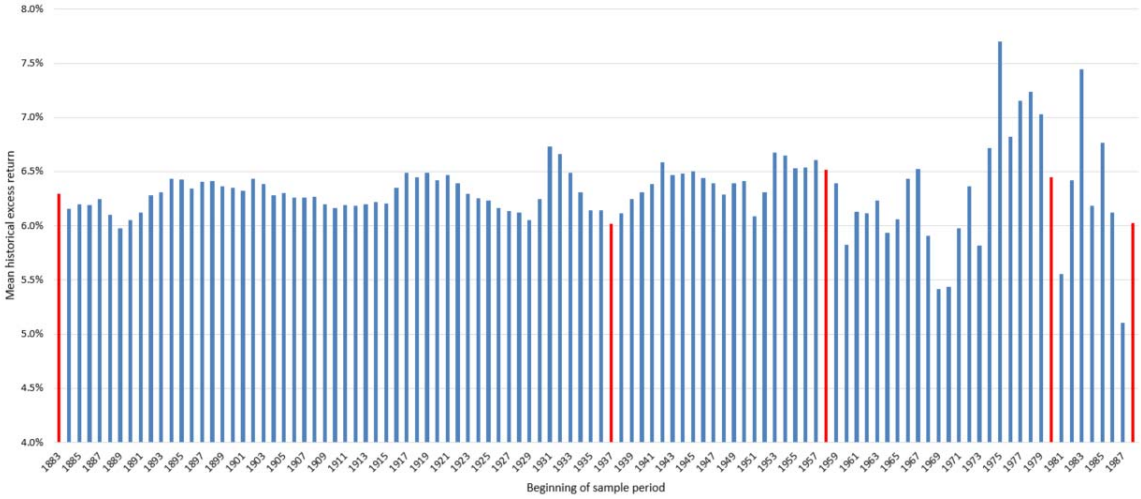


Source: 2018, Draft Rate of Return Guideline, Explanatory Statement, Table 2, p. 45.

The estimates of the arithmetic mean set out in the Explanatory Statement range between 6.0% and 6.5%. The AER considers five sample periods, starting at different points in time, but all ending in 2017. Figure 18 below shows the estimates for every possible start date between 1883 (the earliest considered by the AER) and 1988 (the latest considered by the AER). Two features are particularly relevant:

- Almost all of the estimates (91%) are above 6.0%; and
- The estimates become much more volatile as the sample period becomes shorter (at the right hand end of the graph). For example, the 1981 estimate is a full percentage point lower than the estimates form 1980 and 1982. Consequently, more caution should be exercised when considering the estimates that are based on shorter sample periods.

Figure 18: Mean historical excess return by start of sample period



Source: Frontier Economics calculations using AER data available at https://www.aer.gov.au/system/files/Historical%20excess%20returns%20and%20Wright%20approach%20data.XLSX.

It might be suggested that more weight should be applied to the 1988 estimate of 6.0% as it provides the most recent sample period and is therefore more likely to reflect the prevailing conditions in the market. However, there are at least three problems with that conclusion:

- As illustrated above, estimates based on short periods are volatile and vary materially from year to year.
- More than 90% of the sample periods set out above produce an estimate above 6.0%.
- The 1988 historical excess returns estimate is not commensurate with the prevailing conditions in the market. It reflects the average market conditions over a 30-year period. The primary reason for having regard to the DGM is that it uses prevailing market data, so better reflects the prevailing market conditions.

The NERA correction to historical excess returns estimates

In a submission to the AER in June 2013, NERA (2013)[221] identified and corrected a number of inaccuracies in the adjustments that were made in the Brailsford et al (2008, 2012)[222] calculations of historical excess returns. In particular, the data for part of the period examined by Brailsford et al were sourced from Lamberton (1961).[223] The Lamberton data reported the mean dividend yield where the mean was taken only

[221] NERA, 2013, *The market, size and value premiums*, June.
[222] Brailsford, T., J. Handley and K. Maheswaran, 2008, Re-examination of the historical equity risk premium in Australia, *Accounting and Finance* 48, 73-97; Brailsford, T., J. Handley and K. Maheswaran, 2012, The historical equity risk premium in Australia: Post-GFC and 128 years of data, *Accounting and Finance*, 237-247.
[223] Lamberton, D., 1961, "Ordinary share yields: A new statistical series," *Sydney Stock Exchange Official Gazette*, 14 July.

over those companies that paid dividends. Consequently, it overstated the dividend yield in that it excluded from the calculation those companies that did not pay any dividends at all.[224] This led Brailsford et al to adjust all of the Lamberton data points using an adjustment based on the proportion of firms that paid no dividends in 1966.

Whereas Brailsford et al extrapolate the 1966 proportion of non-dividend paying stocks back to every year prior, NERA compute the proportion every 10 years and interpolate between. For example, NERA calculates the proportion in 1910 and 1920 and interpolates for each year in between. By contrast, Brailsford et al apply the 1966 proportion to all of those years. It seems entirely more reasonable to estimate the 1911 proportion using data from 1910 than using data from 1966.

The Joint Expert Report documents that no expert disagreed with the proposition that:

> *The HER [historical excess returns] data should use the "NERA" adjustments that Dimson, Marsh and Staunton employ in recent Credit Suisse Global Investment Returns Yearbooks.*[225]

The reason for agreement with that proposition is said to be:

> *There were careful adjustments in the early years of the series that are considered to be the most accurate.*[226]

The Explanatory Statement concludes that this point was, in fact, not agreed by all experts even though the Joint Expert Report documents no disagreement at all on this point. The basis for the AER's conclusion is that one of two experts may have expressed a dissenting view if the AER had allowed more time in its process.[227]

ENA submits that the record clearly reflects zero disagreement with Proposition 6.04, in which case that should be taken to represent the relevant view of the experts.[228]

The Explanatory Statement goes on to reject applying any weight to the NERA correction. One reason for rejecting the NERA correction is that Brailsford et al considered their (1966 extrapolation) adjustment to be reasonable at the time they made it. Logically, of course, this does not imply that the uncorrected data provides a better estimate. It certainly does not imply that the uncorrected estimate should receive 100% weight.

Another reason that is cited is that Handley has questioned whether the NERA approach of calculating the proportions every 10 years will provide accurate estimates. Of course it will provide much more accurate estimates than extrapolating back from 1966.

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[224] This is not a criticism of Lamberton (1961), who was simply reporting the average yield for dividend-paying companies. The point here is that some adjustment to his data is required (for non-dividend-paying companies) if it is to be used for the purposes of estimating the historical MRP.
[225] Joint Expert Report, April 2018, Proposition 6.04, p. 59.
[226] Joint Expert Report, April 2018, Proposition 6.04, p. 59.
[227] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, Footnote 723, p. 210.
[228] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 211.

A third reason is that NERA did not establish that the Brailsford et al estimates were biased. But the NERA estimates *do* establish precisely that – the 1966 extrapolation produces lower excess return estimates than the NERA process of interpolating within 10-year periods.

ENA considers that the evidence strongly supports the use of the NERA correction – no reasonable objective assessment of the evidence could conclude that the NERA correction should receive zero weight.

The role of geometric means in the Draft Guideline

The Explanatory Statement concludes that:

> *We acknowledge the potential downward bias of the geometric returns in this method, but also take into account the extra information the geometric average returns when determining an estimate for the MRP.*[229]

Increased weight applied to geometric means

As noted above, it is apparent that material weight has been applied to the geometric means in order to reduce the point estimate from 6.25% (the mid-point of the range from arithmetic means) to 6.0%.

Indeed, despite the recognition of a downward bias in the geometric mean estimate, the weight applied to geometric means appears to have *increased* in two respects:

- The 2013 Guideline set the lower bound of the historical excess returns range to 20 basis points above the maximum geometric mean estimate, whereas the current Explanatory Statement makes no such addition;[230] and
- The 2013 Guideline adopted an arithmetic range of 5.7% to 6.4%, with a mid-point of 6.05%.[231] The final point estimate from historical excess returns was then set to 6.0% after consideration of the geometric mean evidence. Thus, the geometric mean evidence was given very little weight in the 2013 Guideline. By contrast, the geometric mean evidence now results in the arithmetic mean mid-point of 6.25% being reduced to 6.0%, being a five-fold increase in the effect of the geometric mean evidence.

Expert views

In the second concurrent evidence session, a number of experts explained that the AER uses the historical excess returns data to estimate the expected MRP in a setting where no compounding of returns occurs, and that this mathematically requires the arithmetic mean. The experts explained that this is not a matter of opinion, but is the subject of a mathematical proof.

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[229] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 212.
[230] AER, December 2013, Rate of Return Guideline: Explanatory Statement, p. 93.
[231] AER, December 2013, Rate of Return Guideline: Explanatory Statement, p. 93.

The AER's own expert, Dr Lally, has also advised the AER that the arithmetic mean must be used, also providing a mathematical proof as the basis for that advice. In his 2012 report for the AER,[232] Dr Lally states that:

> *The AER's belief that geometric averages are useful apparently arises from a belief that there is a compounding effect in their regulatory process (AER, 2012, Appendix A.2.1), and therefore the analysis of Blume (1974) and Jacquier et al (2003) applies. However, I do not think that there is any such compounding effect in regulatory situations and the absence of a compounding effect leads to a preference for the arithmetic mean over the geometric mean.*[233]

Dr Lally then presents a mathematical derivation to demonstrate that the historical arithmetic mean satisfies the NPV=0 criterion and the historical geometric mean does not. Dr Lally sets out the NPV=0 test and concludes that:

> *The geometric mean fails this test whilst the arithmetic mean will satisfy it if annual returns are independent and drawn from the same distribution. So, if historical average returns are used, they should be arithmetic rather than geometric.*[234]

Subsequent to the Concurrent Evidence Sessions, the AER commissioned a report from Partington and Satchell to opine on matters including the use of geometric means.[235] Their response on this point, in full, is as follows:

> *The estimation of the market risk premium is for the purpose of determining investors' required rate of return. This return is equal to their expected rate of return if prices are in equilibrium. Investors compound returns and whether or not the AER compounds returns is not relevant to the return that investors require/expect. It is well established that the arithmetic average of annual returns will overestimate expected returns if the holding period is more than one year. The holding period of investors is likely to be more than one year. For example, in the expert evidence session it was suggested that some investors in the regulated businesses had investment horizons of 20 years. Given investor holding periods of more than one year it is appropriate for the AER to have regard to the geometric average for returns. It is also appropriate for the AER to consider return periods of more than one year.*[236]

Partington and Satchell present no mathematical proof and do not consider the mathematical proof presented by Lally or any of the other mathematical proofs of why the arithmetic mean must be used to estimate expected returns. Rather, Partington and Satchell simply assert that investors may consider compound returns if

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[232] Lally, M., July 2012, The cost of equity and the market risk premium.
[233] Lally, 2012, p. 31.
[234] Lally, 2012, p. 32.
[235] Partington, G. and S. Satchell, May 2018, Report to the AER: Allowed rate of return 2018 Guideline Review.
[236] Partington and Satchell, 2018, p. 34.

they have long investment horizons. But there are two fundamental problems with this view that are apparent from the mathematical proofs that have been presented:

- The mathematical proofs already incorporate arbitrarily long time horizons. For example, the Lally proof is easily generalizable to *N* periods. The idea is to demonstrate that the arithmetic mean must be used to ensure that the present value of the allowed cash flows, over the life of the asset, is equal to the initial RAB.
- When investors consider compound returns or geometric means, it is for a different purpose. It is entirely appropriate for an investor to use the geometric mean as an estimate of the compound annual return that *has been* received over a particular historical period. But it is entirely inappropriate to use it as an estimate of the *expected* return over the forthcoming year. This is demonstrated in the simple example in the box below.

Illustration of arithmetic vs. geometric means

Consider an investor who has held an asset for two years and seeks to use that historical data for two purposes:

- To estimate the compound return that *has been* earned over the *historical* two-year period; and
- To estimate the *expected* return over the *forthcoming* two-year period.

Suppose the observed returns were -2% and 14% in each of the two years, respectively. In this case, the geometric mean is $(0.98 \times 1.14)^{0.5} - 1 = 5.7\%$ and the arithmetic mean is $(-0.02 + 0.14)/2 = 6\%$.

Note that $100 invested at the beginning of the two-year period would have fallen by 2% to $98 at the end of the first year and then risen by 14% to $111.72 at the end of the second year. This is equivalent to an annual compound return of 5.7% $[100(1.057)^2 = 111.72]$. Thus, the geometric mean is the appropriate calculation for the investor to use to compute the compound return that has been earned over the historical two-year period.

Now consider the best estimate of the expected return over the forthcoming two-year period. The two-year history suggests that, each year, there is a 50% chance that the return will be -2% and a 50% chance that the return will be 14%. Thus, over the forthcoming two-year period there are four possible outcomes, as summarised below.

Year 1	Year 2	Probability	Value of investment
-2%	-2%	0.25	96.04
-2%	14%	0.25	111.72
14%	-2%	0.25	111.72
14%	14%	0.25	129.96
Expected value			112.36

In this case, the expected value of the investment at the end of the two forthcoming years is $112.36, which equates to the arithmetic mean: $100(1.06)^2 = 112.36$. Thus, the arithmetic mean is the appropriate calculation when estimating the expected return over a forthcoming period.

The arithmetic mean treats each historical data point as representing one possible outcome that may occur in each year in the future.

Using the geometric mean to estimate the future expected return implies that the series of historical data will be repeated again in sequence in the future.

In summary, the AER has two pieces of evidence to weigh:

- On one hand there is a group of experts, including one of the AER's own experts, providing a mathematical proof that the arithmetic mean must be adopted – because there is no compounding of returns in the AER's process.
- On the other hand, there is an assertion that investors may consider compounded returns for some purpose.

Investors may well consider geometric means when estimating the compound return that *has been* earned over some *historical* period. But, mathematically, the arithmetic mean must be used to estimate the *expected* return over a *forthcoming* period – which is the role that is required in the AER's process.

The Independent Panel notes that the AER has proposed that:

> *where the holding period is more than one year, then the arithmetic mean of one-year returns is an upward biased measure.*[237]

As set out above, the arithmetic mean could only be biased if compounding occurred, and it does not occur in the AER's process or in the PTRM.

Even so, the Independent Panel notes that, even if compounding *does* occur:

> *this upward bias is not material at the 5- and 10-year horizons relevant here…This paper also shows that the downward bias in geometric averages is significant at 5- or 10-year horizons.*[238]

Thus, there would seem to be no remaining basis for any weight being applied to geometric means.

Recommendation

ENA considers that no reasonable objective assessment of the evidence that is discussed in the Explanatory Statement could result in material weight being applied to geometric means. Certainly, there is no basis for materially *increasing* the weight applied to geometric means since the 2013 Guideline. This is not a matter of opinion, but is the subject of a mathematical proof provided by one of the AER's experts.

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[237] Independent Panel Report, September 2018, p. 33.
[238] Independent Panel Report, September 2018, p. 33.

ENA submits that the historical excess returns evidence supports a range of 6.0% to 6.5% with a mid-point of 6.25%, based on the arithmetic mean evidence.

9.4 The Wright estimate of the MRP

ENA's May 2018 Submission notes that the historical excess returns approach and the Wright approach are really extreme opposite ends of the same spectrum, in the following sense:

- It is unlikely that movements in the MRP will always offset perfectly movements in the risk-free rate, as implied by the Wright approach.
- However, it is equally unlikely that the MRP remains fixed, regardless of market conditions. Most of the experts agreed with this view.
- The MRP is very likely to change as market conditions change – as the AER and its advisers have acknowledged in the past. Such movements in the MRP are likely to *partially* offset movements in the risk-free rate.
- The resulting return on equity is likely to be less stable than implied by the Wright approach, but more stable than implied by the AER's approach since 2013.

Partington was the only expert to disagree with the proposition that:

> *Experts believe that neither (a) the MRP is constant through time; nor (b) the mean real return to the market is constant, implying that changes in the risk-free precisely offset changes in the MRP. The truth likely likes somewhere in between.* [239]

ENA's May 2018 Submission also notes that the Wright approach is commonly used by other regulators:

- The Wright approach is used as a method for estimating the MRP by other regulators including the ERA, QCA, many regulators in the UK (including Ofgem) and the New Zealand Commerce Commission. The Wright approach is not a model, it is an approach to estimating the MRP for use in the CAPM. The regulators listed above all use the Wright approach to inform their estimate of the MRP for use in the CAPM formula.
- One of the AER's advisers, Dr Lally, has recommended that the Wright estimate of the MRP should be used to inform the regulatory allowance for MRP.

However, the Explanatory Statement concludes that:

> *We continue to observe results from the Wright model at the overall equity level but consistent with our 2013 Guidelines we will not consider its outcome to estimate the MRP.*[240]

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[239] Joint Experts' Report, Proposition 6.07, p. 61. GP introduces a distinction between "equilibrium return expectations and returns expected." He also disagrees with placing 100% weight on a total market return estimate, but that is consistent with the proposition.
[240] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 235.

So the Wright approach is used as a cross check (as set out in Section 6 above), but it is not used to inform the estimate of the MRP.

The AER's main objection to using the Wright approach is that it implies an inverse relationship between the risk-free rate and the MRP and the AER considers this to be an unrealistic assumption.[241]

Whilst a perfect negative relationship between the risk-free rate and the MRP is unrealistic, it is no more unrealistic than the assumption of a fixed MRP being added to the prevailing risk-free rate such that the estimate of the required return on equity moves perfectly in lock-step with changes in the risk-free rate. The latter approach produced implausible and unreasonably low estimates of the required return on equity during the GFC, when government bond yields fell sharply – a submission by ENA that has not been addressed in the Explanatory Statement.

The Explanatory Statement also documents the AER's view that the Wright approach is not used by market practitioners.[242] There are two problems with this conclusion:

- **It is inconsistent with the evidence.** The Wright approach *is* commonly used by other regulators, as set out above. It is also very common for independent expert valuation reports to adopt a more stable required return on equity by either increasing the MRP, adopting a risk-free above the prevailing government bond yield, or by adding some other uplift. Moreover, the AER has received many submissions documenting the market practice of estimating a more stable required return on equity.[243] The adoption of a relatively stable overall return on equity is more consistent with the Wright approach than the AER's approach of adding a fixed MRP estimate to the prevailing risk-free rate.
- **It is unbalanced because it does not consider the AER's proposed approach.** There is very little evidence indeed of any market practitioners implementing the CAPM in the way the AER does – with a fixed premium added to the prevailing government bond yield and no adjustment. If the practice of market practitioners is relevant, it should be applied symmetrically.

ENA submits that the constant MRP and Wright approaches are both (individually unrealistic) end points of a spectrum and that the truth lies somewhere between. This implies that some weight should be applied to both methods when estimating the MRP, consistent with the approach of other regulators and the recommendation of Dr Lally. The Explanatory Statement proposes that the MRP is to be estimated applying 0% weight to the Wright approach and 100% weight to the fixed estimate from historical excess returns. ENA considers this conclusion to be inconsistent with the conceptual and empirical evidence and with market practice.

It is also inconsistent with sound and transparent regulatory decision-making to place 0% weight on one approach on the basis that it is unrealistic and then place 100% weight on a second approach that is equally unrealistic. Such a 0-100 approach

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[241] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 212.
[242] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 212.
[243] See, for example, Frontier Economics, January 2017, The market risk premium, Section 5: Views from the Market.

would only be appropriate where one approach is implausible and the other is strongly supported by the evidence. However, in the current case, the AER accepts that the MRP changes over time, and therefore accepts that a fixed estimate is *not* supported.[244] Thus, it is recognised that reality does not accord with either of the end point estimates, so this is not a situation in which a 0-100 approach ought to be taken.

9.5 Evidence from the AER's dividend growth model

MRP allowance is independent of the DGM evidence

The Explanatory Statement concludes that:

> *Having reviewed submissions, the expert evidence session and further analysis, our view is to not move the market risk premium estimate based on DGM. We acknowledge that this places less reliance on the DGM than the 2013 Guidelines. This is because since 2013 our concerns about biases of the model and the divergent results from alternative versions of the model have increased.*[245]

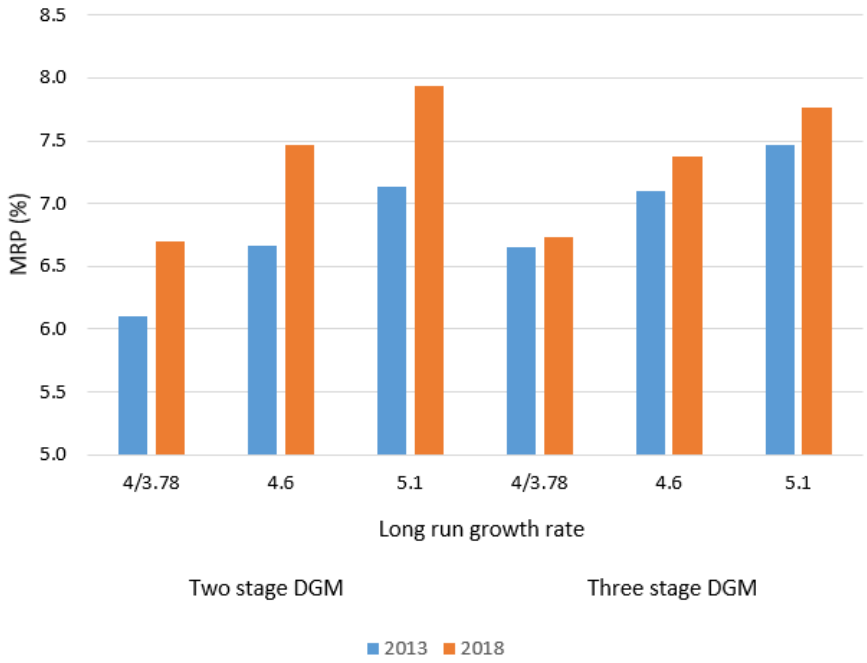
Updated evidence

The AER documented its preferred specification of the DGM in the 2013 Guideline materials. This involved using two-stage and three-stage versions of the model and applying three different reductions to the GDP growth rate. Since 2013, the estimates from all versions of the model have increased, as illustrated in Figure 19 below. The lowest of the current estimates is 6.70%.

ENA also notes that the range of AER DGM estimates has narrowed since 2013. The width of the AER's range was 1.4% in 2013 and has reduced to 1.2% in the current analysis.

[244] The AER notes that "[t]he view that MRP varies over time is generally accepted by all stakeholders." AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 204.
[245] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 216.

Figure 19: AER 2013 and 2018 DGM estimates of MRP



Source: AER, 2013, Rate of Return Guideline, Explanatory Statement, Appendices, Table D.3, p. 87; AER, 2018, Draft Rate of Return Guideline, Explanatory Statement, Table 26, p. 222. Note that the AER applied a low-scenario growth rate of 4% in 2013, but has reduced that to 3.78% in 2018.

The basis for the AER's approach to the DGM evidence

In the 2013 Guideline materials, the AER stated that, while it has some concerns about the reliability of input assumptions, those concerns must be weighed against the positive attributes of DGM estimates:

> *Notwithstanding our concerns about the reliability of input assumptions, we consider DGM estimates have strong theoretical grounding and are more likely to reflect prevailing market conditions than other approaches.*[246]

This led the AER to adopt a preferred approach to implementing the DGM to minimise its concerns. The AER described its preferred approach as:

> *...the most significant development in this area*[247]

and stated that it gave:

> *...significant consideration to DGM estimates of the MRP.*[248]

[246] AER, December 2013, Rate of Return Guideline: Explanatory Statement, Appendices, p. 85.
[247] AER, December 3013, Rate of Return Guideline, Explanatory Statement, Appendices, p. 89.
[248] AER, December 2013, Rate of Return Guideline, Explanatory Statement, p. 97.

The AER also noted that it is important for it to have regard to information "symmetrically" through time. That is, it would be wrong to rely on DGM evidence only when that evidence was favourable for a particular directional outcome:

> *It is important to avoid bias in regulatory outcomes over time. Therefore, it is important we apply different sources of evidence symmetrically through time to avoid bias…Asymmetric application of evidence may lead to biased outcomes. In contrast, we propose to consider each source of evidence symmetrically through time.*[249]

The AER also stated that its preferred DGM specification, applied in the same way over time, enables the AER to consider the DGM evidence symmetrically:

> *…we have greater confidence in the symmetry of this information through time and give these estimates greater consideration than we have in the past.*[250]

The DGM evidence now supports a materially higher MRP, however it is now given no weight in determining the allowed MRP.

'Divergent' results from other models: The long-run dividend growth rate

Overview

The Explanatory Statement documents that the AER's primary concern with the DGM is the range of long-run dividend growth rates that might be used:

> *There are numerous issues surrounding the estimation of dividend growth rates selection and there is a wide variety of potentially acceptable growth rates which could be used in the DGM. With the range of potential growth rates varying from as low as 1 per cent to as high as 5.5 per cent, the DGM based MRP estimate could vary by around 4 per cent purely due to the chosen growth rate.*[251]

As noted above, the AER's preferred specification of the DGM considers a range of long-run nominal growth rates between 3.78% and 5.1%. The AER's specification of the DGM now produces an even more precise estimate of the MRP than in 2013, when it was given material weight. The width of the AER's range of DGM MRP estimates was 1.4% in 2013 and has reduced to 1.2% in the current analysis. An estimation technique that estimates the MRP to a range with width 1.2% would ordinarily be considered to be very useful evidence.

The Explanatory Statement now cites, as a key reason why the DGM evidence now has no impact on the MRP allowance, that:

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[249] AER, December 2013, Rate of Return Guideline: Explanatory Statement, p. 92.
[250] AER, December 2013, Rate of Return Guideline, Explanatory Statement, p. 96.
[251] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 45.

...the divergent results from alternative versions of the model have increased. [252]

ENA considers that there are several problems with the reasoning that the AER uses to now support disregarding its DGM evidence.

Illogical to disregard AER DGM estimates due to concerns about 'alternative versions of the model'

The AER developed its preferred specification of the DGM in the 2013 Guideline. That specification now produces materially higher MRP estimates and the range of estimates has narrowed. It is only alternative versions of the model, with more extreme long-run dividend growth rates, that produce divergent results. ENA submits that it is illogical for the AER to now disregard *its* DGM estimates because it has less confidence in '*alternative versions*' of the model.

Invalid comparison of real and nominal growth rates

The Explanatory Statement considers a "range of potential growth rates varying from as low as 1 per cent to as high as 5.5 per cent." [253] The DGM requires an estimate of the nominal long-run dividend growth rate. Although not stated in the Explanatory Statement, the 5.5% appears to be a nominal growth rate based on 3% real long-run GDP growth and 2.5% long-run inflation. However the 1% figure appears to be a real growth rate used in a Challenger report:

A report by Bianchi, Drew and Walk sponsored by Challenger Limited also stated that long term real dividend growth rates in Australia have been around 1 per cent. An expected 1 per cent per annum real dividend growth rate implies an expected nominal dividend growth rate of around 3.5 per cent per annum if expected inflation is 2.5 per cent per annum.[254]

That is, the Explanatory Statement appears to be comparing the 1% real growth rate with the nominal growth rates that are required for the DGM, which is a clear error. We note that the appropriate nominal rate of 3.5% is only marginally lower than the 3.68% growth rate that is already used by the AER. Thus, the Challenger report provides no reason to conclude that 'the divergent results from alternative versions of the model have increased." [255]

Moreover, the HoustonKemp report attached to this submission (Attachment 3)[256] demonstrates that the 1% figure used in the Challenger report is apparently a geometric mean real dividend growth rate. HoustonKemp demonstrate, via a simulation analysis, that such geometric means produce downwardly biased MRP estimates in settings where those MRP estimates are not compounded. Since the MRP is never compounded in the AER's process or in the PTRM, the geometric mean dividend growth rate should not be used.

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[252] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 216.
[253] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 45.
[254] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 219.
[255] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 216.
[256] Houston Kemp, September 2016, Forecasting dividend growth.

In summary, there are two reasons to reject the 1% figure – it is a real figure when a nominal figure is required, and it is based on a geometric mean when an arithmetic mean is required. But even if that figure were adopted, when it is appropriately converted into a nominal figure it has a negligible effect on widening the range of estimates.

Use of variable growth rate specification against expert advice

Another possible justification for the consideration of a low long-run dividend growth rate lies in the so-called 'variable growth rate specifications.' The Explanatory Statement notes that the variable growth rate DGM is proposed by German web site Fenebris. The ENA May 2018 Submission demonstrated that the Fenebris approach to MRP produces estimates that are entirely implausible.[257] The Explanatory Statement also notes that Partington and Satchell agree that this approach produces implausible estimates in the prevailing market conditions.[258]

More recent MRP estimates from Fenebris are even more fanciful. For example, at the time of this report, Fenebris is reporting implausibly low MRP estimates for several countries, as set out in Table 8. The dubious estimates from Fenebris speaks to the lack of credibility of that particular specification of the DGM rather than to the reliability of the DGM approach generally.

Table 8: Fenebris estimates of MRP

Country	Fenebris estimate
Turkey	-0.351%
India	2.081%
Brazil	1.849%
Mexico	1.990%
Indonesia	2.548%

Source: http://www.market-risk-premia.com/market-risk-premia.html, accessed 17 September 2018.

The variable growth rate approach is also used, among other approaches, by Damodaran, who considers a specification where the long-term growth rate is set equal to the prevailing long-term government bond yield. This approach would also clearly produce nonsensical estimates in the prevailing market conditions. Setting the nominal long-term growth rate to 2.6%, with the AER's long-run inflation estimate of 2.5%, implies a real growth rate of approximately 0.1% – in perpetuity. That is, it would imply that corporate profits grow at a real rate of 0.1% per year for the indefinite

[257] ENA, May 2018, Response to discussion papers and concurrent expert evidence sessions, Table 7, p. 74.
[258] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 219.

future. By contrast, the current long-run forecast of the real GDP growth rate for Australia is 3.0%. Setting the long-run growth rate in corporate profits to 0.1%, thus implies that the corporate sector will quickly shrink to irrelevance in the Australian economy. Thus, this variable growth rate approach is clearly implausible and inappropriate, at least in the prevailing market conditions. In this regard, Partington and Satchell (2018) state that:

> *Our conclusion on the use of the 10 year government bond yield as a predictor of expected dividend growth rates is that it is unlikely to be a better predictor than any of the alternatives. It is also likely that there will be periods where it is a poor predictor.* [259]

ENA recommends that the variable growth rate specifications of the DGM have no useful role to play.

Linking dividend growth to GDP growth is supported by the empirical evidence

The AER's specification of the DGM links long-run dividend growth to long-run GDP growth – on the basis that the corporate sector is likely to approximately maintain its share of the national economy over time. This link between dividend and GDP growth is considered in the HoustonKemp report, which demonstrates that real dividend per share (DPS) growth has been approximately equal to real GDP growth in the Australian economy over the last 36 years.[260] That is, there is a strong empirical basis for the AER's DGM specification of linking the dividend growth rate to the GDP growth rate.

The HoustonKemp report demonstrates that there is a statistically significant relationship between real dividends per share and real GDP.[261] This statistical relationship can be used to produce a forecast of real DPS growth, as summarised in Figure 20 below. DPS growth is forecasted to be high in the short term as current DPS is relatively low and expected to increase (although this is not relevant to the AER's DGM specification, which only requires a forecast of long-run DPS growth – short-run figures are taken from consensus analyst forecasts).

In the long-run, DPS growth is forecast to be close to the 3% real GDP growth rate that the AER adopts in its preferred specification. That is, there is strong, statistically significant empirical support for the proposition that long-run real DPS growth is closely linked to long-run real GDP growth.

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[259] Partington, G. and S. Satchell, May 2018, Report to the AER: Allowed rate of return 2018 Guideline Review, p. 91.
[260] Houston Kemp, September 2016, Table 1, p. 5.
[261] Houston Kemp, September 2016, Table 3, p. 7.

Figure 20: Real dividend per share growth forecasts

Source: Houston Kemp, September 2018, Figure 2, p. 8.

The deduction for new equity

As noted above, the AER's preferred specification of the DGM links the long-run dividend growth rate to the long-run GDP growth rate on the basis that the corporate sector is likely to grow at approximately the same rate as the broad economy. The AER's preferred specification then makes various deductions to account for that part of growth in the corporate sector that is due to new capital being raised, rather than growth in the stock of existing capital. However, the evidence to support those deductions is problematic for three reasons:

- The evidence to support a deduction is based on US data that are now very dated.[262]
- The evidence to support a deduction appears to be based on a geometric mean real dividend growth rate. As noted above, such geometric means produce downwardly biased MRP estimates in settings where those MRP estimates are not compounded – such as the approach adopted by the AER and in the PTRM.
- The HoustonKemp results set out above are for growth in dividends *per share* rather than total dividends paid. That is, dividends relating to new equity are excluded from the analysis – no part of the growth is due to new equity. HoustonKemp shows that dividends per share have grown at the same rate as GDP in the Australian economy over the last 36 years. This would support no deduction being applied in relation to new equity.

In summary, there appears to be little basis for the application of any deduction from the long-run GDP growth rate to account for the issuance of new equity. This implies

[262] Bernstein, W.J. and R.D. Arnott, 2003, "Earnings growth: The two per cent dilution," *Financial Analysts Journal*, 47-55.

that the AER's DGM estimates (which do apply such a deduction) should be interpreted as being conservatively low.

Summary in relation to long-run dividend growth rates

In relation to the AER's claim that there is a "wide variety of potentially acceptable growth rates" [263] that could be as low as 1%, ENA submits that:

- It is illogical for the AER to now disregard *its* DGM estimates because it has less confidence in '*alternative versions*' of the model.
- It is erroneous to compare a *real* growth rate of 1% with the range of *nominal* growth rates that the AER uses in its specification of the DGM.
- It is wrong to use a geometric mean growth rate with the arithmetic mean that is required in a setting where returns are not compounded.
- There is no basis for using the 'variable growth rate' specifications of the DGM when even the AER's own experts have recommended against that approach; at least in the prevailing market conditions.
- The link between dividend growth and GDP growth is strongly supported in the Australian data – even without any deduction in relation to the issuance of new equity.

ENA's view is that the discussion of dividend growth rates in the Explanatory Statement provides no basis for now disregarding the estimates of the MRP from the AER's preferred specification of the DGM.

Other AER concerns about the DGM approach

The current Explanatory Statement sets out a number of concerns with the DGM approach. Three of these concerns have been considered by the AER over multiple decisions, most recently in the APA Victorian Transmission System (VTS) Final Decision in December 2017,[264] and three of the concerns are new – as set out in Table 9 below.

Table 9: Explanatory Statement concerns with the DGM

2018 Explanatory Statement	November 2017 Decision
Upward bias in analyst forecasts, Explanatory Statement, p. 220.	Bias in analyst forecasts, APA VTS Final Decision, Attachment 3, p. 17.
'Sticky' dividends, Explanatory Statement, p. 221.	Slow-changing (or 'sticky) dividends, APA VTS Final Decision, Attachment 3, pp. 217-218.

[263] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 45.
[264] AER, November 2017, Final Decision: APA VTS gas access arrangement 2018 to 2022: Attachment 3: Rate of return.

Term structure in return on equity, Explanatory Statement, p. 221.	Term structure for equity, APA VTS Final Decision, Attachment 3, pp. 218-219.
Dividend reinvestment schemes, Explanatory Statement, p. 222.	New issue to address.
Inflation assumption required, Explanatory Statement, p. 220.	New issue to address.
Stable return on equity, Explanatory Statement, p. 221.	New issue to address.

Source: AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement; AER, November 2017, APA VTS Final Decision: Attachment 3.

Existing concerns

In its November 2017 Decision, the AER weighed up the positive aspects of the DGM evidence against the limitations and concluded that the DGM evidence should be used to inform the selection of the MRP point estimate:

> *We consider our dividend growth model is theoretically sound but that there are many limitations in practically implementing the model. As previously stated in our assessment of the dividend growth model, it may capture current conditions to a certain extent but fails to adequately provide a 'true' estimate of the forward looking MRP. We consider our, and other, dividend growth models are likely to produce upward biased estimates in the current market due to reasons provided in appendix B.4. We also take into consideration that our model, and other models, may not accurately track changes in the return on equity for the market. For these reasons, we do not consider that the dividend growth model estimates are reliable on their own, but they do provide an indication for a point estimate above the range derived from the historical returns, as the guideline method shows.* [265]

Under the 2013 Guideline, the MRP is not fixed, but rather the AER exercises its judgment to select the MRP at the time of each decision. In its November 2017 Decision, the AER noted that, despite the limitations it had identified in relation to the DGM, there is no reason to depart from the use of DGM evidence that was set out in the 2013 Guideline. This led the AER to select a point estimate 0.5% above the point estimate from historical excess returns:

> *We assessed the dividend growth model in detail in section B.4 and consider that there are a range of limitations with the dividend growth model which makes its results unreliable and unsuitable for directly estimating the market risk premium. We still believe it is useful for indicating, directionally, where the market risk premium should lie in*

[265] AER, November 2017, APA VTS Final Decision, Attachment 3, p. 76.

> *relation to the historical excess returns as indicated in the Guideline. We do not consider that any new material has been submitted to us that address the limitations of dividend growth models or cause us to depart from our use of dividend growth models.*[266]

The AER also noted that its consideration of the limitations of the DGM has not led it to change its view about how the DGM should be used, the usefulness of the information it provides, or about the extent to which it leads to the selection of a point estimate 0.5% above the historical excess returns estimate:

> *This is consistent with our Guideline approach of using dividend growth model estimates to inform if a point estimate may be above or below the historical excess estimate. The AER has not changed its view on the DGM and how useful the information it provides is in forming a point estimate of the market risk premium.*[267]

In its November 2017 Decision, the AER clearly summarised its position as follows:

> *We have not changed the weight we apply to the dividend growth model.*[268]

In summary, in November 2017, the AER considered all of the available evidence on analyst bias, sticky dividends and an equity term structure. The AER determined that none of that evidence warranted a change to its preferred specification of the DGM, its implementation of the DGM, the weight applied to the DGM, or the effect of the DGM in adopting a MRP 0.5% above the AER's point estimate from historical excess returns.

The 2013 Guideline materials state that the AER would select a MRP allowance at the time of each decision "based on the AER's regulatory judgment, taking into account estimates from each of those sources of evidence and considering their strengths and limitations."[269]

Thus, the approach taken by the AER in November 2017 reflects the AER's regulatory judgment in relation to the evidence before it at that time. In that decision, the AER concluded that the DGM evidence (including the considerations of analyst bias, sticky dividends and an equity term structure) warranted an increase of 0.5% to the historical estimate.

ENA submits that it would be inconsistent with the principles of regulatory predictability and stability to make materially different decisions on the basis of the same set of evidence a few months apart—particularly given that the AER stated explicitly in the 2013 Guideline materials (in relation to the DGM) that It is important to avoid bias in regulatory outcomes over time, and that such biases can be avoided by applying evidence symmetrically over time. Regulatory confidence, transparency and predictability is also enhanced by applying evidence symmetrically.

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[266] AER, November 2017, APA VTS Final Decision, Attachment 3, p. 76.
[267] AER, November 2017, APA VTS Final Decision, Attachment 3, p. 80.
[268] AER, November 2017, APA VTS Final Decision, Attachment 3, p. 217.
[269] AER, December 2013, Rate of Return Guideline, p. 16.

If the DGM evidence (including the considerations of analyst bias, sticky dividends and an equity term structure) warranted an increase of 0.5% to the historical estimate in November 2017, there is no basis for using those same considerations to now reject use of the DGM evidence entirely.

Moreover, the consideration of analyst forecast bias shows that evidence has not been used consistently throughout the process:

- The Black CAPM is rejected on the basis that observed returns cannot be trusted to reflect investors' required returns (the *ex ante* vs *ex post* argument); whereas
- In considering analyst forecast bias, observed returns are used as the benchmark indicator of required returns.

Long-run inflation estimate

In relation to inflation, the AER is correct in stating that, under its preferred specification, the specification of the long-run growth rate requires an estimate of long-run inflation.[270] The Explanatory Statement states that Partington raised this point in the concurrent evidence sessions, noting that different estimates of long-run inflation would produce different long-run growth rates.

However it is important to note that what is required here is not an estimate of inflation for next year or the year after, but a long-run forecast of inflation that would be appropriate to apply in perpetuity. In the AER's three-stage DGM, for example, what is required is a forecast of inflation to apply from Year 11 forwards in perpetuity. The only figure that could reasonably be used for this purpose is the 2.5% figure that the AER currently uses – the mid-point of the RBA's target band. Every economic forecaster uses that same figure as the long-run inflation forecast as, given the RBA's track record of targeting inflation, it is the most credible long-run inflation forecast presently available.

Moreover, the AER already uses the 2.5% figure as its inflation forecast for Year 3 and beyond in its process for estimating expected inflation.

ENA submits that no reasonable and objective assessment could rely on this point as a legitimate reason for rejecting the DGM evidence.

Dividend reinvestment plans

The Explanatory Statement also notes that, during the concurrent evidence sessions, Partington raised a point in relation to dividend reinvestment plans.[271] The Explanatory Statement concludes that the dividend yield may be overstated if a material fraction of the dividends are returned back to the company via a reinvestment scheme. However, that conclusion would only hold if the funds that were reinvested simply evaporated. A simple mathematical explanation is set out in the box below.

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[270] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 220.
[271] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 222.

Illustration of the irrelevance of dividend reinvestment schemes

To illustrate the Partington claim about dividend reinvestment schemes, consider the simplest form of DGM:

$$P_0 = \frac{Div_1}{r_e - g}.$$

Consider a firm that has a share price of $100, a forecasted dividend of $6 and a long-run dividend growth forecast of 5%. In this case, the implied required return on equity is 11%:

$$100 = \frac{6}{r_e - 5\%}$$

$$r_e = 11\%.$$

Now suppose that a third of all dividends are returned to the firm under a dividend reinvestment scheme, consistent with the example in the Explanatory Statement (where there is an "advertised" dividend yield of 6% and a "true" dividend yield of 4%). The Explanatory Statement suggests that the implied required return on equity should be computed as:

$$100 = \frac{4}{r_e - 5\%}$$

$$r_e = 9\%.$$

But that would only be correct if the dividend reinvestment scheme involved the firm effectively setting fire to all of the money it received under the scheme. It implies that the investors receive no benefit at all from the $2 of dividends that was reinvested – the $2 simply evaporates.

A more reasonable assumption is that the $2 reinvestment provides the investors with $2 of benefit – that the new shares are bought at their fair value. In this case, the dividend reinvestment scheme is irrelevant – the investors either receive a dividend of $6 or a dividend of $4 and shares worth $2. In both cases the implied required return on equity is the same, being 11%.

ENA submits that DGM estimates should *not* be re-computed by reducing dividend forecasts in relation to dividend reinvestment plans. Such an approach would only be valid if the dividends that were reinvested simply evaporated and produced no benefit to the shareholders participating in the plan. A more reasonable and balanced assumption would be that a dollar of reinvestment produces a dollar of benefit for the shareholder, which has been the AER's approach to date.

The Independent Panel has also concluded that the argument about dividend reinvestment plans is flawed:

> *The comment on dividend reinvestment plans at p.222 of the Explanatory Statement should be deleted. DGMs assume only that dividends are received. DGMs do not care whether dividends are consumed or*

reinvested. Dividend reinvestment plans may change the number of shares outstanding, but usually by much less than share repurchase programs.[272]

Stable return on equity

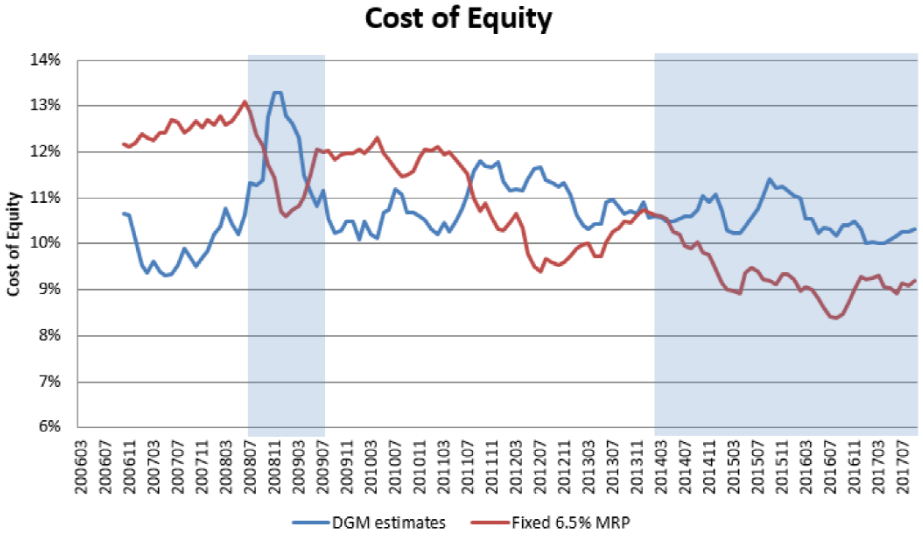
The Explanatory Statement expresses concerns about the DGM approach producing estimates that exhibit too much stability.[273] There are a number of fundamental problems with this conclusion.

First, the Explanatory Statement concludes incorrectly that this means the DGM *assumes* a stable return on equity.[274] There is no such assumption – the DGM computes the required return on equity that is implied by current stock prices. The DGM will report whatever those current stock prices imply – whether it be a volatile or stable required return. There is no assumption involved – the market data is free to speak for itself.

Second, the evidence is that the DGM does *not* produce a stable required return. An attachment to the materials for the second concurrent evidence session demonstrates that the AER's DGM estimates of the required return on equity have not been stable over time, but have varied in a very sensible manner – being low during the mid-2000s bull market, increasing during the GFC and falling thereafter. This is in contrast to the fixed MRP approach, which suggests that the required return on equity *fell* dramatically during the GFC.

Figure 21: AER DGM estimates of the required return on equity

This figure shows the AER DGM mid-point estimates of the total market return over time. The shaded areas represent the GFC and the period since the 2013 Guideline. The figure also shows an estimate obtained by adding 6.5% to the prevailing government bond yield.



[272] Independent Panel Report, September 2018, p. 35.
[273] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 222.
[274] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 222.

Source: AER, Concurrent evidence session 2L Facilitator's note, p. 65. https://www.aer.gov.au/system/files/AER-%20Concurrent%20Evidence%20Session%202%20-%20Facilitator%27s%20Note%20-%204%20April%202018.pdf.

Third, the concern expressed in the Explanatory Statement is said to be because a stable required return on equity is inconsistent with the AER's view that the required return on equity is not stable, but varies directly with changes in the risk-free rate. This appears to imply that evidence is deemed to be unreliable if it is inconsistent with the AER's prior view on the stability of required returns on equity. That is, a reason for concern with the DGM evidence is that it suggests that the required return on equity is more stable than the AER's approach of adding a fixed premium to the risk-free rate.

Thus, a key question in the prevailing market conditions is whether the required return on equity has fallen one-for-one with the fall in government bond yields. The AER's proposition is that it has, but that must be tested against the relevant evidence. The AER's DGM evidence is inconsistent with that proposition, and is deemed to be unreliable for that reason. That is, evidence that is inconsistent with the proposition is deemed to be unreliable by virtue of the very fact that it is inconsistent with the proposition.

ENA submits that, in accordance with the objective of reaching the best estimate, and with the principles of evidence-based decision-making, the AER's view should be tested against the evidence, not the other way around.

Fourth, the AER has been presented with substantial evidence that the required return on equity has *not* fallen one-for-one with the falls in the risk-free rate; this evidence coming from central banks, market practitioners, government agencies, academics, and other regulators.[275] The AER's own DGM estimates are consistent with this other evidence.

An estimate that is consistent with the prevailing market conditions

As set out in Section 2 above, ENA agrees with the AER that a key element of the task that all stakeholders face is to obtain an estimate of the required return on equity that is commensurate with the prevailing conditions in the market. The Rules (both existing and as proposed to be amended to give effect to a binding Guideline) require that regard be had to prevailing conditions in the market for equity funds.

The DGM is based on current market data, so it has the great benefit of providing an estimate that is commensurate with the *prevailing* conditions. By contrast, the historical excess returns approach, by definition, produces an estimate that is commensurate with the *historical average* market conditions over the historical period.

The AER recognised this point in its 2013 Guideline materials:

[275] See, for example, the Ausgrid rate of return submission from April 2018, available at: https://www.aer.gov.au/system/files/Frontier%20-%20Ausgrid%27s%20rate%20of%20return.pdf.

The DGM method is a theoretically sound estimation method for the MRP. As DGM estimates incorporate prevailing market prices, they are more likely to reflect prevailing market conditions.[276]

ENA submission

In relation to the DGM evidence, ENA notes that:

- The AER's DGM estimates have increased materially since the 2013 Guideline;
- The Draft Guideline proposes that the DGM will no longer have any effect on the MRP allowance;
- The key reason that is cited for the change in the AER's approach is the divergence of estimates from specifications of the DGM that adopt a different long-term growth rate. This appears to be a reference to the 'variable growth rate' approach, which the AER's own experts caution against as the results it produces are implausible. But for that approach, the range of the AER's DGM estimates is tighter than in 2013;
- The Explanatory Statement sets out three points of concern about the DGM that the AER has considered as recently as November 2107. ENA submits that, if the AER has concluded that (after considering those concerns) the DGM evidence warranted an increase of 0.5% to the historical estimate in November 2017, there is no basis for using those same considerations to now entirely discount the DGM evidence;
- The Explanatory Statement sets out three new concerns with the DGM evidence. However, ENA considers that there is no merit in any of these reasons:
  - The Explanatory Statement notes that long-run growth rate is sensitive to the estimate of long-run inflation. However, there is no suggestion that any figure other than 2.5% would be used for that purpose;
  - The Explanatory Statement suggests that forecasted dividends should be reduced in relation to dividend reinvestment schemes. However, that proposal implicitly assumes that all reinvested funds simply evaporate; and
  - The Explanatory Statement expresses a concern about the relative stability of the DGM estimates of the required return on equity because that is inconsistent with the AER's view that the required return on equity varies directly with changes in the risk-free rate. But the AER's view should be tested against the evidence, not the other way around.
- The DGM evidence has the great benefit of providing an estimate of the MRP that is commensurate with the prevailing conditions in the market.

ENA submits that there is no valid reason for effectively eliminating the role of the DGM evidence and to do so fails to have proper regard to prevailing market conditions.

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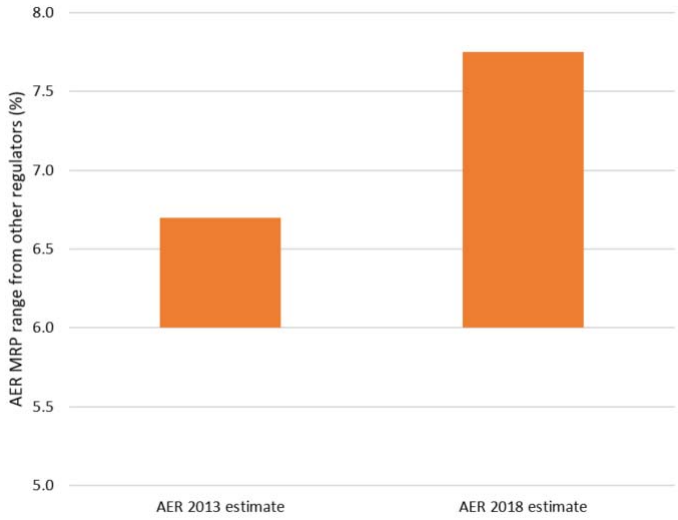
[276] AER, December 2013, Rate of Return Guideline: Explanatory Statement: Appendices, p. 84.

9.6 Evidence from other regulators

The Explanatory Statement sets out a range of estimates from other regulators that is materially higher than the corresponding estimates in the 2013 Guideline materials, as summarised in Figure 22 below.

Figure 22: Comparison of AER estimates of MRP from other regulators



Source: AER, 2013, Rate of Return Guideline, Explanatory Statement, Appendices, Table D.6, p. 101; AER, 2018, Draft Rate of Return Guideline, Explanatory Statement, Table 28, p. 232.

The Explanatory Statement concludes that:

> *We consider our point estimate of 6 per cent is within the range from other regulators' decisions*[277]

based on the range of other regulators' decisions (between March 2017 and March 2018) being said to be 6.00% to 7.75%.[278]

It appears that the only regulatory decision during that period that adopted a MRP of 6.0% was the IPART decision for WaterNSW. That decision should be disregarded because the 6.0% figure is mandated by legislation and does not represent an IPART estimate. IPART is constrained by legislation to use a 6.0% MRP for WaterNSW's charges in relation to the MDB valleys.[279] Indeed, in the same determination, IPART adopted a 7.75% MRP for charges in relation to coastal valleys that are not subject to that legislative constraint.[280]

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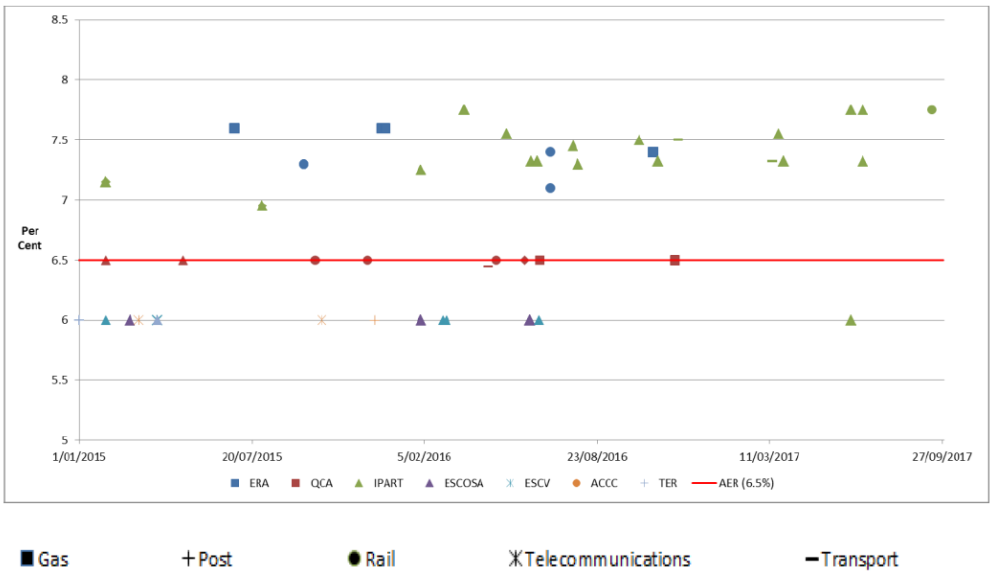
[277] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 231.
[278] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, Table 28, p. 232.
[279] IPART, June 2017, Final Report: WaterNSW – Review of prices for rural bulk water services, p. 72.
[280] IPART, June 2017, Final Report: WaterNSW – Review of prices for rural bulk water services, Table 7.8, p. 75.

The Explanatory Statement then considers the IPART estimates of MRP in more detail noting that, although IPART gives weight to a range of DGM and other evidence and arrives at an allowed MRP of 7.75%, its backward-looking historical estimate is 6.0%.[281] ENA agrees that if IPART were using the same approach to estimate MRP as the AER is using, it would have arrived at the same estimate. However, the key point here is that IPART is not using the same approach as the AER and it arrives at a materially higher MRP estimate.

ENA's May 2018 Submission also documents that the trend among other Australian regulators is to adopt MRP estimates that are higher than 6.0% and higher than they were using in 2013. That is, the directional trend is towards *increasing* the MRP estimates and to adopt allowances that are materially above 6.0%.

Indeed, the ENA May 2018 Submission documents a set of recent MRP allowances that has been compiled by the AER, shown in Figure 23 below. In the last two years, the only decision to adopt 6.0% is an IPART water decision where legislation mandates that figure. Indeed, the only decision to adopt 6.5% is a decision by the QCA, which has now increased its MRP allowance to 7.0%.[282]

Figure 23: Recent regulatory decisions on the MRP



Source: AER APA Final Decision, November 2017, Figure 3-16.

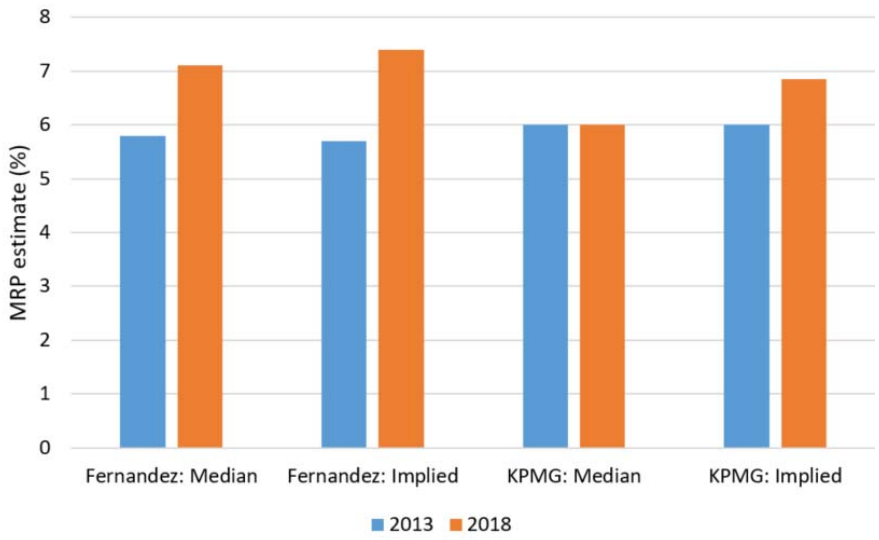
ENA considers that any reasonable objective review of the evidence from other regulators would conclude that this evidence strongly supports an MRP above 6.0%.

[281] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 233.
[282] In both cases, the MRP is used with a shorter-term risk-free rate. The ERA of WA has recently adopted a MRP of 6.0% for Western Power, however that is paired with an equity beta (geared to 60%) of 0.79.

9.7 Survey evidence

The Explanatory Statement sets out a range of survey estimates that document a material increase in MRP estimates since 2013. The two surveys that have data from 2017 or 2018 are summarised in Figure 24 below.

Figure 24: Comparison of AER estimates of MRP from surveys



Source: Fernandez (2018), Fernandez (2013), KPMG (2013), KPMG (2017). The 'implied' estimates are obtained by taking the reported median MRP, adding the reported median risk-free rate, and subtracting the prevailing risk-free rate at the time of the survey.

In relation to survey evidence, the Explanatory Statement concludes that:

> *We consider market surveys continue to support an MRP between 5.5 per cent and 6.5 per cent.*[283]

This conclusion is based on a table of survey estimates that range in currency from six months to six years old. What respondents might have previously thought about MRP is, of course, much less relevant than what respondents now think about MRP – in the prevailing market conditions.

In this regard, the Explanatory Statement considers three surveys that document respondents' views since the beginning of 2017.

The two Fernandez surveys report MRP estimates materially above 6.0%.

KPMG (2017) report a median MRP of 6.0% but note specifically that:

» No respondents adopted an MRP below 6%, but many adopted an MRP above 6%, with some adopting an MRP above 7.5%;[284]

[283] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, Section 7.3.7.
[284] KPMG, 2017 Valuation Practices Survey, p. 11.

- Australia's current low-interest environment has resulted in some valuers adjusting their MRP estimates upwards by either 0.5% or 1.0%;[285] and
- The vast majority of respondents are currently using risk-free rates that are well above the prevailing 10-year government bond yield.[286] In fact, KPMG indicate that the most commonly used risk-free rate was 4.5%.[287]

If the most commonly used risk-free rate is 4.5%, and the most commonly used MRP is 6.0%, the total required return on equity for an average firm is 10.5%. If that expected market return is paired with a prevailing risk-free rate of 2.7% the implied MRP is 7.8%.[288] It would be unreasonable to interpret this evidence as supporting the approach of inserting a 6.0% MRP into the CAPM formula with the prevailing risk-free rate of 2.7%, as that would produce a return on equity figure that is materially lower than that actually adopted by the respondents. Such an approach would imply that respondents considered the required return on equity to be 8.7%, which is materially different from the 10.5% that they are actually using.

ENA submits that the only reasonable interpretation of the survey evidence about the MRP in the prevailing market conditions is that it supports a MRP materially above 6.0%.

9.8 Response to consumer submissions

CRG submission

The CRG submission of May 2018 provides a number of proposals in relation to the MRP:

> *CRG considers that for the reasons above, a very sound argument can be mounted that the MRP should be closer to the geometric mean of 3.6% (as measured for the period 1984 – 2017 which reflects when most the changes to open the Australian economy were implemented) to reflect that the networks should not get a reward for risks that they do not face and for the revenue they receive from other sources.*
>
> *Similarly, as outlined above, a very sound argument can be mounted that using an arithmetic mean, the MRP should be as low as 4.76%.*
>
> *To demonstrate the impact on consumer bills of changes to WACC parameters, the CRG's analysis at section 3 includes a higher MRP of 5.75%, well in excess of the values which, as noted above, can be argued.* [289]

The CRG appears to propose a best estimate of 3.6%, an estimate of 4.76% if arithmetic means are to be used, and a figure of 5.75% to demonstrate the impact on consumer bills.

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[285] KPMG, 2017 Valuation Practices Survey, p. 11.
[286] KPMG, 2017 Valuation Practices Survey, p. 10.
[287] KPMG, 2017 Valuation Practices Survey, p. 10.
[288] 10.5% - 2.7%.
[289] CRG Submission, May 2018, p. 57.

When paired with the CRG's proposed equity beta of 0.3, these figures produce an equity risk premium range of 1.08% to 1.75%. ENA considers these figures to be self-evidently outside of the range of credible market or theoretical evidence, being lower than even investment grade debt risk premiums and implying a total return comparable to available government guaranteed cash term deposits.

The CRG submission explains that the proposed MRP includes adjustments to account for the fact that some NSP businesses also own some unregulated assets, and the fact that some NSPs receive incentive payments under the AER's regulatory model:

> *To ensure consistency, the MRP used in the CAPM for regulatory purposes should be discounted to exclude the benefits of no exposure to asset write downs, under-recovery of capital, and no exposure to product innovation and more efficient operation by competitors. But, in addition, the MRP needs to be further reduced because the networks are able to retain the benefits of the incentives, clever financing and tax minimization strategies to improve their revenues and overall profitability.* [290]

The CRG submission also notes that:

> *the major concern of the CRG is:*
>
> *• that the data derived from the market includes rewards for risks that the networks do not face. Therefore the market data needs to be discounted for these rewards*
>
> *• the revenues that the networks receive from other sources is already embedded in the data used to develop the MRP.* [291]

Thus, the CRG submission on MRP is based on issues that pertain specifically to NSP businesses. But firm-specific issues are, by definition, irrelevant to the MRP which is a market wide-parameter. Consequently, the CRG submission on MRP is fundamentally flawed and should receive no weight.

ENA notes that this approach to the MRP was not raised during the ENA-CRG consultation process prior to the submission date.

The CCP submission

The CCP submission proposes that the allowed MRP should be set to 6% or less.[292] The basis for this conclusion is that most weight should be placed on historical excess returns and little if any weight should be applied to the DGM evidence.[293] The rejection of the DGM evidence is said to be due to "anomalous results"[294] which appears to be a reference to "different and often conflicting outcomes."[295] In setting

[290] CRG Submission, May 2018, p. 68.
[291] CRG Submission, May 2018, p. 69.
[292] CCP Submission, p. 98.
[293] CCP Submission, pp. 98-99.
[294] CCP Submission, p. 99.
[295] CCP Submission, pp. 109.

out different DGM estimates, the CCP highlights the Fenebris estimates that are discussed above.

That is, the Explanatory Statement largely follows the CCP submission in relation to MRP, adopting the 6% MRP proposed by the CCP for the reasons suggested by the CCP. Consequently, the CCP Submission has been addressed in responding to the Explanatory Statement above.

9.9 ENA submission in relation to MRP

ENA considers that a balanced review of the evidence does not support any reduction to the MRP estimate. Rather, if the AER is minded to change this parameter, the evidence would support an increase.

ENA considers that an estimate that has proper regard to *prevailing conditions in the market* should give a real role to the DGM evidence – that approach being based on data in the prevailing market conditions rather than the conditions over a long historical period.

ENA considers that an estimate that is *based on market evidence* should have regard to the evidence that all of the approaches that the AER considers indicate that the MRP has increased since the 2013 Guideline.

ENA considers that the *best possible estimate* of MRP is one that has properly considered all of the relevant evidence. In relation to MRP, there is strong evidence of an increase in estimates since 2013, the historical excess returns evidence supports an estimate above 6%, the DGM evidence supports an estimate above 6%, the survey evidence supports an estimate above 6%, other regulators use estimates above 6%.

ENA considers that an objective and balanced assessment of the relevant evidence supports a market risk premium of a least 6.5% in the prevailing market conditions.

10 The value of imputation tax credits - gamma

Key messages

- In the context of the AER's stated objective of an incremental review, ENA accepts that the AER's 'utilisation' or 'cash flow' interpretation of gamma will be used.
- The AER's cash flow interpretation of gamma is that "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 utilisation of imputation credits."
- Thus, the goal is to determine the proportion of company tax paid by the BEE that is redeemed by its shareholders. Under the 'cash flow' interpretation of gamma it would make little sense to take the proportion of credits distributed to the BEE shareholders and to pair that with the proportion of credits redeemed by some *other* group of shareholders.
- The Explanatory Statement concludes that listed equity represents the most suitable estimate of the BEE.[296] Consequently, it would follow that the 'cash flow' estimate of gamma would be based on the proportion of credits distributed to and redeemed by shareholders in listed firms.
- This would involve pairing the AER's preferred estimate of the distribution rate for listed equity (the Lally 83% estimate) with the AER's preferred estimate of the utilisation rate for listed equity (the equity ownership mid-point estimate of 47%), producing a gamma of 0.39.
- ENA considers that there are a number of important problems with the 20-firms approach to estimating the distribution rate:
  - The 20 firms are not appropriate comparators for the BEE.
  - The estimates are derived from franking account balance (FAB) data, which is known to be unreliable due to the 'dynamic nature of the imputation system.'
  - The 20-firms approach assumes that all reductions in the FAB relate to credits being distributed to shareholders, however material reductions occur for other reasons. Consequently, this approach can only be used as an upper bound and not a point estimate.
- ENA considers that the evidence does not support the AER abandoning its current approach in favour of placing 100% weight on the 20-firms approach.
- ENA considers that there are a number of important problems with the equity ownership approach to estimating the utilisation rate:

[296] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 398.

- There is an internal inconsistency – the AER estimates the proportion of credits distributed to one group of shareholders and the proportion redeemed by a different group of shareholders.
- Not all credits distributed to resident investors are redeemed. Examples include the 45-day rule and any law change that would prevent the redemption of excess credits.
- The latest revisions to the equity ownership data raise a number of concerns that have not yet been addressed. Consequently, this approach can only be used as an upper bound and not a point estimate.

» ENA considers that the evidence does not support the AER abandoning its current approach in favour of placing 100% weight on a single equity ownership estimate.

» ENA has provided evidence that there are no material concerns with the ATO estimates of credits created or credits redeemed, in which case the ATO estimate of the 'cash flow' gamma for all equity is reliable.

» The AER has concluded that the relevant task is to estimate the utilisation/cash flow gamma for listed equity. Consequently, the AER must weigh the various strengths and weaknesses of each approach in performing that task. For the reasons set out above:
  - The 20 firms/equity ownership approach produces an upper bound of 0.39. The 20-firms estimate for listed equity is an upper bound because the FAB can fall for reasons other than the distribution of credits to shareholders. The equity ownership estimate for listed equity is an upper bound because resident investors do not (and cannot) redeem all of the credits that they receive.
  - The ATO tax statistics approach produces a lower bound of 0.34. This is because the ATO data includes unlisted equity and the distribution rate for unlisted firms may exceed that for listed firms.

» ENA considers that the evidence supports a range of 0.34 to 0.39 for the utilisation/cash flow gamma for listed equity.

» ENA submits that it would be inappropriate to fix a gamma for the duration of the Guideline. Rather, the Guideline should set out how the estimate of gamma will be changed if the equity ownership approach becomes inappropriate due to the proposed change in tax law. The simplest approach would be for the AER to determine now two estimates for gamma – one to be adopted if the existing law is maintained and one to be adopted if the proposed policy becomes law.

10.1 The interpretation of the "value" of imputation credits

In the 2013 Guideline process, ENA put the view that the value of imputation credits (gamma) should be interpreted as the market value of imputation credits – the amount that investors would be prepared to pay for credits if they could be traded in a separate market. As the regulatory process reduces the cash return that can be paid to shareholders by the estimated value of imputation credits, ENA considered that the appropriate approach was to estimate the amount of cash shareholders would be willing to pay to receive those credits.

In the context of the AER's stated objective of an incremental review, however, ENA accepts that the AER's 'utilisation' interpretation of gamma will be used, where gamma is interpreted as the proportion of credits that are redeemed by shareholders.

In this regard, the Draft Guideline follows the approach of the 2013 Guideline:

> *We propose that 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 utilisation of imputation credits.* [297]

That is, the goal is to estimate the proportion of company tax that is redeemed by investors.

In the AER's recent concurrent evidence sessions, the experts agreed that the AER's approach to gamma is not consistent with any equilibrium asset pricing model.[298] Consequently, there is no model or theory to guide the estimation. Rather, gamma is simply defined to be the proportion of company tax which is returned to investors through the utilisation of imputation credits.

The Explanatory Statement further explains that:

> *Gamma is the proportion of tax collected* ***from the company*** *which gives rise to the tax credit associated with a franked dividend.* [299]

Under the AER's definition of gamma, what is relevant is the proportion of company tax paid *by the BEE* that will be redeemed *by its shareholders*.

The AER documents this 'cash flow' interpretation of gamma in the 2013 Guideline, as shown in Figure 25 below. The AER demonstrates that it is the ability of investors in the BEE to redeem credits that underpins its definition of gamma – it is the same investor who provides capital to the BEE that redeems the credits distributed by the BEE.

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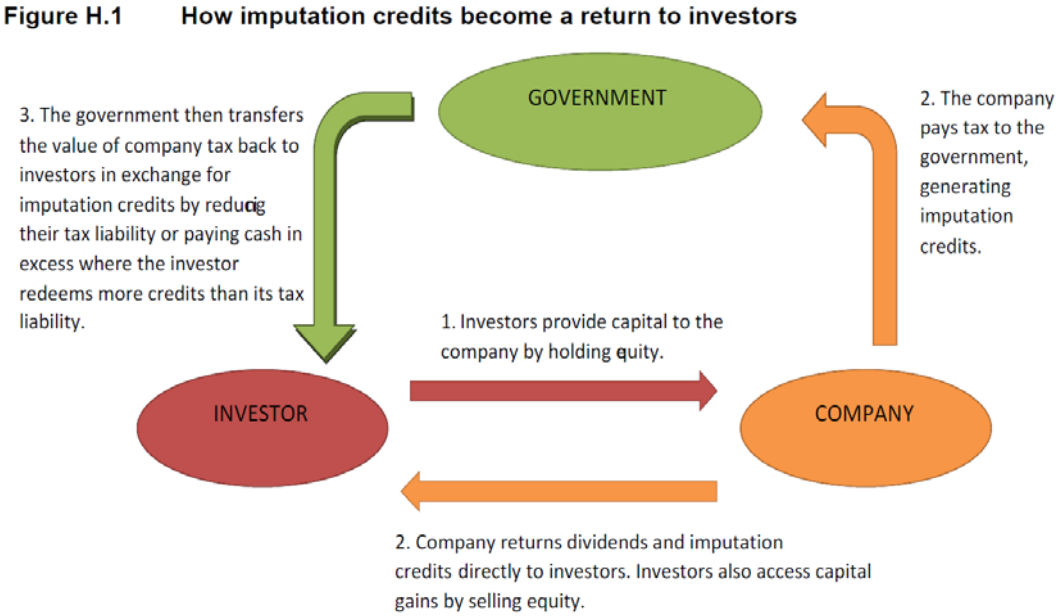
[297] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 396.
[298] Joint Experts' Report, Proposition 7.02, pp. 69-70. JH states that the AER's approach is consistent with "a model in which those who redeem credits fully value them and those who don't place zero value on them." However, this is just a restatement of the AER's approach. There is no model that produces such an outcome in equilibrium.
[299] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 396, emphasis added.

Figure 25: AER 'cash flow' interpretation of gamma



Source: AER, December 2013, Rate of Return Guideline, Explanatory Statement Appendices, Figure H.1, p. 143.

10.2 Internal consistency

As noted above, the 'cash flow' or 'utilisation' interpretation of gamma seeks to determine how much of the corporate tax paid by the BEE will be returned to its shareholders via the redemption of imputation credits. This interpretation requires consistent estimation of the distribution rate and the utilisation rate. That is, some proportion of credits will be distributed *to the BEE shareholders*, who will then redeem some of those credits. The corporate tax allowance is then reduced by the amount of credits that are redeemed back *by the BEE shareholders*.

Under the 'cash flow' interpretation of gamma it would make little sense to take the proportion of credits distributed to the BEE shareholders and to pair that with the proportion of credits redeemed by some *other* group of shareholders.

The Explanatory Statement concludes that listed equity represents the most suitable estimate of the BEE.[300] Consequently, it would follow that the 'cash flow' estimate of gamma would be based on the proportion of credits distributed to, and redeemed by, shareholders in listed firms.

This would involve pairing the AER's preferred estimate of the distribution rate for listed equity (the Lally 83% estimate)[301] with the AER's preferred estimate of the

[300] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 398.
[301] If the AER maintains confidence in that estimate in spite of the issues set out below.

utilisation rate for listed equity (the equity ownership mid-point estimate of 47%),[302] producing a gamma of 0.39.[303]

Alternatively, one may reach the conclusion that the BEE is better represented by all equity. In this case, the best estimate of gamma would be the direct estimate of 0.34 from tax statistics. This approach has the great benefit of not requiring any estimate of the contentious distribution rate because it can be computed directly from 'credits created' and 'credits redeemed' for all equity.

It is important to note that the 'cash flow' interpretation of gamma is materially different from the 'market value' or 'model-based' interpretations. Under the 'market value' interpretation and asset pricing models, theta is the equilibrium value of a credit – the extent to which a credit is capitalised into the share price. This is a market wide parameter, because the equilibrium value of a credit is independent of which firm provided it. By contrast, the 'cash flow' interpretation of gamma seeks to estimate the proportion of credits created by the BEE that will be redeemed by its shareholders. This requires that the distribution rate and the utilisation rate must both be estimated with regard to the same BEE.

In summary, under the cash-flow approach to gamma, the distribution rate and utilisation rate must be estimated consistently, using whatever set of firms the AER considers to best reflect the BEE. If the AER proposes to instead use a model-based approach, it will obviously need to explain why it is no longer using the cash flow approach set out in Figure 25 above and which model it is using.

In this regard, it is important to note that the relevant models derive the market clearing value of imputation credits – the extent to which credits are capitalised into the stock price. An example of such a model is Lally and van Zijl (2003),[304] which derives mathematically a formula for how credits are capitalised into the stock price.

Officer (1994)[305] is not a model. There is no set of assumptions and no derivation of a market-clearing equilibrium. Rather, Officer provides a useful set of formulas for a *given* gamma – he provides no mathematical framework for determining what gamma means or what it should be. Thus, it would be wrong to suggest that a particular estimate of gamma is 'consistent with the Officer model.' *Every* estimate of gamma is consistent with Officer, so long as the same estimate is used in the cash flows and the corresponding estimate of the discount rate.

Thus, the alternatives available in relation to the framework for gamma appear to be as follows:

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[302] AER, July 2017, APA VTS Draft Decision, Table 4-4, p. 29.
[303] Or less, if a lower estimate of the distribution rate is used.
[304] Lally, M. and T. van Zijl, 2003, "Capital gains tax and the capital asset pricing model," *Accounting and Finance*, 43, 187-200.
[305] Officer, R., 1994, "The cost of capital of a company under an imputation tax system," *Accounting and Finance*, 34, 1-17.

- The AER might maintain its cash flow approach to gamma. This would seem to require that the distribution rate and the utilisation rate must both be estimated with regard to the same BEE.
- The AER could, instead, adopt a model that derives the extent to which credits are capitalised into the stock price. In this case, the AER would explain which model it has used and why it has departed from its cash flow approach to gamma.
- The third alternative, would be to:
  - Recognise that no model has yet been derived to capture the complexity of having one group of investors who can utilise the credits and another group who cannot, within the context of a domestic CAPM; and
  - Estimate the extent to which credits are capitalised into the stock price using market data (e.g. dividend drop-off analysis), rather than relying on the output of a model.

  However, that approach has been rejected by the AER and ENA is not pursuing that approach in this review.
- Logically, the only other alternative would be an approach that is neither consistent with the cash flow approach nor any model. This would require an explanation of why the cash flow approach set out in Figure 25 above is no longer being used:
  - Why is the AER no longer seeking an estimate of the proportion of credits created by the BEE that will be redeemed by its shareholders;
  - What is it seeking to estimate instead; and
  - Why is it seeking to estimate that other item?

ENA submits that an approach that:

- Is inconsistent with the cash flow approach set out in Figure 25 above;
- Is inconsistent with any model;
- Is inconsistent with the market value estimates;
- But which results in the highest available estimate of the distribution rate being paired with the highest available estimate of the utilisation rate,

is not one that which would support long-term stakeholder confidence and trust in the nature of the guideline review process undertaken.

10.3 Problems with the 20-firms approach to the distribution rate

Problems with FAB data

The Draft Guideline proposes to place 100% reliance on the Lally 20-firms estimate of the distribution rate. The Lally estimates are derived from franking account balances – a comparison of the change in FABs over a period to dividends paid over the corresponding period. Thus, the problems for individual firms that have been identified in the ATO FAB data also apply to the Lally FAB estimates.

It is important to note that the problems identified with the FAB data is not that firms mis-report it, but that it is difficult to accurately track and follow the flow of franking credits through the tax system. Presumably companies report the same figure to the ATO as they include in their financial statements, so one figure is not more reliable than the other. Rather, the issue is whether it is correct to assume that every reduction in the FAB is due to credits being distributed to shareholders.

For example, the ATO states that:

> *It would be difficult to use this data to reconstruct franking accounts due to the dynamic nature of the tax system as it impacts on business.*[306]

One example provided by the ATO is:

> *Churn within consolidation groups.*[307]

That is, some credits are extinguished within corporate structures without being distributed to shareholders. For example, BHP Ltd has distributed over $1 billion of imputation credits to BHP Plc under its 'dividend equalisation scheme.' Although these credits have been removed from the FAB, they have not been distributed to shareholders,[308] so the FAB-based estimate of the distribution rate is overstated.

Similarly, as noted below, a number of firms have received large tax refunds that reduce materially their FAB. Under the Lally 20-firms approach, these reductions are treated incorrectly as distributions to shareholders. Again, the result is an overstatement of the distribution rate.

It is also difficult to reconcile the AER's rejection of the ATO data (largely on the basis of problems with FAB data) with its 100% reliance on the Lally 20-firms approach (which relies directly on FAB data).

The benchmark efficient entity

Since the objective is to estimate the distribution rate for the benchmark efficient entity (BEE), the 20-firms estimate will only be appropriate if the 20 firms are similar to the BEE in relevant respects. There are two corporate characteristics that determine the firm's imputation credit distribution rate:

- **The dividend payout rate**: Because credits can only be distributed by attaching them to dividends, a higher dividend payout rate will result in a higher credit distribution rate, other things being equal.
- **Foreign profits**: Because credits can be attached to dividends that are paid out of foreign profits, a higher proportion of foreign profits will result in a higher credit distribution rate, other things being equal.

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[306] ATO Note, p. 1.
[307] ATO Note, p. 1.
[308] Or it could be said that they have been distributed to shareholders who are known to be unable to redeem them – which is equivalent.

Thus, firms that differ materially from the BEE in terms of either of these two characteristics (dividend payout rate, or availability of foreign profits) will be inappropriate for the purpose of estimating the credit distribution rate.

The 20 largest Australian companies have (on average) material foreign profits. The average across the 20 companies is more than 40% foreign revenue.[309] By contrast, the benchmark efficient entity has 100% domestic revenue, by definition. To the extent that these 20 companies are able to use foreign revenues to assist in the distribution of imputation credits, the estimate of the distribution rate will be overstated.

The sample of 20 firms varies materially in terms of the dividend payout rate. For example, over the 2000-2013 period examined by Lally, the large mining firms had low dividend payout rates (as that period coincided with the mining investment boom) while Telstra had a very high payout rate. Consequently, it is impossible for all 20 firms to be appropriate comparators on this dimension – as not all can have a dividend payout ratio that matches the BEE.

In summary, the sample of 20 firms has been selected on the basis of size. But size is not a characteristic that has any relevance to the credit distribution rate. The two characteristics that *are* relevant are the proportion of foreign profits and the dividend payout rate, and the 20 firms sample differs materially from the BEE on both of those dimensions. Consequently, it seems impossible for the sample of the 20 largest companies to provide an appropriate estimate of the credit distribution rate for the BEE.

The distribution rate from comparator firms

Lally (2018) considers the imputation credit distribution rate for five comparator firms: APA, AusNet, DUET, Envestra, and Spark Infrastructure.[310] However, there are a number of material problems with this analysis:

- Dr Lally is unable to find the required FAB information in relation to three of those firms, although for one of those firms he *assumes* a closing FAB and proceeds on that basis.
- For one of the two remaining firms, he replaces his empirical estimate of the distribution rate with his assessment of what he considers the distribution rate would have been if the company in question had adopted what he considers to be more efficient behaviour.
- For the one remaining firm (AusNet), Dr Lally concludes that the distribution rate must be 1 because the 2017 FAB is less than the 2007 FAB. However, AusNet's annual reports reveal that the FAB increased materially from $10.3 million in 2006 to $28.6 million in 2007 to $51.2 million in 2016. The FAB recorded for 2017 is -$26.4 million. The cause of this large reduction in the FAB is *not at all* related to the distribution of credits. Rather, it is due to AusNet receiving a large tax refund during that financial year. The 2017 AusNet Annual Report highlights:

[309] Source: Bloomberg: Financial Analysis – Segment geographic.
[310] Lally (2018), pp. 19-20.

> *The reduction in franking credits that will arise from the receipt of tax refund for FY2017 from the ATO*[311]

and notes that:

> *The refund for FY2017 arises primarily from increased deferred tax resulting from differing tax and book depreciation profiles.*[312]

This serves to highlight the dangers of using a high-level analysis of FAB data to estimate the distribution rate for any firm. Not every reduction in the FAB is caused by the distribution of credits. That is, the assumption that every reduction in the FAB is due to credits being distributed to shareholders is inconsistent with the evidence.

Moreover, a materially different estimate of the distribution rate would be obtained if the sample period had started one year earlier (2006) or finished one year earlier (2016). So the estimates are unstable depending on the particular sample period that is used.

Implicit assumption that every reduction in the FAB is due to credits being distributed to final shareholders

The 20-firms approach assumes implicitly that all credits distributed by each of the 20 firms are immediately available for end shareholders to redeem. However, any credits distributed to other companies or trusts will be retained by those entities until they pay a dividend or make a distribution. ENA is unaware of any data on the extent to which credits are trapped, or delayed, in these intermediate entities. However, it would be unreasonable to assume that the figure is zero, in which case the 20-firms approach would produce an upper bound for the distribution rate.

An obvious example of this problem relates to BHP, where the Australian company BHP Ltd has distributed over $1 billion of credits to the sister firm in the UK, BHP Plc, under the dividend equalisation scheme, which has recently come to the attention of a number of activist shareholder groups. Although these credits have been removed from the FAB, they have not been distributed to shareholders, so the FAB-based estimate of the distribution rate is overstated.

Similarly, a number of firms, including AGL and AusNet Services, have received large tax refunds that materially decrease their FAB. Under the Lally approach, these reductions are incorrectly treated as distributions to shareholders. Again, the result is an overstatement of the distribution rate.

In this regard, the ATO note of September 2018 concludes that:

> *Taxation Statistics cannot be used to estimate the quantum of franking credits created, distributed or received by a company or group over time.*[313]

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[311] Ausnet 2017 Annual Report, p. 107.
[312] Ausnet 2017 Annual Report, p. 107.
[313] ATO, September 2018, Franking account balance – tax of time series data from Taxation Statistics, p. 1.

There has been no suggestion that any firm would report a different FAB figure to the ATO than the figure it reports in its financial statements. Consequently, it would seem to follow that if the figures reported to the ATO cannot be used to estimate the quantum of franking credits distributed by a company or group over time, the figures in the same firm's annual report also cannot be used for that purpose.

Other problems with the 20-firms figures

ENA's May 2018 submission (Section 8.2) also documented a number of other problems with the 20-firms figures which appear to remain unaddressed in the Draft Guideline.

Conclusions in relation to the 20 firms estimate of the distribution rate

ENA considers that:

- The evidence does not support the AER abandoning its current approach in favour of placing 100% weight on the 20-firms approach.
- If the 20-firms approach is to be used, it should be interpreted as an upper bound rather than a point estimate because not all reductions in a firm's FAB are due to credits being distributed to investors.

10.4 Problems with the equity ownership estimate of the utilisation rate

Internal consistency

The primary problem with the approach proposed in the Draft Guideline is that an estimate of the proportion of credits distributed to the BEE shareholders is paired with an estimate of the proportion of credits redeemed by some *other* group of shareholders. If the equity ownership approach is to be used, it should be for listed equity – to be consistent with the definition of the BEE.

An upper bound only

The equity ownership approach assumes (among other things) that every credit that is distributed to a resident investor is redeemed by that investor. However, there are a number of reasons why resident investors do not redeem credits, including being barred from doing so by the operation of the 45-day rule. Thus, the equity ownership estimate is an upper bound for the actual proportion of credits redeemed and should be interpreted in that way.

This problem with the equity ownership estimates will intensify if the law is changed to prevent shareholders who have no personal tax obligations from redeeming credits. Such a change is the current policy of the federal opposition, who has announced that it would apply from 1 July 2019 if the opposition succeeds in winning power at the next general election, and would prevent the redemption of $59 billion of credits over

the decade.[314] In this case, the equity ownership approach could not be used as an estimate of the proportion of credits redeemed, because the assumption that every credit distributed to a resident investor would be obviously invalid. Over recent years a total of approximately $25 billion of imputation credits has been redeemed each year and the Parliamentary Budget Office has estimated that the proposed change in policy would result in approximately $6 billion of credits[315] becoming ineligible for redemption, which is clearly material. For example, an equity ownership estimate of 60% would need to be adjusted down to approximately 45%.

Of course, the Guideline must reflect the current law, rather than potential (or even likely) new laws. However, the Guideline should clearly set out how the AER would change its approach to estimating the utilisation rate if the law is changed such that the equity ownership approach is no longer appropriate.

That is, it would clearly be inappropriate to fix a gamma for the duration of the Guideline, on the basis that all credits distributed to resident investors can be redeemed, when there is a material prospect of a material violation of that assumption. This is particularly important in light of the proposed amendments to the NEL and NGL which result in a binding Guideline which cannot be re-opened during its four years of application.

ENA proposes that, if the AER maintains its reliance on the equity ownership estimates, the Guideline should set out a process for how the allowed gamma would change if the proposed policy becomes law. The simplest approach would be for the AER to set two figures for gamma – one to be adopted if the existing law is maintained and one to be adopted if the proposed policy becomes law. ENA notes however that, in order to comply with the proposed binding Guideline framework, this approach must be able to be applied without the exercise of any discretion by the AER when applying the Guideline.

Other problems with the equity ownership estimates

There are material questions about the reliability of the equity ownership estimate, including:

- The equity ownership estimates are based on survey data collected by the ABS which requires filtering and adjustment to "clean" the data. It is the subject of express data quality warnings by the ABS. Since the ABS data are collected through surveys of samples of taxpayers, the equity ownership estimates are subject to sampling error and, unlike the ATO tax statistics estimates, represent very indirect estimates of gamma under a utilisation rate interpretation.

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314 https://d3n8a8pro7vhmx.cloudfront.net/australianlaborparty/pages/7652/attachments/original/.1520827674/180313_Fact_Sheet_Dividend_Imputation_Reform.pdf?1520827674.

315 https://d3n8a8pro7vhmx.cloudfront.net/australianlaborparty/pages/7652/attachments/original/.1520827674/180313_Fact_Sheet_Dividend_Imputation_Reform.pdf?1520827674.

- In its Gamma Discussion Paper, the AER has noted that the ABS has revised the figures on which the AER's equity ownership estimates are based. The problems that are evident, even in the updated data, include:
  - The method for compiling the data has not changed. There is still the same reliance on survey responses, there is still the same mis-match between components of the data, and there are still the same problems with estimating the market value of equity for some sectors.
  - The historical estimates for some sectors have changed materially in the update. The fact that an historical number can be materially changed almost 20 years after the event is clearly troubling. This is especially so when the change is not based on new data, but rather the application of different assumptions for how the same data should be processed into an estimate.
  - The revision to the estimates is based on a 'backcasting' exercise whereby estimated splits between domestic and foreign equity from recent data is 'backcast' to the historical data, replacing the estimates that were made at the time the historical data was collected.
  - The revised estimates result in very little volatility in the estimates for listed equity and more volatility in the estimates for all equity, when the reverse would be expected ex ante.
  - The plausible impact of the GFC that was evident in the 2014 data has now been removed in the 2017 revision. That is the GFC impact has now been removed from the historical record.

ENA submits that the recent information released by the ABS raises more questions about the reliability of the equity ownership estimates than were apparent at the time of the 2013 Guideline. ENA submits that this data should receive relatively less weight, accordingly.

Conclusions in relation to the equity ownership estimates

ENA considers that:

- The evidence does not support the AER abandoning its current approach in favour of placing 100% weight on a single equity ownership estimate.
- If the equity ownership approach is to be used, it should be interpreted as an upper bound rather than a point estimate because resident investors do not (and cannot) redeem 100% of the credits that are distributed to them.
- The Guideline should set out clearly how the AER will change its approach to estimating the utilisation rate if the law is changed such that the equity ownership approach is no longer appropriate.

10.5 Appropriate use of the Australian Tax Office data

Overview

The Explanatory Statement proposes that no weight will be afforded to the taxation statistics published by the Australian Tax Office. Two reasons are provided: the AER

has concerns about the reliability of that data, and the AER considers that listed firms provide the best proxy for the BEE whereas the ATO statistics include data for unlisted equity. Each of these issues is dealt with below.

The reliability of the tax statistics published by the ATO

The proportion of tax paid by the average firm that is returned to investors via the utilisation of imputation credits can be estimated directly using the ATO tax statistics approach. This approach uses aggregate tax statistics data published by the ATO to calculate the proportion of tax paid that is returned to investors as the ratio of *credits redeemed* to *credits created* over the Australian market. Under this approach:

$$\gamma = \frac{Credits\ Redeemed}{Credits\ Created}$$

where the numerator is the total amount of credits redeemed against personal tax obligations and the denominator is total corporate tax paid over the relevant period.

The AER has raised concerns about using the ATO tax data to estimate 'Credits Distributed,' but that figure is not required to estimate a 'utilisation' gamma, as set out above. The AER's concerns in this regard are said to stem from earlier work by Hathaway (2013).[316] However, Hathaway has since noted that, because the estimate of gamma does not require a separate estimate of Credits Distributed, he considers it to be perfectly reliable:

> *The Company Tax item is the total company tax collected by the ATO during the relevant period and the Credits Redeemed item is the total amount of credits redeemed via the filing of personal tax returns. These two data items are 100% reliable as they are figures that relate directly to ATO tax collections. There is no reason to question the ATO's records of the amount of corporate and personal tax it has collected.*[317]

Hathaway (2017) goes on to conclude that the ATO tax statistics can "clearly"[318] be used to provide a reliable utilisation estimate of gamma.

The Explanatory Statement notes that the conclusion of the ATO note commissioned by the AER was that:

> *The ATO would not recommend using taxation statistics data as the basis for a detailed macro analysis of Australia's imputation system.*[319]

The AER arranged a meeting on 21 June 2018 to provide an opportunity for ATO staff to explain what the above quote means. In that meeting, ATO staff explained that their concerns related primarily to the problems with the FAB data. It has now been generally agreed that the FAB data should not be used and that the dividend data

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[316] Hathaway, N., 2013, "Franking credit redemption ATO data 1988 to 2011," Capital Research, September.
[317] Hathaway (2017), p. 1.
[318] Hathaway (2017), p. 2.
[319] ERA, July 2018, Draft Rate of Return Guideline: Explanatory Statement, Paragraph 848.

should be used to estimate 'credits distributed.' That is, there is agreement that the problematic FAB data should not be used for any purpose.

The ATO note also identifies that the question they were asked to address relates specifically to the franking account balance:

> *The AER has sought input from the ATO regarding the use of Taxation Statistics data* ***to reconstruct the franking account balance****.*[320]

and the ATO is clear in its answer to this question:

> *It would be difficult to use this data to* ***reconstruct franking accounts****.*[321]

Having reached agreement that the FAB data should not be used (and that the FAB data is not required to provide a utilisation estimate of gamma) the relevant question is simply whether the ATO has reliable data on:

- Credits created, by the payment of corporate tax to the ATO; and
- Credits redeemed from the ATO by shareholders,

as these are the only two quantities required to estimate gamma under a utilisation approach.

No question has been raised in relation to the data on 'credits redeemed' from the ATO. The only questions that have been raised in relation to 'credits created' by the payment of corporate tax to the ATO are:

- Some foreign companies pay corporate tax in Australia, which does not give rise to the creation of credits; and
- The ATO data relates to tax payable rather than tax paid, so would be overstated to the extent that companies default on their tax obligations.

Hathaway (2018) has investigated both of these issues and concludes that they are both immaterial.

In relation to foreign companies, Hathaway (2018) concludes that:

> *Not only does the data for non-residents 'appear to be small at first glance' [as acknowledged by the AER] but it is small and not material…the effect of the non-resident data only changes the second decimal place of the gamma estimate. It is clearly not material in the overall scheme of gamma estimates.*[322]

In relation to the difference between tax payable and tax paid, Hathaway (2018) notes that the vast majority (85%) of company tax is collected progressively throughout the year. Thus, even if 5% of the remaining tax payable was never recovered (which is an implausibly high figure for defaults on tax obligations) this would mean that tax

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[320] ATO note of 9 May 2018, p.1, emphasis added.
[321] ATO note of 9 May 2018, p.1, emphasis added.
[322] Hathaway (2018), p. 5. Available at https://www.aer.gov.au/system/files/ENA%20-%20Capital%20 Research%20Memorandum%20-%2028%20June%202018.pdf.

payable and tax paid differed by only 0.75%, which has no material impact on the estimate of gamma.

That is, over the years of estimating gamma for regulatory purposes there have been no material concerns raised about the quality of the data that the ATO publishes on 'credits created' and 'credits redeemed.' Consequently, these data would seem to provide a reliable estimate of the 'utilisation' or 'cash flow' gamma, albeit one that includes unlisted firms.

ENA is now aware of a new half-page note prepared by the ATO to clarify points made in its quarter-page note of 9 May 2018.[323] This new note is titled *Franking account balance – tax of time series data from Taxation Statistics*. ENA considers that there are a number of problems with this new note from the ATO:

- The new note is as materially unclear as the ATO's previous note. What is required from the Taxation Statistics is figures for the amount of corporate tax the ATO has collected each year and the amount of credits that have been redeemed from the ATO each year. Those figures can either be obtained from the Taxation Statistics or not. Rather than simply stating whether or not these two amounts can be obtained from the published figures, the note states that the data "*should not be used for detailed time series analysis of the imputation system*" [324] or for "*any macro analysis of franking credits*."[325] It is not clear what "detailed time series analysis" or "macro analysis" is being referred to. All that is required is information about how much corporate tax the ATO collected each year and how many credits were redeemed from it each year. Either that information is available in the published Taxation Statistics, or the ATO can direct us to where it *is* available.
- There is no indication of what led to the ATO providing this 'clarification';
- The ATO does not explain why it did not mention in its first note that there may be material problems with quantities other than the FAB, nor why ATO staff indicated, during the meeting with AER and ENA representatives, that the data for 'credits redeemed' and 'credits created' *was* reliable;
- The ATO does not set out any reasons or any examples of why it is unable to publish reliable data about the amount of corporate tax it has collected each year or the amount of credits that has been redeemed from it each year;
- The ATO note does not respond to any of ENA's detailed submissions on this issue;
- The note was produced without warning one week before submissions on the Draft Guideline are due, allowing all stakeholders very little time to analyse, clarify

[323] https://www.aer.gov.au/system/files/ATO%20Note%20-%20Clarification%20of%20points%20in%20previous%20ATO%20note%20dated%209%20May%202018%20titled%20%E2%80%98ATO%20note%20to%20the%20AER%20regarding%20imputation%27%20-%2014%20September%202018.pdf.
[324] ATO, September 2018, Franking account balance – tax of time series data from Taxation Statistics, p. 1.
[325] ATO, September 2018, Franking account balance – tax of time series data from Taxation Statistics, p. 1.

or respond to the new information. This is another example of the failure of the review process.

However, ENA's main concern is with the AER's process in relation to this issue.

Under the AER's 'cash flow' approach, a direct estimate of gamma can be obtained as the ratio of credits redeemed to credits created. The ATO clearly has perfectly reliable data on both of these quantities. The ATO self-evidently knows how much corporate tax it has collected each year and it obviously knows how many credits have been redeemed from it each year. Any outcome contrary to this would clearly represent a critical failure on the part of the ATO in the execution of its ordinary statutory duties. If the ATO does not know how much corporate tax it has collected each year and how many credits have been redeemed, this is important relevant information for the assessment task of the AER's review and needs to be known. Similarly, if the ATO has this relevant information and is unwilling to disclose it upon enquiry, that would appear to be clear failure of transparency on the part of the ATO.

For the reasons set out above, ENA considers that both of these quantities can be reliably obtained from the Taxation Statistics published by the ATO, or from ATO public records created in the ordinary course of its statutory duties. It would be quite extraordinary if that were not the case as it would imply that the published Taxation Statistics could not be relied on to determine basic quantities such as how much corporate tax the ATO has collected each year and how many credits have been redeemed from it. .

However, the AER clearly has concerns about the reliability of the published Taxation Statistics in general. That is, the ATO clearly knows the correct figures for corporate tax paid and credits redeemed, but the AER has concerns about whether those true figures can be obtained from the published Taxation Statistics.

In these circumstances, if the AER has concerns about the published Taxation Statistics, the obvious step is to ask the ATO to provide it with the correct figures. This should be done as a matter of urgency given the materiality of the issue to the overall assessment being undertaken by the AER.

The alternative of a continuing focus on two notes from the ATO about what can be made of the data that has been published -notes that are brief and unclear - would not be consistent with a transparent evidence-led process seeking to produce the best possible estimate of gamma. A final guideline which adopted this approach would rather create a perception that significant evidence that is relevant to the assessment of credible alternative methodologies has not been actively or appropriately sought.

Recommendation on approach – tax statistics data

ENA requests AER urgently request from ATO its latest available aggregate data on:

- Total corporate tax collected by the ATO from Australian firms each year
- Total franking credits redeemed from the ATO each year

The AER should provide review stakeholders with guidance that this information is being sought, and publish the resulting data on receipt.

Weighing of strengths and weaknesses

The Explanatory Statement concludes that the BEE is best proxied by a listed firm. However, there are three problems with the data that are available in relation to listed firms:

- The Lally estimate of the distribution rate provides, at best, an upper bound for each firm because franking account balances can, and do, reduce for reasons other than the distribution of credits to shareholders.
- The equity ownership estimate of the utilisation rate is, at best, an upper bound because resident investors do not (and cannot) redeem all credits distributed to them – a problem that may well intensify after 1 July 2019.
- Combining two estimates from two different methodologies using two different data sources results in a compounding of estimation error.

The ATO tax statistics have the great benefit of providing a direct estimate of gamma from a single source of data. There is no need to estimate separately distribution and utilisation rates – the 'cash flow' gamma can be estimated directly as the ratio of credits redeemed to credits created.

Also, the ATO tax statistics provide a point estimate rather than an upper bound – the ATO records credits actually redeemed, rather than an estimate of the maximum amount of credits that could possibly be redeemed.

The only apparent disadvantage of the ATO data is that it also includes unlisted equity, whereas the AER has concluded that listed equity provides the best proxy for the BEE. The AER considers that the distribution rate for listed equity may exceed that for unlisted equity. In this case, the ATO estimate would be a lower bound for the 'utilisation' gamma for listed equity.

The AER has concluded that the relevant task is to estimate the utilisation/cash flow gamma for listed equity. Consequently, the AER must weigh the various strengths and weaknesses of each approach in performing that task. For the reasons set out above:

- The 20-firms/equity ownership approach produces an upper bound of 0.39. The 20-firms estimate for listed equity is an upper bound because the FAB can fall for reasons other than the distribution of credits to shareholders. The equity ownership estimate for listed equity is an upper bound because resident investors do not (and cannot) redeem all of the credits that they receive.
- The ATO tax statistics approach produces a lower bound of 0.34. This is because the ATO data includes unlisted equity and the distribution rate for unlisted firms may exceed that for listed firms.

Conclusions and recommendations

ENA considers that the evidence supports a range of 0.34 to 0.39 for the utilisation/cash flow gamma for listed equity.

ENA submits that it would be inappropriate to fix a gamma for the duration of the Guideline. Rather, the Guideline should set out how the estimate of gamma will be changed if the equity ownership approach becomes inappropriate due to the proposed change in tax law. The simplest approach would be for the AER to set two figures for gamma – one to be adopted if the existing law is maintained and one to be adopted if the proposed policy becomes law.

10.6 Response to consumer submissions

CRG submission

The CRG submission proposes a new approach for estimating gamma, which results in a gamma estimate of 1. [326]

The first element of the CRG approach is to assume that the utilisation rate is 1 on the basis that "the firms are using the most efficient source of finance, that being Australian investors entitled to make use of imputation credits." [327] ENA considers that there are some obvious problems with this assumption:

- The suggestion that a firm could lower its cost of capital by restricting its equity capital raising to Australian residents only is not a logical proposition on its face and inconsistent with observed practice.
- It is inconsistent with the evidence that NSPs *do not* raise equity exclusively from resident investors; in fact, quite the reverse.
- If it was "efficient" for NSPs to raise equity exclusively from resident investors, it would also be efficient for all other firms to do the same. But this demonstrates the impossibility of the assumption as the AER's equity ownership estimates demonstrate that material foreign equity is required to fund Australian listed firms.

The second element of the CRG approach is based on the notion that the BEE is allowed to earn a profit of RAB×WACC, from which it funds net new investment (Investment-Depreciation), distributing the remainder to shareholders in the form of dividends. ENA considers that there are some obvious and elementary problems with this approach:

- It ignores the payment of interest on debt. Indeed, the majority of the RAB×WACC allowance is paid to debt holders as interest – it is not available to pay dividends to shareholders.
- It ignores the RAB roll-forward model. Another significant part of the RAB×WACC allowance, namely compensation for expected inflation, is rolled-

[326] CRG Submission, May 2018, Section 6.12.
[327] CRG Submission, May 2018, p. 71.

forward into the RAB and is not available to be paid out as a dividend to shareholders.

Consequently, the CRG's submission on this point is fundamentally flawed.

For the reasons set out above, ENA submits that the CRG proposal in relation to gamma should receive no weight.

CCP submission

The CCP submission proposes that gamma should be set to at least 0.5.[328] The CCP propose that a distribution rate from the 20-firm approach might be paired with a utilisation rate based on the equity ownership approach applied to all equity.[329] That is, the CCP submits that the highest available estimate of each parameter should be paired together. This is clearly an example of 'cherry-picking' the evidence to produce the highest possible estimate of gamma, with no sound economic basis for doing so.

The Explanatory Statement precisely follows the CCP submission in relation to gamma, adopting the 0.5 figure proposed by the CCP for the reasons suggested by the CCP. Consequently, the CCP Submission has been addressed in responding to the Explanatory Statement above.

[328] CCP Submission, May 2018, p. 133.
[329] CCP Submission, May 2018, p. 133.

11 Role of RAB multiples, profitability metrics and financeability analysis

Key messages

- The Draft Guideline proposes that no role will be given to RAB multiples, profitability metrics, or financeability analysis when setting the allowed return.
- Although ENA considers that there is some merit to financeability analysis, ENA considers that the general approach of having no regard to the set of extraneous information is capable of acceptance.
- ENA remains of the view that financeability assessments could be useful in ensuring that the allowed return is sufficient to support the credit rating that was assumed in deriving that allowed return.

11.1 The role of RAB multiples

The Explanatory Statement states that RAB multiples have had no role in the development of the Draft Guideline:

> *Our draft decision is not to use RAB multiples to inform our rate of return. This is consistent with the approach we adopted in the 2013 Guidelines.* [330]

ENA agrees that RAB multiples have no useful role to play in informing the estimation of any rate of return parameter.

ENA submits that it is important for every rate of return parameter to be estimated using evidence that is relevant to that parameter. There is no role for any informal 'shading' of estimates in relation to historical RAB multiples that might be observed for specific individual businesses. That is, there is no place for selecting a parameter estimate other than the best available estimate, commensurate with the prevailing conditions in the market, to somehow informally account for observations of RAB multiples in transactions over previous years.

The CRG May 2018 Submission proposes that RAB multiples can be used as part of the beta estimation process. Specifically, the CRG submits that the empirical beta estimates should be divided by observed RAB multiples to estimate the risk of the regulated asset base:

> *The CRG notes that transactions for businesses containing regulated entities imply RAB multiples in the range of 1.3 to 1.6. It is reasonable to assume that the asset risk is higher for the unregulated parts of the business and the realisation of efficiency improvements than it is for the*

[330] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 133.

regulated asset. Adjusting for this bias would move the observed range from 0.4 – 0.7 to about 0.2 – 0.5.[331]

However, the CRG presents no evidence that the unregulated part of the business or the value created from efficiency improvements has a higher systematic risk, or what that higher level of risk might be. By contrast, gas transmission pipelines often try to contract outside the regulatory regime to *reduce* risk, by securing contract terms over a longer period. There is also no evidence provided about the relative proportion of firm value that is due to unregulated assets and efficiency improvements. Also, no explanation is provided as to why, or how, or to what extent a RAB multiple would be related to either of these things.

ENA submits that there is no basis whatsoever for the proposed approach of dividing empirical beta estimates by recent RAB multiples.

The CCP May 2018 Submission proposes that the AER could have regard to RAB multiples when exercising its discretion at the parameter and overall return on equity level. This point is discussed in detail in Section 2.2 above, so is not repeated here.

11.2 The role of historical profitability metrics

The Explanatory Statement states that:

Our draft decision is not to use the historical profitability measures identified in our draft Position Paper to inform our rate of return for this guideline review. This is because we currently do not have a robust data set to calculate these measures. This approach is consistent with our 2013 Guidelines. [332]

ENA agrees that, while serving as one appropriate consideration in relation to overall performance of a regulatory regime, historical profitability metrics have no useful role to play in estimating any rate of return parameter because:

- There is no clear link between historical profitability metrics and any rate of return parameter.
- Historical profitability metrics are not relevant in the context of individual determinations under the current regulatory framework. The National Electricity and Gas Laws are based on a forward-looking incentive regime, which requires forward-looking estimates of efficient forward costs.
- Any consideration of profitability metrics must be performed on a like-with-like basis. A large number of factors can affect the measured profitability of firms. Comparisons across firms can be misleading if these factors differ materially between businesses.

[331] CRG Submission, May 2018, p. 6.1.
[332] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 144.

» A number of profitability measures have significant weaknesses. The consideration of profitability measures should recognise and reflect these limitations.[333]

As for RAB multiples, ENA submits that it is important for every rate of return parameter to be estimated using evidence that is relevant to that parameter. There is no role for any informal 'shading' of estimates in relation to the historical profitability data that is currently available.

In this regard, ENA agrees strongly with the conclusion in the Explanatory Statement notes that:

> *In response to CCP16 comments about using financial performance measures to exercise judgement on the overall rate of return, or even at the parameter level, we consider it appropriate to first understand the drivers behind any financial performance measures before exercising any form of judgement.* [334]

If the AER revisits this conclusion such that it does start to consider past profitability metrics (in some informal way) when setting the allowed return, it is very important that the procedure for doing so is spelled out in precise detail for stakeholders to consider.

As discussed in Section 2.2 above, the CRG has submitted that the AER could exercise judgment by reducing the allowed return if there is evidence of regulated businesses earning "ex post EV profits."[335] Section 2.2 explains why ENA considers that approach to be an inappropriate fundamental departure from the current regulatory framework.

The CCP May 2018 Submission proposes that the AER could have regard to historical profitability measures when exercising its discretion at the parameter and overall return on equity level. This point is discussed in detail in Section 2.2 above, so is not repeated here.

11.3 The role of financeability assessments

The Explanatory Statement states that:

> *Our draft decision is not to use financeability assessments to inform our rate of return. This is consistent with the approach we adopted in the 2013 Guidelines.* [336]

The primary reason for rejecting financeability assessments appears to be a view that a financeability assessment applied to the BEE would be circular in some way:

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[333] As a general principle, the further below the level at which interest and tax are deducted, the more the measures must rely upon arbitrary assumptions about cost and revenue allocation from corporate accounts to the regulated asset level, and the less reflective they are of the actual returns to the relevant stakeholders.
[334] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 149.
[335] CRG, May 2018, Submission to the Australian Energy Regulator Rate of Return Review, p. 73.
[336] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 152.

Further, we do not consider that a financeability assessment would be helpful in a regulatory context if it were to be undertaken using the assumptions (eg, gearing and interest costs) underpinning the allowed revenue. This is because the cashflows assumed under such a financeability assessment, would be equal to the cashflows provided in calculating the allowed revenues in the first place – which means that there would be no cashflow timing issues under such an assessment.[337]

However, there is no circularity in that there is no guarantee that the assumed credit rating will be supported by credit metrics obtained from the PTRM, which is based on the AER's estimates of benchmark efficient allowances. For example, if the AER assumed a AAA credit rating for the BEE and estimated the allowed return on that basis, the resulting PTRM credit metrics would be insufficient to support the assumed AAA rating, indicating an internal inconsistency to be addressed. Indeed, this is precisely the way that most regulators apply financeability tests. For example, IPART has recently considered these issues in its review of financeability tests.[338]

The fact that a number of regulators in Australia and overseas use financeability assessments when setting revenue allowances demonstrates clearly that there is no circularity problem that renders such tests useless in a regulatory setting.

ENA agrees that financeability tests provide a useful check on the appropriateness of regulatory allowances (including the rate of return). IPART has made some important advances in thinking on the application of such tests in its most review. ENA notes that the review is still ongoing so networks collectively cannot comment comprehensively on the suitability of IPART's framework. The network sector would be happy to work with AER to explore whether and how financeabiltity tests should be applied by the AER, including their interaction with the rate of return allowance.

[337] AER, July 2018, Draft Rate of Return Guideline: Explanatory Statement, p. 153.
[338] https://www.ipart.nsw.gov.au/Home/Industries/Special-Reviews/Reviews/Financeability-Tests/Review-of-financeability-test-2018.

12 ENA response to consumer submissions

This section summarises ENA's understanding of, and response to, the key submissions made by the Consumer Reference Group (CRG) and Consumer Challenge Panel (CCP) throughout the process to date.

12.1 CRG submissions

In its 2013 Guideline, the AER exercised its discretion to set the allowed return too high. The AER applied a degree of "insurance" in its allowed return that resulted in a bias in favour of networks.[339]

As set out in Section 2.2 above, the AER has stated consistently that it seeks to produce the best possible estimate of the required return at the time of each regulatory determination. The AER considers that producing the best possible estimate will contribute to the NEO and NGO to the greatest degree. The AER has not adopted conservative parameter estimates, but has selected what it considers to be the best estimate based on the evidence at the time.

Figure 1 in this submission shows that the 2013 Guideline resulted in a material reduction in the allowed return on equity. In fact, the allowed return on equity after the 2013 Guideline was 14% lower than it was after the AER's 2009 WACC Review, which itself represented a 7% reduction to the previous allowed return.

Figure 2 and Figure 3 show that the effect of the 2013 Guideline has been to reduce materially the return on equity that businesses are allowed on each dollar of capital invested. The reductions are material for all networks and are over 25% for most.

ENA considers that:

- There is no evidence that the AER *intended* the 2013 allowed return to be generous. In fact, quite to the contrary, every indication at the time was that the AER considered its 2013 Guideline would produce the best estimate of the allowed rate of return; and
- The very material reductions to allowed returns under the 2013 Guideline is strong evidence against the proposition that the allowed return in the 2013 Guideline *was*, in any way, generous.

The generous allowed returns under the 2013 Guideline have created an incentive for NSPs to invest.[340,341]

Section 3.2 above shows that, since the 2013 Guideline, NSP capital expenditure across the industry has fallen very materially. The relevant evidence includes:

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[339] CRG, May 2018, Submission to the Australian Energy Regulator Rate of Return Review, p. 9.
[340] CRG, May 2018, Submission to the Australian Energy Regulator Rate of Return Review, p. 17.
[341] CRG, May 2018, Presentation to the AER, pp. 10-11.

- Figure 6 shows that total capex has halved since the 2013 Guideline.
- Figure 7 shows that augmentation capex has fallen to a quarter of its level in the year prior to the 2013 Guideline.
- Figure 8 shows that the capex/opex ratio has fallen dramatically since the 2013 Guideline.
- ENA's May 2018 Submission (Figure 5, p. 27) shows that NSPs have been materially underspending relative to capex allowances since 2013.

Thus, the evidence indicates that the allowed returns set in the 2013 Guideline have *not* created an incentive for investment.

The allowed returns under the 2013 Guideline have contributed to consumers paying more than they should.[342,343]

Section 3.1 above shows that network charges have reduced since 2013, and that recent price increases would have been higher but for the reduction in network charges:

- Figure 6 shows that network charges have fallen for all NSPs.
- Figure 7 shows that network charges now account for a much-reduced proportion of the average customer bill.

Thus, the evidence from the AEMC indicates that the reduction in allowed returns that was implemented in the 2013 Guideline has had the effect of reducing network charges.

Consumers have expressed a preference for lower prices, even if that comes at the cost of higher risk of insufficient investment.[344]

Section 2.2 above establishes that this proposition is inconsistent with the evidence that NSPs have compiled as part of their consumer engagement programs. Many NSPs have surveyed their consumers on the specific question of the trade-off between price and reliability and the evidence suggests that consumers would (of course) prefer lower prices, but not at the expense of higher risks to reliability.

The CAPM should not be used to estimate the return that is required to attract efficient investment.[345]

The CRG has stated that the AER's approach of using the CAPM to estimate the required return on equity involves an 'error reinforcement process' that should be replaced by an 'error correction process.'[346] This would involve an examination of historical profitability measures. If NSPs are observed to have generated profits that are considered to be 'excessive' the allowed return would be reduced to 'correct the

[342] CRG, May 2018, Submission to the Australian Energy Regulator Rate of Return Review, p. vii.
[343] CRG, May 2018, Presentation to the AER, p. 6.
[344] AER, 2018, Draft Rate of Return Guideline: Explanatory Statement, pp. 28-29.
[345] CRG, May 2018, Submission to the Australian Energy Regulator Rate of Return Review, p. vi.
[346] CRG, May 2018, Submission to the Australian Energy Regulator Rate of Return Review, p. 31.

error.' The allowed return would be reduced until observed profitability is deemed to be appropriate.[347]

This approach does not seem to require any economic model at all. The allowed return on equity allowance would be adjusted up or down depending on whether recent NSP profits were deemed to be excessive or inadequate. This approach is more analogous to cost-plus rather than incentive-based regulation. It also appears to be quite inconsistent with the entire basis of the Australian regulatory framework. Such an approach is also inconsistent with the current incremental review process.

The AER should exercise its discretion to lower allowed returns, being informed by the consequences of NSPs earning excess profits since 2013.[348]

The CRG recognises that the current incremental review will be unable to consider fully a fundamental change to the basis that is used for estimating the required return on equity. In the alternative, the CRG proposes that the AER should exercise its regulatory judgment, within the current framework, to reduce allowed returns. The CRG proposes that, in doing this, the AER should be informed by "the consequences of the rate of return being set too high under the 2013 Guideline."[349]

As set out above, the evidence does not support the assertion that the allowed return was set "too high" in the 2013 Guideline.

Moreover, Section 2.2 shows that it is important to distinguish between:

- The AER exercising its judgment in deriving the best possible estimate of the required return, based on market data and commensurate with the prevailing conditions in the market; and
- The AER expanding the role of judgment to adopt something other than the best possible estimate of the required return.

ENA agrees with the AER that the former is consistent with the NEO and NGO, but the latter is not.

The allowed equity risk premium should be reduced to 1.08% to 1.75%.[350]

The equity risk premium proposed by the CRG is materially lower than the current risk premium on investment grade debt. As set out above, ENA considers this proposal to be irreconcilable with any observed evidence in the market for equity funds, or any international regulatory practice.

The empirical estimate of equity beta should be divided by the RAB multiple from recent transactions.[351]

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[347] CRG, May 2018, Submission to the Australian Energy Regulator Rate of Return Review, p. 73; CRG, May 2018, Presentation to the AER, p. 15.
[348] CRG, May 2018, Submission to the Australian Energy Regulator Rate of Return Review, p. 35.
[349] CRG, May 2018, Submission to the Australian Energy Regulator Rate of Return Review, p. 35.
[350] CRG, May 2018, Submission to the Australian Energy Regulator Rate of Return Review, pp. 48, 69.
[351] CRG, May 2018, Submission to the Australian Energy Regulator Rate of Return Review, p. 48.

The CRG estimate of an equity beta of 0.3 appears to have been obtained by dividing an empirical estimate of beta by an estimate of RAB multiples from recent transactions. For the reasons set out in Section 11.1 above, there is clearly no basis for such an approach, and it should receive no weight.

The MRP estimate should be adjusted for firm-specific characteristics.[352]

Section 9.8 above explains that the CRG submission on MRP is based on issues that pertain specifically to NSP businesses. But firm-specific issues are, by definition, irrelevant to the MRP which is a market wide-parameter.

Consequently, the CRG submission on MRP is fundamentally flawed and should receive no weight.

The allowed return should be reduced to reflect the benefits of incentive payments and outperformance.[353]

The CRG submission proposes that the allowed return should be reduced "because the networks are able to retain the benefits of the incentives, clever financing and tax minimization strategies to improve their revenues and overall profitability." [354] There are two problems with this submission. The first, as addressed above, is that the CRG proposes that this should be done via the MRP, which is a market-wide parameter. The second problem is that such a reduction is contemplated at all. Reducing the allowed return in relation to incentive payments and observed historical profitability measures is diametrically inconsistent with an incentive-based regulatory framework and is indicative of the potential for misuse of historical profitability measures.

The allowed gamma should be set to 1 on the basis of two assumptions.[355]

Section 10.6 above explains that the CRG submission proposes that the two elements of gamma can be obtained by assumption.

The first element of the CRG approach is to assume that the utilisation rate is 1 on the basis that "the firms are using the most efficient source of finance, that being Australian investors entitled to make use of imputation credits." [356] Section 10.6 sets out some obvious problems with this assumption. For example, the suggestion that a firm could *lower* its cost of capital by restricting its equity capital raising to Australian residents only is inconsistent with some of the most commonly accepted findings of commercial and finance theory and, moreover, inconsistent with observed practice.

The second element of the CRG approach is based on the notion that the BEE is able to distribute to investors its entire after-tax return of RAB×WACC, other than what is required for funding net new investment (Investment-Depreciation). Section 10.6 sets out some of the obvious problems with this approach. For example, it ignores the

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[352] CRG, May 2018, Submission to the Australian Energy Regulator Rate of Return Review, p. 69.
[353] CRG, May 2018, Submission to the Australian Energy Regulator Rate of Return Review, p. 69.
[354] CRG, May 2018, Submission to the Australian Energy Regulator Rate of Return Review, p. 69.
[355] CRG, May 2018, Submission to the Australian Energy Regulator Rate of Return Review, Section 6.12.
[356] CRG, May 2018, Submission to the Australian Energy Regulator Rate of Return Review, p. 71.

payment of interest on debt. Indeed, the majority of the RAB×WACC allowance is paid to debt holders as interest – it is not available to pay dividends to shareholders.

Consequently, the CRG submission on gamma is fundamentally flawed and should receive no weight.

12.2 CCP submissions

RAB multiples and historical profitability metrics should be used when the AER applies judgment.[357]

The CCP May 2018 submission makes much of RAB multiples and the CCP presentation to the AER's stakeholder forum was largely devoted to discussion of RAB multiples. The CCP's primary submission is as follows:

> *RAB multiples provide information on expected returns that is directly relevant to the AER's task of determining a fair rate of return. While other factors affect RAB multiples, CCP16 considers that there are sound regulatory and commercial precedents for disaggregating the impacts of these factors. The implied ROE can then be used in a directional manner in setting the ROE and ROR. Lack of consideration of these measures increases the risk of setting a ROR that does not meet the requirements of the NEO / NGO.*[358]

ENA agrees with the CCP that, before any weight could be afforded to RAB multiples, it would be necessary to disentangle the impact that the allowed return has had on the RAB multiple. ENA agrees that it would be improper to make any sort of informal, ad hoc and unexplained adjustment to allowed returns based on a perception of RAB multiples from transactions over past years.

The Independent Panel has also recommended that the AER clarify what, if any, use it might make of RAB multiples:

> *The Explanatory Statement should explain more clearly how and when the 'monitoring' and 'gauging' of RAB multiples will take place, what questions the AER will seek to answer, and what actions the AER will take once it has answered those questions.*[359]

ENA notes that the AER has not proposed any method by which RAB multiples can be disaggregated to provide any information about the AER's allowed return at the time of the transaction. Consequently, there has been no opportunity for stakeholders to comment on any proposed aggregation methodology. If the AER proposes to consider such a disaggregation methodology in the future, ENA would welcome the opportunity to participate.

At present, ENA considers that there is no reliable RAB multiple disaggregation methodology. The RAB multiple paid by a successful bidder is a function of many

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[357] CCP16, May 2018, Submission to the Australian Energy Regulator, p. 54.
[358] CCP16, May 2018, Submission to the Australian Energy Regulator, p. 54.
[359] Independent Panel Report, September 2018, pp. 16-17.

considerations, only one of which is the current allowed return at the time of the transaction. ENA considers that isolating that one consideration is impossible.

In this regard, the majority of concurrent expert session participants agreed with the proposition that:

> *It is not practicable for observations of EV/RAV multiples to be decomposed in order to draw inferences as to the rate of return required by the market and used by the AER in the process of setting the ROR.*[360]

Even if it were possible to isolate the effect of the prevailing allowed regulatory return, there would be no real use for it anyway because:

- Even if it was possible to isolate the impact of the allowed return on equity, the assets in question have very long lives. Consequently, the return that investors expect to receive in future years has a much greater impact than the return that investors will receive over the remainder of the current regulatory control period.
- Relevant transactions occur very infrequently. A transaction that occurred several years earlier would, at best, provide information relevant at that time and would be irrelevant to current market conditions.
- Every transaction is unique, so it would be wrong to extrapolate from one particular transaction across the entire industry. For example, a particular transaction may involve a high RAB multiple because the company in question has relatively high opportunities for unregulated investment or efficiency improvements. It would be wrong to reduce the allowed return for all firms in the industry as a result of the inappropriate extrapolation of this evidence.

Consequently, ENA submits that RAB multiples have no useful role to play in the current process, but welcomes the opportunity to contribute to a future process to further consider their potential role in the regulatory process.

The 2013 Guideline erred in setting an allowed return that was "too high." [361]

The fact that a consumer orientated panel would have preferred a lower allowed return is unsurprising, but is not evidence that the allowed return *was* too high. By contrast, a number of NSPs considered the allowed return to be "too low" and years of litigation followed.

As set out in Section 2 above, ENA understands that the 2013 Guideline reflected the AER's best estimate of the required return, based on all of the relevant evidence at the time – the AER did not deliberately set the allowed return above or below what it considered the best estimate to be. Indeed, the 2013 Explanatory Statement notes that the AER was required to produce an allowed return that is commensurate with

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[360] Joint Experts' Report, Proposition 4.02, pp. 35-36. Graham Partington disagreed with the statement, but provided no explanation as to why. David Johnstone considered the list of factors that affect RAB multiples to be "esoteric reasons/excuses for why RAB multiples 'should be' greater than one."

[361] CCP16, May 2018, Submission to the Australian Energy Regulator, p. 73.

the efficient financing costs of the benchmark efficient entity.[362] That is, the AER has stated that it was trying to perform the correct task of setting an allowed return commensurate with the efficient financing costs of the BEE.

Of course it is possible that, although the AER was trying to perform the correct task, it erred in its implementation of that task. But the CCP has provided no persuasive evidence that the AER did err by setting allowed returns above the efficient level. Further, even if the CCP were to make out such a case, under the current ex ante regulatory framework administered by the AER, the outcomes of past regulatory control periods have no role in informing the rate of return that NSPs may be allowed to earn in future periods. Indeed, if such use of hindsight were to be incorporated within the regulatory framework, it would quickly cease to be an incentive-based system of regulation and move towards a system of cost plus regulation. That would be a fundamental shift of the regulatory regime that is well beyond the scope of this review.

As set out in Section 3 above, what the evidence does show is that:

- The 2013 Guideline materially reduced allowed returns;
- Subsequent to 2013, network charges have reduced materially;
- Subsequent to 2013, network investment has reduced materially;
- Subsequent to 2013, the proportion of customer bills due to network charges has reduced very materially;
- Subsequent to 2013, networks across the NEM have spent less than their capex allowances; and
- Subsequent to 2013, the allowed return on equity per dollar of RAB has reduced by an average of 30%.

Low-beta bias should be disregarded because (ex post) observed returns may differ from (ex ante) required returns.[363]

As set out in Section 8.6 above, there are two primary problems with this argument:

- If observed returns cannot be relied upon to reflect investors' required/expected returns for the purposes of assessing low-beta bias, they cannot be relied upon for any other purpose. That is, it would be inconsistent to rely on observed stock returns to estimate beta and MRP (on the basis that returns reflect investor expectations) but to then conclude that the same returns are unreliable (on the basis that they do not, or may not, reflect investor expectations) when considering low-beta bias;
- The evidence that low-beta bias is a real effect, and not the result of random chance resulting in observed returns being higher than expected returns for low-beta stocks, is compelling. It has been documented in the very top peer-reviewed journals by leading finance scholars (including two Nobel laureates) over several

[362] AER, December 2013, Rate of Return Guideline, Explanatory Statement, p. 15.
[363] CCP16, May 2018, Submission to the Australian Energy Regulator, p. 277.

decades in a number of developed markets and is documented in standard textbooks. The proposition that this evidence is not real, and may be the result of random chance, is without doubt unreasonable.

The DGM should not be used to inform the MRP estimate due to "anomalous results."[364]

As set out in Section 9.5 above, there are no "anomalous" or "divergent" results to be concerned about. The AER's preferred specification of the DGM produces a tighter range of estimates than in the 2013 Guideline. The only "anomalous" result arises from inserting a very low estimate of the long-run dividend growth rate into the model. However, as explained in Section 9.5:

- One basis for using a very low long-run growth rate arises from the 'Fenebris' approach, which produces nonsensical outcomes for a number of countries and which the AER's advisers have warned against. By way of one example, as at the date of this report, the Fenebris approach produces an MRP for Turkey of -0.351%. But for the spurious inclusion of the Fenebris estimates alongside estimates from other DGMs that are unambiguously more credible, there would be anomalous divergence of DGM evidence.
- The other basis for using a very low long-run growth rate erroneously compares a real growth rate with a nominal growth rate. Properly converting to a nominal growth rate produces an estimate close to the range already considered by the AER.

Gamma should be set to at least 0.5.[365]

The CCP proposal is that gamma should be estimated by pairing the 20-firms distribution rate (the highest of all available estimates) with the all equity ownership estimate (the highest available estimate of the utilisation rate).

Section 0 above explains why this is inconsistent with the AER's 'cash flow' approach to gamma. The 'cash flow' or 'utilisation' interpretation of gamma seeks to determine how much of the corporate tax paid by the BEE will be returned to its shareholders via the redemption of imputation credits. This interpretation requires consistent estimation of the distribution rate and the utilisation rate. That is, some proportion of credits will be distributed *to the BEE shareholders*, who will then redeem some of those credits. The corporate tax allowance is then reduced by the amount of credits that are redeemed back *by the BEE shareholders*.

Under the 'cash flow' interpretation of gamma it would be wrong to take the proportion of credits distributed to the BEE shareholders and to pair that with the proportion of credits redeemed by some *other* group of shareholders.

12.3 Stakeholder feedback summary

Table 10 summarises the key themes from consumer engagement undertaken by ENA and its members that are relevant to the Guideline review. This feedback has been

[364] CCP16, May 2018, Submission to the Australian Energy Regulator, p. 99.
[365] CCP16, May 2018, Submission to the Australian Energy Regulator, p. 133.

drawn from consumer engagement related directly to the Guideline review, as well as comments from ongoing business-as-usual engagement.

Table 10: Summary of feedback received from consumer consultation by ENA

Theme	What we heard	ENA Response
Reliability levels	Consumer engagement and research from member networks shows customers overwhelmingly rank reliability as their highest priority over price. Customers are satisfied with current levels of reliability and did not wish to pay more for increased reliability. Customers almost unanimously support current levels of reliability.	Customers' ability to tolerate declines in reliability differs according to customer type and impacts on customers for who reduced reliability would be problematic should be given weight. The AER's statement in the Draft Guideline explanatory statement that consumers are willing to accept a higher level of risk in respect of the rate of return and investment is not supported by any direct engagement with consumers.
Reliability trade-offs	Consumers do not want to trade-off reliability for lower prices.	ENA considers that the appropriate way to provide the correct incentives for the investment that underpins reliability and service levels is to set the allowed return equal to the best estimate of the required return, based on market data, and commensurate with the prevailing conditions in the market. While it is important to seek to reduce electricity prices, this should not come at any cost. Allowed revenues should be set at a level commensurate with efficient costs.

Theme	What we heard	ENA Response
Electricity prices	Electricity prices are too high. Customers want to pay less for their energy without reducing reliability.	ENA's submission and involvement in the review process has been based on the commitment to ensure energy prices are no more than necessary to establish a rate of return meets the NEO and NGO requirements for a reliable, safe and secure national electricity system. In particular we have sought to ensure our approach supports a rate of return that is no more than necessary to attract and retain necessary investment, and provides sustainable returns for the networks.
Consumer risks	Rate of return decisions and network proposals need to take account of consumer risks of volatility and price impacts.	ENA agrees with the AER that the Rate of Return should achieve the NEO and NGO, by "promoting efficiency in the investment, operation and use of, energy network services for the long term interests of consumers". The Guideline must protect and promote the long term interests of consumers in terms of price, quality, safety, reliability and security of supply of electricity. The Guideline should not focus on price to the exclusion of all other factors that contribute to the long term interests of consumers.

Theme	What we heard	ENA Response
Rate of Return	Regulated rates of return are too high and do not seem to be justified.	Rates of return have fallen significantly since the last Guideline, with proposed returns on equity approximately half that set a decade ago. Evidence presented in Section 3, and the in the joint ENA-CRG report shows actual capex by networks on infrastructure since the 2013 Guidelines has been below the levels allowed by the AER.
Exercise of regulatory discretion	Some consumers stakeholders believe the AER should exercise its judgment beyond the role of making empirical estimations.	ENA considers it crucial to distinguish between (1) the AER exercising its judgment to derive the best possible estimate of the required return, based on market data and commensurate with the prevailing conditions in the market – which ENA believes is consistent with achieving the NEO and NGO; versus (2) the AER exercising judgment to achieve other policy objectives. The Final Guideline should clarify that the exercise of judgment should be limited to the empirical estimation of the best possible estimates.

Theme	What we heard	ENA Response
Transparency	Consumers are seeking transparency in data used and methodologies for selecting values from available data.	The Draft Guidelines is unclear in a number of areas about which evidence is used and why or how. The Guideline applies evidence inconsistently and asymmetrically in several places. In many instances, the Explanatory Statement has rejected the weight of well-reasoned evidence including from the AER's own experts. In some places, conclusions drawn are inconsistent with the evidence considered. The Guideline should be transparent in explaining how each parameter estimate has been determined. ENA accepts that the AER will necessarily have to exercise judgment in some places, but that exercise of judgment should be explained so that stakeholders are able to understand how the final estimate was derived from the relevant evidence. All stakeholders should have an adequate opportunity to be heard and the Guideline should properly address all submissions. The Guideline should explain the reasons why each submission was accepted or rejected.

Theme	What we heard	ENA Response
Information for consumers and all stakeholders in future reviews	There are strong benefits in ensuring consumers and all stakeholders are in a strong position, via adequate information, to be able to judge the consistency of outcomes with the long-term interests of consumers (e.g., profitability, reliability, network pricing outcomes)	Agreed. The Draft Guideline needs to better explain how evidence has been used. ENA supports the AER's strategic objective of taking a long-term perspective and to consider the long-term interests of consumers in terms of price, quality, reliability and security of energy supply.

Theme	What we heard	ENA Response
Over investment in networks	Some consumers believe there has been over investment from networks and a reduction in the rate of return would not immediately impact on reliability	The quantum and proportion of network changes as a component of electricity prices has fallen consistently over the past five years. AEMC Residential Electricity Price Trends show that network charges have decreased from $702 or 52% of total costs in 2014-15 to $619 or 43% in 2017-18. Further, the energy market is currently facing transformative change which requires investment for renewable energy infrastructure, technological changes and rising consumer demand for new and innovative services. In order to deliver a reliable, safe and secure energy system for Australians, ENA has sought to ensure our approach supports a rate of return that is no more than necessary to attract and retain necessary investment, and provide sustainable returns for the networks.