INDEPENDENT PANEL REPORT

AER Draft Rate of Return Instrument

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Abbreviations

ABS	Australian Bureau of Statistics
AER	Australian Energy Regulator
APA	APA Group
APGA	Australian Pipelines and Gas Association
ASX	Australian Securities Exchange
ATO	Australian Taxation Office
CAPM	Capital Asset Pricing Model
CRG	Consumer Reference Group
DGM	Dividend Growth Model
DR	Distribution Rate
DRP	Debt Risk Premium
EICSI	Energy Industry Credit Spread Index
ENA	Energy Networks Australia
ERP	Equity Risk Premium
ES	Explanatory Statement - AER Draft Rate of Return Instrument, June 2022.
ES 2018	Explanatory Statement - AER Rate of Return Instrument, December 2018.
ETC	Estimated Company Tax Component
HER	Historical Excess Returns
MRP	Market Risk Premium
NEL	National Electricity Law
NEO	National Electricity Objective
NER	National Electricity Rules
NGL	National Gas Law
NGO	National Gas Objective
NGR	National Gas Rules
NPV	Net Present Value
NSP	Network service provider
PV	Present Value
RAB	Regulatory Asset Base
Regulatory period	Regulatory control period and/or access arrangement period
RBA	Reserve Bank of Australia
ROR	Rate of Return
RORI	Rate of return instrument
SL CAPM	Sharpe-Lintner Capital Asset Pricing Model
TMR	Total Market Return
WATMI	Weighted Average Term to Maturity at Issuance

Executive Summary

The Independent Panel's role is to answer the following questions regarding the AER's draft 2022 Review of the Rate of Return Instrument (RORI):

- In the Panel's view, is the draft RORI supported by evidence and reasons, taking into account competing factors such as accuracy, consistency, accessibility and transparency?
- In the Panel's view, is the draft RORI likely to contribute to the achievement of the National Electricity Objective (NEO) and the National Gas Objective (NGO) - collectively referred to as the Energy Objectives. (See Appendix 1)

Essentially, the Panel has been asked to undertake two tasks. The first is to assist the AER in identifying any gaps or deficiencies in its analysis and to make recommendations that may help to improve the process of setting the allowable rate of return of regulated network companies.

The second task is to provide assurance to stakeholders and the broader community by checking that the review process has been effective, the AER has engaged with the material put before it with an open mind and the decisions reached are supported by the stated reasons and the information available.

The AER has been undertaking research, commissioning professional studies, and seeking advice and inputs from stakeholders since the last RORI was finalised in 2018. For much of this period, there was a reasonable expectation that the operating environment would be broadly similar to the past.

The COVID-19 pandemic, and the associated stimulus measures, the war in Ukraine and more frequent climate emergencies have, however, reshaped the broad economic environment in ways that will present challenges for the energy industry, energy consumers and energy regulators going forward. More specifically, elevated energy prices and heightened sensitivity to energy security are creating an urgent need to transition to a low carbon environment. At the same time, consumer confidence in the energy market is being undermined by higher energy costs and fears of potential blackouts.

In a regulated energy market, tension should always exist between the need to encourage investment and the need to minimise costs to consumers. This tension is likely to be more acute during the life of the 2022 RORI. Accordingly, it is important for the AER to deliver the 2022 determination in such a way that consumers understand the practical implications for them, both in the short and the long run, resulting from the decisions set out in the determination. A highly transparent approach helps build trust which, in turn, is likely to have a positive bearing on consumer engagement.

With this in mind, the Panel has made a number of observations and recommendations.

Our central recommendations are:

1. That the AER consider the extent to which the recent data used in the analysis of MRP and beta have been distorted by the temporary policy responses to the COVID-19 pandemic - extraordinarily low interest rates and unprecedented quantitative easing - which are now being rapidly reversed. Decisions in the draft RORI should be re-assessed in light of this reversal.
2. That the AER undertake a more conclusive analysis of the efficacy of the 2018 RORI, by, for example,
    a. Expediting the process of consulting on the decomposition of the RAB multiple, which is a central part of its cross checks analysis.
    b. Assessing the incentive the RORI provides for investment by analysing regulated companies' applications for approval of capital expenditure that is discretionary e.g. increases reliability above minimum quality standards. Since such expenditure is not mandatory, applications to undertake it are evidence that the allowed rate of return on it is attractive.
    c. Examining other regulators' ways of addressing this issue.
3. That the AER discuss the effect of the RORI under a wider range of scenarios so as to better inform consumers regarding the potential impact of the regulatory system combined with changes in macroeconomic variables on energy bills and thus help to retain their confidence.

In the crosschecks section of the Explanatory Statement (ES), the AER has considered various approaches to determining whether previous determinations have delivered rates of return that were too high or too low. Its conclusions were indeterminate. In their view the data suggests that the allowable rates of return have not been too low and potentially higher than that needed to attract investment. However, there is insufficient evidence to draw a firm conclusion as to whether they have been too high. Importantly, the AER stops short of expressing a view on whether the rate determinations have delivered levels of investment that are too high or too low and hence whether they have contributed to meeting the long-term best interest of consumers and hence the Energy Objectives.

The Panel recognises that assessing the efficacy of the RORI is a complex and challenging task. However, this assessment should provide an important anchor to help inform the AER's thinking when exercising judgement. The Panel urges the AER to take the next step and provide an assessment of the effectiveness of the RORI process in delivering the 'right' level of investment and a level of investment that avoids contributing to excess returns and unnecessarily high prices

The AER utilises the standard Sharpe-Lintner Capital Asset Pricing Model (SL CAPM) in estimating the return on equity. It has canvassed a wide range of views on the best way to implement this model. The review process has been comprehensive and thorough.

The challenges facing the AER largely relate to the quality or availability of data. The Panel is broadly supportive of the reasoning and thus the decisions made in respect of the choice of

data inputs. We have, however, made a number of specific recommendations in relation to the weighting given to particular data. We consider the AER's reasoning provides strong support for their decision to reduce the term of the return on equity to five years and justifies the retention of the current equally weighted trailing average estimation process for determining the return on debt. In the case of the industry debt index, we recommend that the AER consider assigning a higher weighting to the EICSI index as it is based on direct observations of industry debt raisings. For similar reasons, the Panel recommends that the AER should investigate more fully the possibility of using ATO data to assess the utilisation rate of franking credits.

On the broader question of whether the AER has constructed an "unbiased estimate of the efficient return, consistent with the relevant risks involved in providing regulated network services", the Panel believes that the AER has conducted a rigorous process to build a sound model to underpin the estimation of key parameters used in constructing the RORI. This process is consistent with the objective of producing an unbiased estimate. The Panel notes that the estimation process results in a range of reasonable estimates and that judgement needs to be exercised to determine the most appropriate point estimates. In exercising its judgement, the AER has drawn on insights from various sources. The Panel acknowledges the qualitative nature of these judgments. In the interests of transparency and consistency the Panel recommends that the AER provide greater guidance on its overall approach to exercising its judgement and, where appropriate, apply consistent considerations to the assessment of all of the relevant parameter estimates.

The single biggest data challenge facing the AER relates to the shrinking size of the comparator data set. At the time of submitting this report, this had declined to a single entity. The AER has acknowledged the need to explore alternative sources of information to replace the current direct observations. The Panel recommends that the AER adopts a broad approach to identifying new data sources and remains open to the possibility of combining insights from multiples sources.

Data constraints present problems for many other regulators. The Panel recommends that the AER reviews both the scope of the research undertaken by other regulators as well as the outputs from their analysis when updating ROR estimates. With this in mind, the Panel has emphasised the importance of transparency, consistency and accessibility throughout its report.

Panel conclusion

The Panel's conclusion regarding the first question asked by AER is that the draft RORI is supported by evidence and reasons, subject to the reservations regarding specific issues which are summarised in the High Level Review section of this report.

The recommendations of the Panel, listed at the end of this Executive Summary, suggest how the specific reservations should be addressed.

The Panel's view regarding the second question asked is that the draft RORI is likely to contribute to the Energy Objectives based on the process that has been conducted, the

general way the AER has communicated and used evidence, and the transparency with which it has operated.

The Panel concludes that that AER should undertake and present in its final ES a more conclusive analysis of the efficacy of the RORI since its first creation in 2018. This is crucial to assure stakeholders, particularly consumers, that they can be confident regarding the contribution of the RORI to their long-term interests and hence to the Energy Objectives.

Subject to the recommendations set out below, the Panel consider the ES and RORI fulfil their role at this stage of the current review of the RORI.

Panel recommendations

The Panel's central recommendations are that the AER:

1. Considers the extent to which the recent data used in the analysis of MRP and beta have been distorted by the temporary policy responses to the COVID-19 pandemic - extraordinarily low interest rates and unprecedented quantitative easing - which are now being rapidly reversed. Decisions in the draft RORI should be re-assessed considering this reversal.
2. Undertakes a more conclusive analysis of the efficacy of the RORI, including, for example by:
    a. Expediting the process of consulting on the decomposition of the RAB ratio, which is a central part of its cross checks analysis;
    b. Assessing the incentive the RORI provides for investment by analysing regulated companies' applications for approval of capital expenditure that is discretionary e.g. increases reliability above minimum quality standards. Since such expenditure is not mandatory, applications to undertake it are evidence that the allowed rate of return on it is attractive; and
    c. Examining other regulators' ways of addressing this issue.
3. Discusses the effect of the RORI under a wider range of scenarios so as to better inform consumers regarding the potential impact of the regulatory system combined with changes in macroeconomic variables on energy bills and thus help to retain their confidence. **(Executive Summary)**

In more detail, the Panel also recommends that the AER:

4. In communicating its decisions to both consumers and other non-specialist audiences, provides the clearest possible answers to the following questions:
    a. Does the ES demonstrate that the interests of consumers have been given due weight in the review process?
    b. Does the evidence, e.g. from assessment of the efficacy of the 2018 RORI, show that the AER's decisions are likely to produce an outcome that is neither too high nor too low in terms of consumer bills and investor returns?
    c. What will be the impact on bills of different plausible scenarios (such as much higher inflation or interest rates)?
    d. Is the RORI likely to enable the necessary investment in the coming period? **(section 2.4)**
5. Explains in greater detail the means of dealing with unusual circumstances, such as COVID-19 and the war in Ukraine and to be more transparent about the way in which these issues have been taken into account in arriving at the estimates of market risk premium (MRP) and beta. (**section 2.7.2**)
6. Explains in greater detail the use of a mechanical method for MRP and the overlaying of judgement in the estimation of beta. The Panel is explicitly not asking the AER to

make a general policy statement on when it will use mechanical rules and when it will use judgement. **(section 2.8.1)**

7. Uses more conclusive analysis on the efficacy of the 2018 RORI - a key recommendation of this report - in its commentary on the Energy Objectives with its final decisions. **(section 3.3)**

Market Risk Premium and DGM

8. Justifies the change in MRP from 6.1% to 6.5% that results from using a single estimator of MRP in the context of other data and indicators. **(section 4.1.1.5)**
9. Examines whether the adoption of a more mechanical approach to MRP estimation is robust. **(section 4.1.1.5)**
10. Seeks expert advice on the implications of central bank liquidity expansion (following the onset of the Global financial crisis and during the COVID-19 pandemic) on the valuation of financial assets and the implications that this may have for historical excess returns (HER) based estimates of the long term MRP. **(section 4.1.1.5)**
11. Seeks expert advice on the potential implications of the normalization of central bank balance sheets for future valuations of financial assets and the associated implications for HER-based estimates of the MRP. **(section 4.1.1.5)**
12. Examines and seeks advice on the reliability and unbiasedness of the externally sourced inputs to the dividend growth model. **(section 4.1.2.5)**
13. Justifies the choice of weights for the dividend growth model (DGM) and HER. **(section 4.1.2.5)**
14. Explains more fully the interpretation and use of DGM output: if it is only an indicator of changes rather than level of MRP how should it be used? **(section 4.1.2.5)**
15. Explains how it will deal with the fact that some of the short-term variation that the DGM picks up may reflect variations in market sentiment rather than fundamentals. **(section 4.1.2.5)**
16. Makes available the spreadsheet with its DGM model and the data it has used. **(section 4.1.2.5**)
17. Clarifies whether it will include DGM information in its current rate of return, and it is soliciting more views on that?,– or whether it is soliciting views in anticipation of the next 5-year review. In either case, be clear about the process. **(section 4.1.2.5)**

The beta value

18. Includes in its final report, a discussion of the impact of macroeconomic cycles on regulated network service providers (NSPs) and the interplay between market conditions and short-term parameter estimates. (**section 4.3.10**)
19. Includes in the final ES– beta estimates for APA Group (APA). (**section 4.3.10**)
20. Details the nature of the research it proposes to conduct or commission both on the use of international companies as proxies for Australian regulated NSPs and on other methodologies. (**section 4.3.10**)

Debt index and the return on debt

21. Considers using the EICSI as the primary source of data relating to credit spreads and using the Yield Curve approach as the cross check. **(section 4.4.4)**
22. Considers in greater depth options to achieve alignment with consumers' interests of incentives on NSPs regarding the term of debt issuance. **(section 4.4.4)**

Weighted trailing average return on debt

23. Undertakes further work prior to the 2026 Review on the methodology involved in moving away from equal annual weighting of debt, in order that modifications can be introduced if circumstances require. **(section 4.5.2)**

Imputation tax credits

24. Engages further with the ATO to gain a better understanding of any data issues that may have a bearing on the accuracy of this source of information in order to generate estimates of the Utilisation Rate in which it has greater confidence. **(section 4.5.3.3)**
25. In calculating the Distribution Rate, the Utilisation Rate and gamma utilises a policy of rounding to two decimal places. **(section 4.5.3.3)**

Crosschecks on the overall rate of return

26. Considers the practices of other regulators regarding the use of crosschecks , which include using benchmarking exercises and various indicators of investment demand. **(section 4.6.13)**
27. Engages in more sensitivity testing and scenario analysis that is motivated by possible future scenarios rather than by past variation. To that end, the AER should develop a series of scenarios and stress tests that represent a broad possible range of outcomes given the challenges facing the economy at the moment. **(section 4.6.13)**
28. Judges the evidence from crosschecks in the round without attaching full weight to some and discarding others. (**section 4.6.13)**
29. Expedites the process of consulting on and using the decomposition of RAB ratios and completes it before the RORI is finalised. **(section 4.6.13)**
30. Says how it will deal with another important issue regarding the use of RAB ratios: given the declining number of relevant regulated firms with observable share prices, there may be a problem with obtaining adequate data in the future. This is a broader issue that also affects the estimation of beta. **(section 4.6.13)**

1. Introduction

1.1. The task of the Independent Panel

The Independent Panel has been asked by the AER to answer the following questions regarding the AER's draft 2022 Review of the Rate of Return Instrument (RORI):

- In the Panel's view, is the draft instrument supported by evidence and reasons, taking into account competing factors such as accuracy, consistency, accessibility and transparency?
- In the Panel's view, is the draft instrument likely to contribute to the achievement of the National Electricity Objective (NEO) and the National Gas Objective (NGO). (See Appendix 1)

The AER stated in August 2021 that "*The objective of the Independent Panel remains the same [as in 2018]. That is, the Panel's work is intended to support the AER make the best possible instrument by reviewing the draft instrument and the information available to us in drafting the instrument*".

The AER revised the question the Panel is asked to consider to sharpen the focus on promoting the achievement of the energy objectives. AER is also clear that it is not looking to replace the Limited Merits Review or create a second decision maker that develops its own preferred instrument.

In publishing the membership of the Independent Panel in June 2022, the AER stated that the Independent Panel is in place to check the AER has:

- Undertaken an effective review process
- Engaged with the material before it with an open mind
- Reached a decision that is supported by the stated reasons and the information available to the AER

The Panel has taken these three tests as the basis of its response to the first question it is asked to answer. It recognises that the regulated rate of return is part of a broader regulatory framework which influences the incentives faced by network companies and hence their preparedness to undertake the investment necessary to deliver reliable and efficient network services to consumers. It also appreciates that there are no definitive answers to issues involved in the review of the RORI and that the AER must exercise its judgement in making its final determination. It has taken these factors into account in commenting on the contribution that the draft RORI may make to meeting the NEO and NGO.

In accordance with its mandate, the Panel has discussed the challenges of the current environment and highlighted areas where modifications to the approach may lead to improvements in efficiency, consistency and transparency.

1.2. Panel approach

The draft 2022 RORI is the result of the AER's review of the 2018 RORI, with the draft Explanatory Statement (ES) setting out the AER's explanation of its decisions.

The AER's current review of the RORI commenced in 2019 and included commissioning of independent expert reports, and consultation on those reports and on AER assessments, including specification of preliminary AER positions, regarding specific topics, followed by a conclave of the AER and submitters' experts.

The AER's process to date has been comprehensive and has included extensive consultation on the components of the Sharpe-Lintner Capital Asset Pricing Model (SL CAPM) that the AER adopted as its organising methodology for determination of the RORI. As the submissions themselves indicate, very few of the issues involved in quantifying the components of the SL CAPM lend themselves to definitive resolution. In determining its position on each of these issues, the AER has sought to weigh up the competing arguments, based on experts' analysis and taking account of the particular circumstances applying in Australia at this point in time. This process inevitably involves exercising judgements on key issues and alternative estimation methodologies.

The draft RORI and draft ES are the culmination of the above process. In the draft ES the AER sets out its reasoning, including its responses to the submissions made by interested parties and their experts during the process. As is appropriate in this review, the ES refers to and extensively repeats the explanations in the 2018 ES (and earlier AER ROR determinations), while changing the explanations, analyses and conclusions regarding some components of the RORI.

The AER's review has, in effect, examined whether each of the 2018 decisions regarding the components of the RORI continues to be fit for the purpose of promoting the Energy Objectives. The draft ES describes the process that the AER has followed and the conclusions it has reached. As would be expected, the AER has concluded that much, but not all, of the analysis and conclusions explained in the 2018 RORI continue to be valid without any changes being justified.

The 2018 Independent Panel reviewed the 2018 draft ES as to whether the AER (a) had considered the available relevant information, (b) had provided sound reasoning and explanation, (c) its methodology was replicable and (d) took interactions between components sufficiently into account.

In its final 2018 ES the AER addressed the recommendations of the 2018 Panel, particularly by providing further explanation of its thinking and decisions. The Panel has fully considered the findings of the 2018 Panel to help it identify which issues to focus on (see summary of issues and views of 2018 Panel in Appendix 2).

Equally important, the Panel has fully considered the submissions that Energy Networks Australia (ENA) and the Consumer reference Group (CRG) have addressed to it, as well as the views of other stakeholders as submitted to the AER in the course of the current review and has examined the AER's response to those submissions.

1.3. Priority issues

In preparing this report on the Draft 2022 RORI, we first focussed on decisions which remain unresolved and decisions resulting in changes from the 2018 RORI. In addition, we have also drawn attention to the very significant changes that have occurred in the macroeconomic environment and in domestic and global energy markets. We have also made recommendations on ways to enhance the effectiveness of the ES.

As it turns out, the AER's list of 6 priority topics on page 12 of the ES coincides with our list of issues which warrant separate comments. That list of priority topics is:

1. Market risk premium (MRP)
2. Equity beta
3. Term of the return on equity
4. Use of the AER industry debt index
5. Weighted trailing average return on debt
6. Crosschecks of the rate of return

Our views on the ES's discussion of each of these topics are set out in section 4 of this report.

1.4. The current challenging environment

The RORI governs the way in which rates of return are determined for regulated energy network companies as part of a broader system of interconnected policies and regulations that are designed to shape the structure and operation of the energy sector.

The AER has operated a broadly stable regulatory regime for the past decade. Experience since 2013 has informed the AER and interested parties' approach to the Draft 2022 RORI. During reviews of the ROR, the AER has consulted with stakeholders and sought input from industry experts.

The period from 2013 to 2019 was characterized by low and declining interest rates and low and broadly stable inflation. This environment has been broadly supportive of a continuation of the existing methodology for enabling the ROR.

Reflecting the generally stable environment, there has been a strong presumption both by the AER and the major stakeholders in favour of stability and continuation of the previous approach. Advances in the relevant financial theory in recent years have not been a significant driver of change.

The Panel considers it important to recognise that the period of relative stability was replaced by abrupt shocks in early 2020 when the onset of the COVID-19 pandemic resulted in major changes in economic and financial conditions.

Cycles are an inherent part of financial markets. Nevertheless, it is reasonable to consider whether the period of the COVID-19 pandemic should be treated as an outlier. Arguably, the rapid reduction in policy interest rates, to negative in some cases, and the extraordinary

quantitative expansion of central bank balance sheets in response to COVID-19 induced shutdowns, had a distorting effect on the metrics used in the determination of the Draft 2022 RORI. In Australia, for example, the distortions included a targeted depression of the 3-year Commonwealth bond rate which distorted the risk-free yield series that is used in deriving the draft RORI.

Since late 2021, the economic environment has changed again. Inflation has rapidly replaced deflation as the central concern. Worldwide supply disruptions resulting from COVID-19 and more recently Russia's attack on Ukraine, including the sanctions implemented in response, have pushed inflation in Australia and major developed countries to multi-decade highs. The Governor of the Reserve Bank of Australia has indicated that inflation may peak at 7% in 2022.

In response to the outbreak of historically high rates of inflation, central banks have reversed their policy orientation and increased policy interest rates at the fastest pace since the 1980's.

The sharp increases in interest rates have resulted in equity and bond markets suffering significant losses in the first half of 2022. The path back to more normal economic conditions is unclear but further high levels of inflation and increases in interest rates are widely expected.

The Russian war against Ukraine and the associated sanctions have resulted in very high oil, gas and coal prices. Since Australian gas, oil and coal prices reflect international prices, some thermal generation has been made uneconomic resulting in high electricity prices and supply disruptions.

In an environment of increased volatility, market participants tend to attach greater value to investments that provide inflation protection and resilient revenue streams. This could enhance the attractiveness of regulated network assets in comparison with alternative investments.

This is important because the updated blueprint for the grid released by the Australian Energy Market Operator on 30 June 2022 indicates that a massive $320billion of investment in generation and transmission capacity is needed to ensure the transition to a clean energy future by 2050. This suggests that the demand for capital will be high across the energy sector.

In setting the rate of return for regulated networks, the AER must choose a rate that is sufficiently high to enable the required amount of investment while avoiding opportunities for companies to capture monopoly rents. By incorporating a review of recent, exceptional market developments in determining the final ES, the AER will be better placed to exercise its judgement in relation to key variables that form the basis of the allowable rate of return calculation.

2. High level review of the Explanatory Statement

2.1. The importance of assessing how the 2018 RORI has performed

The AER began its current review of the RORI in 2019, after commissioning an independent assessment of the process it followed in creating the first binding RORI in 2018.

As described above, the AER's review process has been comprehensive and thorough.

Given the commencement of the review was very soon after the 2018 RORI became operational, no data was available at that time regarding the efficacy of that RORI. This is probably one reason why the current draft ES relegates to the crosschecks section the discussion of the observable results of applying the 2018 RORI.

In future reviews and, to the extent possible in the final ES (given time and consultation constraints), the Panel suggests it would be useful for the AER to examine the observable results attributable to the RORI.

An analysis of the results of the RORI, including the market performance of the regulated companies, at the beginning of the review process, would be useful in setting the scene for future reviews of the RORI. Importantly such reviews could serve as a means of communicating to consumers that the AER's reviews are focused on their long-term interests. It is difficult to make the AER's focus transparent and accessible to consumers at the current stage of the review because the ES is required to reflect the technical debate that has occurred. Thus, as noted, in the current draft ES the crosschecks come after the discussion of the components and the description "crosschecks" implies they are focused on testing and justifying the decisions in the ES rather than being the starting point for the review.

The review of the results of the 2018 RORI could be broader than the rather limited approach applied in the crosscheck section of the draft ES. The crosscheck discussion in the ES and our comments on that section later in this report note the difficulty of separating out what is attributable to the RORI from the effects of other elements of the regulatory framework. There are however some approaches that can achieve this.

One such approach is to decompose the RAB multiple. The AER has initiated a process of decomposing the RAB multiple to determine whether it indicates that the rate of return provided by the RORI is too high or too low. That analysis will depend in turn on a decomposition of the rate of return that has been earned by the regulated firms. We note that the AER has just released a report that contains this type of analysis (AER, Electricity network performance report, July 2022). It has also commissioned a report by CEPA that decomposes the RAB multiple (CEPA, EV/RAB multiples, May 2022). There have been responses from stakeholders to the CEPA report, but the consultation process is not complete. The AER reaches a tentative conclusion based on this approach:

> *'We consider RAB multiples indicate that investors are confident in the current and future regulatory returns as being sufficiently high to remunerate their costs. Further, it could be argued that our current and expected rates of return are sufficient (as part of the overall regulatory compensation to investors) and potentially higher than that needed to attract investment.' (ES page 266)*

Given the centrality of this issue, we recommend below that this analysis and consultation process be taken forward as a matter of urgency and completed before the final decision.

Another significant example is that applications for approval of major network projects can be analysed as an indicator of the enthusiasm or lack thereof for investment. In particular, applications for approval of discretionary network investments which are justified as reliability enhancing are an indicator that the rate of return provided by the RORI is sufficient to incentivise investment. Analysis of such applications potentially can reveal whether the RORI is over-incentivising investment and is therefore excessive.

In summary, the Panel recommends that future reviews incorporate a detailed examination, rather than just a limited crosscheck, of how the RORI determined at previous reviews appears to be performing. In later sections of this report, we note how an intensive analysis of the efficacy of the 2018 RORI could contribute to the AER's communications with a non-specialist audience and to reassuring consumers that the AER is focused on their interests. This approach could also help to provide interested parties with evidence that the RORI is contributing to the Energy Objectives.

2.2. Overall assessment of the Explanatory Statement

The Panel has assessed whether the ES supports the RORI with evidence and logical reasoning. In doing so, the Panel has in mind the AER's stated criteria –have they undertaken an effective review process, engaged with the material before them with an open mind, and reached decisions supported by their stated reasons and the information available? In this subsection we give our view of the use of evidence and reasoning. In the following subsections we comment on the process issues of transparency and accessibility.

In terms of evidence and reasoning, the ES is essentially a continuation and refinement of the 2018 RORI. In the 2018 consultation there were many issues that were being debated in the process for the first time. Therefore, the 2018 Panel made detailed comments on almost all of the individual decisions involved. This Panel has not sought to re-open all of those individual debates, nor to comment on every individual decision of AER in the 2022 ES. Rather, we have focused on areas where we assess key issues are being debated.

Our recommendations fall into two categories: suggestions regarding individual components of the rate of return, and suggestions regarding broader issues that affect several components or the entire rate of return. The individual components we comment on in the later sections of the report are:

- Market Risk Premium (MRP) and use of the Dividend Growth Model
- The term of the return on equity and therefore the term of the risk-free rate
- The beta value
- Use of the AER's industry debt index
- Weighted trailing average return on debt
- Imputation tax credits
- Crosschecks on the overall rate of return

The broader issues that we comment on in the later subsections of this Overview are:

- Giving weight to recent data
- Automatic updating versus the use of judgement
- Analysis of the contribution to the Energy Objectives

Both the individual components and broader issues are covered in detail below, so in the remainder of this subsection we give a general perspective on our conclusions.

Regarding the individual components of the rate of return where the updating is mainly consideration of new technical analysis and data sources (the term of the risk-free rate, the cost of debt, and the imputation tax adjustment), we provide technical suggestions on improving estimation.

On the equity market risk premium and beta we feel that, while the evidence has been developed and considered in a way that is essentially a continuation of 2018, there is room for the AER to deepen its analysis. The main dimensions on which we suggest more explanation and support for the conclusions are the use of recent data, whether to use automatic updating of a component rather than judgement, how to respond to such challenges as the disappearance of traded companies on which to base beta and the rapid changes in the macro economy. In particular whether the pandemic and the central banks' unprecedented response had a distorting effect on the metrics used in the determination of RORI as described in the earlier the current challenging environment section.

The other related areas where we feel there could be significant development of the analysis are the use of crosschecks and analysis of the contribution to the Energy Objectives. Ultimately, the purpose of this type of regulation is to strike a balance between the incentives for efficient investment and the interests of consumers. We make several suggestions to expand the analysis of crosschecks and the related issue of evaluating whether the RORI is contributing to the Energy Objectives.

2.3. Accessibility

Overall, the Panel believes that AER has produced a comprehensive set of documents and presents its decisions in a logical and transparent way.

While the actual draft RORI document itself is complex due to the presentation of numerous algebraic formulae used to calculate the rate of return, the AER's Explanatory Statement shows clearly how the parameters of the draft decision work and how and why the AER arrived at its decisions. Although the Explanatory Statement is long at 298 pages (331 pages including appendices), it is logically laid out and systematic in the explanations and use of AER's criteria. The document is thus fairly straightforward for a reader who is reasonably familiar with regulatory finance and its terminology.

2.4. Addressing consumer and other non-specialist audiences

AER's draft ES is currently less successful in addressing the non-specialist reader, such as consumers and others who may be interested in the possible outcomes arising from the RORI's implementation. This aspect of communication could be important to reassure those readers who are interested in the possible bill impacts of these decisions and the adequacy of investment for the future, including investment needed to help Australia's carbon reduction. More broadly, we highlight that there is a need for the AER to provide clear communications on the consideration that has been given to consumer interests in updating the RORI. The AER should provide practical information on how the changes in the determination may impact on bills when combined with plausible changes in energy prices and macroeconomic variables. Adopting this approach will assist the AER in demonstrating that they are operating in a way that recognises the short-term concerns of consumers while promoting their long-term interest as required by the legislation.

Ultimately the regulatory regime depends on maintaining credibility and legitimacy with the general public and opinion formers, many of whom will probably not be knowledgeable about regulatory finance.

The Panel understands that the AER will be providing a fact sheet and Executive Summary with its final decisions that will address non-expert readers, including consumers. The Panel recommends that in its communication about its final decisions specifically addressed to consumers and other non-specialist audiences, the AER should provide the clearest possible answers to the following questions:

1. Does the ES demonstrate that the interests of consumers have been given due weight in the review process?
2. Does the evidence, e.g. from assessment of the efficacy of the 2018 RORI, show that the AER's decisions are likely to produce an outcome that is neither too high nor too low in terms of consumer bills and investor returns?
3. What will be the impact on bills of different plausible scenarios (such as much higher inflation or interest rates)?
4. Is the RORI likely to enable the necessary investment in the coming period?

2.5. Transparency

Building and maintaining trust with all stakeholders is important for the efficient operation of the energy market. Transparency is an important factor in building trust.

In general, the Panel believes that AER has demonstrated a high level of transparency in its Explanatory Statement and in its approach leading up to the publication of the draft RORI. Although members of the Panel cannot comment conclusively on the openness of the various consultations and evidence sessions, materials associated with these processes suggest a transparent approach.

2.6. Panel assessment of data issues

The Panel has found it striking, but understandable as explained above, that the draft ES does not include any general discussion of whether/how the unusual features of the recent economic environment should be taken into account in interpreting the new data observations that feature prominently in this review. The ES makes only a few specific references to this issue.

In analysing changes considered in this ES it is useful to distinguish three categories:

1. Potential revision of a component of the ROR that has a fixed value between reviews, based on the data for the period since the 2018 review (e.g. beta and MRP);
2. Potential changes regarding the specific data type used to estimate a component of the ROR that are reassessed each time the RORI is applied (e.g. the term of the risk-free rate);
3. Potential structural changes in the components of the ROR (e.g. a move to weighted trailing debt averages).

As it happens the first category – data for the period since the 2018 review – is the basis for the most significant change proposed in the draft ES, the proposed increase in the MRP. The AER's estimate of the 10-year market risk premium has increased from 6.1% to 6.5% between 2018 and 2022. The headline MRP, for the typical regulatory period of 5-years, has increased further because of the change in the term to align with the regulatory period.

The review of beta also focusses on the data from the period since the last review. The trend in this data is a key factor in considering a change.

The prominent role of data from the period since 2018 in the draft ES combined with the unusual features of that period described in the current challenging environment section poses both consistency and rules versus discretion issues.

2.7. Giving weight to recent data

There are two components of the rate of return where recent data from the equity market has been used to inform the updating of the estimates: MRP and beta. In the case of the MRP, recent Australian data has been added to past data in a mechanical way and this indicates an increased estimate of HER. In the case of beta, more recent Australian data also potentially indicates a changed value, but no change has been made in the AER estimate, on the basis of a judgement call. These two judgements illustrate the complex situation facing regulators working with established frameworks which are reviewed periodically, where data for the period since the last review appear to show a deviation from the previous long-term average. Setting a parameter on the basis of the long-term average implies the regulator expects the observed values will fluctuate around that average. So any recent deviation can be viewed as an aberration, or should it be viewed as indicative of a medium-term change that has occurred that warrants a change in the estimate adopted by the regulator?

2.7.1. Two views on this issue

One view on this issue is that the purpose of using long run averages for MRP and long-term measures of beta is to let the data speak in a way that is not subjected to selection of which periods to include or exclude. The observations are taken across a long-term period including the most recent data. The long period is designed to iron out cyclicality, and the data period is recent because this will include the most relevant forward-looking evidence. This view accepts that there will be fluctuations in the measured averages, but such fluctuations are viewed as reflections of a stable long run underlying average. This view is consistent with the approach taken to MRP, of using a fixed averaging HER procedure and simply adding the most recent data period to the average.

An alternative view of the situation in 2022 is that the most recent data are anomalous because they include observations from a once-in-a-century pandemic and massive application of quantitative easing. Statistically, one aspect of this is that the stock market has had a period of very high returns relative to bond yields from the end of 2017 to the end of 2021, the period of extra data that has been added to calculations in this review. Since the risk premium is based on the stock market return relative to bond yields this has raised the average historical risk premium. Another aspect is the central banks' reduction of interest rates to unprecedentedly low levels during the period 2018-2021 (ES Figure 6.5), which is now in the process of being reversed with interest rates being increased at a historically fast pace.

This second view suggests that recent data should not be included in a mechanical way in the MRP estimate. It can be supported, for example, by the decline in the stock market index during 2022, indicating that the addition of less than a year of further results would have a material effect on the estimate. It contradicts the standard “give more weight to the recent data” approach, because in 2022 it views the recent data as being less relevant to the forward-looking estimate.

A consequence of the second view is that no mechanical procedure is likely to give a definitive estimate. One needs to make a judgement of what are the most reliable and relevant data. This inevitably involves looking at more than just a single statistic. That is what the AER has done with its beta estimate.

We do not seek to endorse any specific way of adjusting for the unusual nature of the recent or any other period. We believe it is necessary, however, for the AER to discuss this issue in greater detail and to be more transparent about the way in which it has been taken into account in arriving at the estimates of MRP and beta. In the MRP and beta sections we make some suggestions related to each topic separately.

2.7.2. Panel recommendation

The Panel recommends that the AER:

- Explains in greater detail the means of dealing with unusual circumstances, such as COVID-19 and the war in Ukraine and to be more transparent about the way in

which these issues have been taken into account in arriving at the estimates of MRP and beta.

2.8. Automatic updating versus judgement

A closely related issue is the method of updating the components of the cost of capital in this and future reviews. Some parameters, such as the MRP and beta, must be estimated in ways where there is ongoing disagreement among experts about the correct procedure.

One approach to dealing with such disagreement is to adopt the estimates that result from averaging over an appropriately long historical period, on the grounds that any fluctuation in the statistic that may arise as the estimation period is updated, may iron out over time. If the statistic is broadly correct its mechanical application will give regulatory clarity and certainty. The AER has adopted such an updating approach to MRP, where it has adopted the average historical risk premium from the period starting in 1988. The AER itself calls this 'mechanical'.

The alternative approach is to have in mind a particular statistic, or group of statistics, but to overlay these with judgement based on a more general view of data and trends. The AER had adopted this type of judgement-based view when it has updated beta. The beta estimate based on its preferred use of data from traded Australian shares has been overlaid with judgement based on a broader view of the evidence and trends.

While there are arguments in favour of both approaches, we believe that the key issue is that the approach adopted be well articulated. In that context, the Panel observes that the AER's explanation of its choices is incomplete, for the following reasons:

1. The mechanical approach cannot be used to avoid the issue of judgement. As discussed in the section on MRP below, the updating of the MRP estimate has resulted in a significant increase. The AER needs to make clear to stakeholders why it considers this increase to be justified. It is not a complete explanation to say that a particular statistic has increased if there is no compelling explanation why consumers should pay more (other than the change in that statistic).
2. The contrast between the use of judgement in the case of beta and the mechanical rule for MRP creates inconsistency rather than clarity. We note that the mechanical approach applied to MRP results in an increase in MRP. A mechanical approach to beta would have resulted in a decrease in beta. Judgement has been used to raise beta above what a mechanical approach would have given. Thus, the choices made have the appearance of going in the same direction, of a higher cost of capital. The AER should explain why it believes that the mechanical approach is right in one case but not in the other.

2.8.1. Panel recommendation

The Panel recommends that the AER:

- Explains in greater detail the use of a mechanical method for MRP and the overlaying of judgement in the estimation of beta. The Panel is explicitly not asking the AER to make a general policy statement on when it will use mechanical rules and when it will use judgement.

3. Contribution of the draft RORI to achievement of the National Electricity and National Gas Objectives

As well as seeking the Panel's view on the draft RORI itself, AER has also asked; "In the Panel's view, is the draft RORI likely to contribute to the achievement of the National Electricity Objective and National Gas Objective?" which are summarised in Appendix 1.

3.1. Explanatory Statement conclusion

In commenting on this issue in the Explanatory Statement the AER highlighted that:

- There has been little change compared to the 2018 RORI and the proposed change to the term used for estimating the return on equity would lead to a better outcome.
- The approach is consistent with the "high bar to change" suggested by stakeholders, including the CRG.
- Such a limited change supports stability and predictability of the regulatory regime that enables investors and consumers to make commitments with confidence.
- The balance required in statutory revenue and pricing principles, which support the NGO and the NEO, to incentivise neither over investment nor underinvestment in assets cannot be done mechanically and instead requires judgement looking at future outcomes.
- In exercising its judgement, the AER has tried to achieve the best overall decision and considered any risk – cost trade-offs and the views of stakeholders, including survey results of consumer views.
- The likely differences between gas and electricity were not material enough to justify a different rate of return.
- In its draft RORI the AER has pursued the principle of "an unbiased estimate of the expected efficient return, consistent with the relevant risks involved in providing regulated network services". (ES page 298).

3.2. Panel analysis

The Panel's view is that overall, there appears to be nothing contained in the draft RORI and the AER's own analysis that would suggest it is inconsistent with achievement of the NGO and NEO. However, the ES does not reach a conclusion on whether the regulatory system has delivered an appropriate level of investment that is in keeping with the long-term interests of consumers. The Panel acknowledges the difficulties involved in making such an assessment but believes that the credibility of the AER's judgement calls would be enhanced if it could demonstrate that its decisions are guided by a clear understanding of the effectiveness of the operation of the system to date. The Panel has noted earlier that the RORI is part of a broader regime and that the energy sector faces a significant investment programme to achieve the transition to a clean energy future. In this context and in the interests of trust in the sector, the AER should provide evidence that its RORI will strike the right balance between investors and bill payers by, as suggested earlier, an intensive analysis of the efficacy of the 2018 RORI.

The consumer has a role to play in achieving an efficient transition. Determining the most cost effective and efficient transition pathway requires the active engagement of consumers as well as network businesses. To the extent that demand management can forestall additional investment it can contribute to the achievement of the Energy Objectives. Building and maintaining trust of all stakeholders is an important part of this process. Given the heightened sensitivity of energy pricing and the cost implications for consumers of increased investment in network assets, there should be increased focus on ensuring maximum efficiency of existing network assets.

Although consideration of most of these issues is outside of the scope of Panel's review, we believe that it is important to highlight the role that they play in determining whether the Energy Objectives are achieved.

3.3. Panel conclusion and recommendations

Although the Panel believes that the draft RORI is not inconsistent with achievement of the Energy Objectives, the AER needs to go further in its analysis the efficacy of the RORI in achieving these objectives.

The Panel recommends that:

- The AER uses more conclusive analysis on the efficacy of the 2018 RORI – a key recommendation of this report -in its commentary on the Energy Objectives with its final decisions.

4. Priority issues

As noted earlier the Panel shares the AER's view that there are six priority topics that warrant review and analysis. The following section discuss each priority topic in turn.

4.1. Market Risk Premium -estimation approach and use of the DGM

4.1.1. Estimation of the market risk premium

4.1.1.1. Introduction

The ES includes an extensive discussion of the equity market risk premium. The AER has responded to the suggestions of the 2018 Panel, taken into account stakeholder views, and sought expert advice where appropriate. For its estimate of the MRP it relies on a statistic that uses the same basic approach as before: the historical average from the period 1988 onwards. It also adjusts the MRP to be consistent with its change to a 5-year maturity for the risk-free interest rate.

Much of the discussion and evidence mirrors that in the 2018 review and we do not comment on matters that are not new. Specifically, we do not reopen the issues of the 'Wright approach', arithmetic versus geometric means, adjusting for imputation credits, correlation of MRP with the risk-free rate, the link between the debt premium and MRP, and the use of historical data from other countries. These are areas where there is continuing disagreement among experts but the AER's position is reasonable, based on evidence, and well explained. We do not see any merit in labouring these issues in this report.

There are three issues of substance where we believe the AER's draft position merits comment:

- The switch of the term of the MRP to align with the regulatory period;
- The analysis of possible use of the DGM;
- The switch to a more 'mechanical' approach of using the HER from 2018 to date as the single statistic for the MRP.

We discuss the change in the term in a separate section below. We discuss the analysis of the DGM in the later part of this section. In the next subsection we focus on the switch to a more mechanical method and the resulting increase in MRP consequent on using the HER from 2018 to date.

4.1.1.2. The key issue

The key issue is the increase in the MRP. The AER's estimate of the 10-year market risk premium has increased from 6.1% to 6.5% between 2018 and 2022. The headline MRP, for the typical regulatory period of 5-years, has increased further because of the change in the term to align with the regulatory period. As stated above, we discuss the change in the term

in a later section. Here we focus on the change in the 10-year premium so that we are comparing like-with-like.

4.1.1.3. The Explanatory Statement conclusion

The method used to estimate the 10-year MRP in 2018 was to use the average historical premium from the period 1988-2017. That was benchmarked using a variety of other evidence, and the decision to confirm the estimate was based on a judgement of all the evidence (AER Explanatory Statement 2018, pages 220-221). The method used to estimate the 10-year MRP in this review is to use the average historical premium in the period 1988-2021. The AER itself acknowledges the somewhat mechanical nature of the update (ES page 125)

4.1.1.4. Panel assessment of the evidence and reasoning in the Explanatory Statement

The difference between the estimate in 2018 and that in 2022 is simply the result of adding four extra years of data (2018-2021) to the averaging period. Because the overall data period (1988 onwards) is relatively short compared to standard international practice when using the HER method, adding four years of data in this instance has a relatively large effect on the MRP estimate. The motivation for the use of the relatively short period of data from 1988 is the introduction of tax imputation at that time. But this somewhat technical consideration has the consequence of making the estimate more sensitive to new data.

The return to the Australian equity market over the four extra years included in the new average has been very high relative to bond yields. Because of this, adding those years to the average has resulted in an increase in the average risk premium from 6.1% to 6.5%. One interpretation of this is that the high returns in those years informs us about the long-term average and so should increase the estimate of MRP in the way AER proposes. An alternative interpretation is that those four years were unexpectedly excellent years for the equity market relative to bond yields and tell us little about the long-term average MRP. This second interpretation would imply that the MRP estimate used in the cost of equity should not be increased.

In its discussion of MRP, the AER reports a lot of evidence that it does not eventually use to inform its estimate. It makes the change from 6.1% to 6.5% essentially as a mechanical consequence of the adoption of a particular estimation statistic. The choice of this statistic was discussed extensively in the 2018 review and the level of MRP that resulted from its adoption was benchmarked against other evidence at that time. Therefore, it is reasonable to ask whether 6.5% is the right level now, assuming that 6.1% was the right level in 2018.

The Panel considers a change in the long-term MRP of 0.4% in four years is large. We note, for example that the average from 1883 to date, which is also reported by the AER, has increased by only 0.1% since 2018. That is because the addition of a few years of data has much less impact on a longer averaging period.

To fully justify such a change, we encourage consideration of other contextual information, including whether other indicators of MRP have increased by this amount, whether

fundamental variables, such as the level of long run equity risk, have changed in ways consistent with this estimate, what would happen if 2022 data were included, and whether the high level of returns resulted from atypical circumstances that are not representative of the long run average.

We note that the above discussion raises the broader question of whether the risk premium varies over time. The AER has looked at this in the past and proposes to investigate it further using the DGM. We also recommend the consideration of another perspective based on macro fundamentals.

One aspect of macro fundamentals is the typical variation over a business cycle. In the context of the HER method, averaging has the beneficial effect of smoothing year on year idiosyncratic variations in return. If the time period is chosen correctly, it can also smooth out the variations that occur at different stages of the business cycle, including sharp downturns and subsequent rebounds.

While macroeconomic policy settings are a key contributor to cyclical variations in returns, they can also give rise to structural changes that can impact on returns over extended periods.

For example, the emergence of negative nominal bond rates in Europe in recent years raised theoretical and practical questions about the pricing of risk. Although Australian rates did not move into negative territory, the liquidity injection created by large increases in central bank balance sheets had an impact on the returns on all financial assets around the world, including in Australia.

Many central banks have stated that quantitative easing has run its course and they are starting on the long process of normalizing their balance sheets. Key central banks are now increasing their policy interest rates at a historically fast pace. The progressive tightening of liquidity by central banks is likely to have implications for the valuation of financial assets for some time to come.

In considering possible sources of variation in the long-term market risk premium, it would be useful for the AER to access advice on whether the returns on financial assets in the post-global financial crisis period were influenced by quantitative easing and whether this may have contributed to an upwards bias to the HER- based estimate of the MRP. From a forward-looking perspective, the unwinding of excess liquidity caused by quantitative easing has the potential to progressively lower the MRP. The Panel believes that analysis of these issues, could provide a useful addition to the information previously considered by the AER.

4.1.1.5. Panel recommendations

The Panel recommends that the AER:

- Justifies the change in MRP from 6.1% to 6.5% that results from using a single estimator of MRP in the context of other data and indicators.
- Examines whether the adoption of a more mechanical approach to MRP estimation is robust.

- Seeks expert advice on the implications of central bank liquidity expansion (following the onset of the Global financial crisis and during the COVID-19 pandemic) on the valuation of financial assets and the implications that this may have for historical excess returns (HER) based estimates of the long term MRP.
- Seeks expert advice on the potential implications of the normalization of central bank balance sheets for future valuations of financial assets and the associated implications for HER-based estimates of the MRP.

4.1.2. Use of the Dividend Growth Model

4.1.2.1. The key issue

The AER discusses the DGM as a way of augmenting the HER analysis when estimating MRP. The AER poses the following question:

> *'Is the DGM likely to be a better estimator of a forward-looking MRP than the HER approach and what is the best way to apply the DGM in our regulatory framework?'* (ES page 127)

The AER also uses the DGM as part of its sensitivity and scenario analysis, which we discuss in the crosschecks section below.

4.1.2.2. The Explanatory Statement conclusion

The DGM (which is also called the implied cost of capital) involves making forecasts of the entire future of dividend payments from equities and solving for the discount rate that equates the present value of these to the current price. It can be used either for individual firms or for the market as a whole. The AER investigates its use for the market as a whole.

The AER has commissioned several independent reports to inform its views on the use of the DGM. In 2013 Dr Lally advised it on general aspects of the use of DGM and how to implement it. In the current review, Partington and Satchell have provided advice on the many practical issues that arise in implementing the DGM; CEPA has examined the literature linking the DGM approach to the issue of whether the MRP varies over time and whether the variation can be robustly modelled; the Brattle Group provided evidence on the use of DGM by international regulators.

In addition, AER has conducted its own investigations of the use of DGM by central banks and undertaken significant empirical modelling of the possible effect of placing weight on the DGM when it estimates MRP, and of different ways of implementing the DGM. It has been transparent in the choices it has made in developing its own DGM model.

The AER's decisions regarding DGM are:

- To use it for the market as a whole rather than for individual firms.
- Not to give weight to DGM in estimating MRP in the current review, and to continue to use only the historical equity market risk premium approach.

- To present evidence on the effect of using DGM combined with HER with 50:50 weights. In doing this, to use its own version of the 3-stage DGM model, not to use a 2-stage DGM model, and to solicit views on the desirability of using the combined approach, as well as views on the choices involved in implementing DGM.

4.1.2.3. Panel assessment of the evidence and reasoning in the Explanatory Statement

The DGM is not a well-defined single method. The result of applying it depends on important choices as to how to model the market's expectations of future dividends, so it is really a family of estimation methods.

The independent reports commissioned by the AER discuss the choices involved, which include:

- Whether to use dividends or total equity distributions (dividends plus repurchases minus new equity raisings).
- How many periods with different growth rates to use (one, two, or three).
- The pattern of growth rates within periods (flat growth versus trending growth).
- The length of growth regime.,
- The methods of forecasting the growth rates in the different growth regimes
- The evolution of the dividend payout ratio.

All of these can have large effects on the rate of return that comes out of the DGM calculation.

None of the important inputs to the DGM, such as the long run growth rate, are directly observable and all must be estimated. There are no generally agreed estimation methods, neither among experts nor among regulators. Some ways of estimating inputs, such as using analysts' forecasts for short term future growth, have been shown to be biased.

The DGM can give estimates of MRP that vary greatly in the short term in periods where there have been no obvious changes to fundamental determinants of MRP, such as risk aversion and the level of long run risk. Also, it can give estimates of MRP that are obviously wrong, such as negative numbers.

As the reports by Brattle and CEPA indicate, these difficulties make the DGM of very limited use in estimating the level of MRP at a point in time. In particular, the estimated level of MRP that results from the use of DGM is very sensitive to the expectation of long-term dividend growth and there is no consensus at all as to how this should be estimated. Even the proponents of DGM advocate its use more for tracking short term changes in the MRP, rather than estimating its level at a point in time:

CEPA page 39

> *'As part of these analyses, we are not claiming that the DGM and earnings yield model produce accurate measures of the MRP, but merely that they can be used to*

provide a consistent estimate of the directional changes in MRP. We would consider it suggestive of a potential relationship if several such specifications of forward-looking measures of the MRP provided the same directional relationship when compared with the RfR.'

Consequently, there is a fundamental issue as to how to give weight to DGM when estimating MRP, if at all. If one uses the DGM approach as an indicator of changes in MRP, one must then decide how to combine this information with the historical equity risk premium, which is an estimate of the level. For example, if the HER is currently 6.5% and the DGM indicates that the risk premium has recently risen does that mean the current risk premium is above 6.5% or does it mean that the current risk premium is 6.5% but the earlier risk premium was below 6.5%?

4.1.2.4. Comments on the choices made by AER regarding use of the DGM

The AER has decided to use the DGM for the market as a whole rather than for individual firms. Partington and Satchell conclude, page 64:

'… we cannot recommend the DGM for use in estimating the regulated rate of return for individual firms. We conclude that the DGM has the potential to be relevant, but it is not reliable or suitable. Whether it is simple depends on the model implemented and with respect to practical use in estimating firms' cost of equity it seems to have failed the test of time.'

We agree with Partington and Satchell's conclusion that the problems and difficulties of implementing the DGM make it of no practical use for the AER in estimating the regulated rate of return for individual firms.

The AER has decided not to give weight to DGM in estimating MRP in the current review, and to continue to use only the historical equity market risk premium approach. The AER's main reason for this choice is (ES page 129):

'In our view, the unconditional MRP is most relevant to our regulatory task as there is difficulty in estimating the conditional MRP. As seen in the expert session, there was no consensus among the experts on how to estimate the conditional MRP which captures variations in the MRP. Therefore, we rely on the HER data for our estimate of the unconditional MRP.'

We agree with the AER that there is currently no consensus among experts about how to implement the DGM.

However, there is also disagreement among experts about how to implement certain details of the HER approach. Thus, it is more a matter of the extent of disagreement about each approach and the resulting uncertainty about the estimate of the MRP that each gives rather than an absolute advantage of one over the other. That being said, we agree with the AER that the current state of disagreement about the DGM makes it more unreliable than using historical averages as a method of estimating the level of MRP.

The AER has decided to present evidence on the effect of using DGM combined with HER with 50:50 weights. In doing this, it uses its own version of the 3-stage DGM model, not a 2-stage DGM model. It will solicit views on the desirability of using the combined approach, as well as views on the choices involved in implementing DGM.

In doing this, the AER proposes to follow the suggestion by CEPA that it investigate alternative approaches to estimating MRP. Specifically, it proposes to investigate the first and third of the three approaches proposed by CEPA (CEPA page 44):

- Fixed MRP approach: Estimation of the MRP is based on the assumption that it is stable and can be estimated from the premium observed in historical data.
- Fixed total market return (TMR) approach: Estimation of the MRP is based on the assumption that the TMR is stable and can be estimated from historical data.
- Hybrid approach: This approach would place weight on both of the above approaches.

The AER has decided not to consider further the second of the above CEPA approaches (fixed TMR). It has reviewed that method extensively before and the 2018 Independent Panel endorsed its decision not to pursue it. No new evidence has been presented since then that favours the fixed TMR approach rather than further investigation of the DGM method. We agree with the decision not to revisit the fixed TMR approach.

We also agree with the decision to continue to monitor and seek feedback on the use of the DGM to inform the estimate of MRP. We recommend that particular attention be paid to the robustness of the approach when using Australian data.

The investigation of the weighted HER and DGM approach involves several important choices regarding the weights to give the two approaches and the way to implement the DGM. The AER should explain better why it chooses equal weights for DGM and HER. CEPA puts forward the alternative of placing weight on both methods but does not specify equal weights.

If the AER were to change from one hundred percent weighting of the HER to 50:50 weighting that would mean a potential jump in the MRP (ES page 17). The AER should explain how that transition should be managed.

We agree with the rejection of the 2-stage DGM, which is too crude to capture the reality of future growth.

The AER has suggested that it will utilise external forecasts of several key variables, namely dividends, nominal gross domestic product growth and inflation, in estimating the 3-stage DGM. Before adopting this approach, we would recommend that it seeks external advice on the information content of the independent variables to be used to populate the dividend growth model.

The AER's interest in exploring the use of a DGM stems from a desire to incorporate forward looking insights into the calculation of the MRP. Therefore, it is crucial that the externally sourced inputs be the best unbiased proxies for the variables the AER is seeking to measure.

For example, in the case of analysts' forecasts of dividends, it would be important to analyse whether these estimates typically involve some upward bias.

The AER has nominated Consensus Economic as a suitable data source for the other two forecast variables. Consensus Economics provide regular forecasts of a wide range of economic and market variables. These forecasts are based on surveys of market participants. Consensus Economics has a long track record of publishing these forecasts so there is substantial historic database that is available to assist with back testing.

We would recommend that the AER utilises this historic data to gain insights into the implicit models that underpin the Consensus Economics forecasts. In particular, we would recommend that the AER seeks advice on the extent to which Consensus Economics forecasts exhibit desirable characteristics such as unbiasedness, and the extent to which they outperform in accuracy other estimates such as pure time series estimates. This in turn would provide insights into the degree of new information contained in the independent forecasts used to populate the dividend growth model.

4.1.2.5. Panel recommendations

The Panel recommends that the AER:

- Examines and seeks advice on the reliability and unbiasedness of the externally sourced inputs to the dividend growth model.
- Justifies the choice of weights for the DGM and HER.
- Explains more fully the interpretation and use of DGM output: if it is only an indicator of changes rather than level of MRP how should it be used?
- Explains how it will deal with the fact that some of the short-term variation that the DGM picks up may reflect variations in market sentiment rather than fundamentals.
- Makes available the spreadsheet with its DGM model and the data it has used.
- Clarifies whether it will include DGM information in its current rate of return, and it is soliciting more views on that or whether it is soliciting views in anticipation of the next review. In either case, be clear about the process.

4.2. Term of the return on equity and therefore the term of the risk-free rate

4.2.1. The key issues

In the current review of the RORI, the AER has undertaken a full review of the determination of the risk-free rate which determines the term of the return on equity. The review has considered, the term of the return on equity, the choice of the proxy for the risk-free rate, the averaging period length and the length of the nomination window.

The draft decision is to use the return on Commonwealth Government Securities (GCS) with a term matching the term of the access arrangement period or the regulatory control period (typically 5 years) as the proxy for the risk-free rate (equity term). This is a change from the previous approach of using a 10-year benchmark term for the risk-free rate.

The draft decision also changes the averaging period limits by one month.

Consistent with the change in the term of the risk-free rate, the draft decision changes the calculation of the MRP to be based on the difference between the return on the market less the risk-free rate corresponding to the regulatory period (rather than a 10-year term, as previously).

This change in the calculation of the MRP partially offsets the change in the term of the risk-free rate.

As the draft ES states the key issue is the decision to match the term of the return on equity to the length of the regulatory control period.

4.2.2. The Explanatory Statement conclusion

The ES argues that the standard resetting of the allowed rate of return on equity at each regulatory determination (i.e. near the end of each regulatory period) affects the profile and riskiness of regulatory cashflow which in turn impacts the expected return investors require. Thus, the ES argues matching the equity term to the length of the regulatory period better aligns the regulatory allowance with the efficient costs of providing regulated services and the risks borne by investors. Further the ES argues matching the term to the length of the regulatory period is consistent with how the AER sets the term of expected inflation. (The method for setting the term of expected inflation was changed to align with the regulatory period in 2020.)

The ES responds to submissions that market practitioners typically use a 10-year term for the cost of equity by arguing the purposes are different. Specifically, valuing assets involves a perpetuity and therefore use of long-term estimates where the AER is determining a return for a period typically of 5 years, which will then be reset and applied to the residual value of the accumulated regulatory asset base going forward.

4.2.3. Panel assessment of the evidence and reasoning in the Explanatory Statement

The 2018 Independent Panel recommended the AER needed to justify more adequately the use of a 10-year term for the risk-free rate, including explaining the justification for adopting a 10-year term for the cost of equity.

Subsequently, the AER reviewed how it set the term of expected inflation and concluded use of a 10-year term for the that purpose should be replaced by setting a term matching the regulatory period. This decision is not part of the current draft RORI review and must be treated as a given for the Panel's consideration of the draft ES.

The draft ES summarises the extensive process by which the AER has reviewed the term for the risk-free rate.

The AER has commissioned a report from Martin Lally which models the effect of alignment versus non-alignment between the equity term and the reset period for the allowed return on equity. The ES also notes independent modelling from 2003 by Prof Kevin Davis which

supports the conclusions of Lally's modelling. Submissions on behalf of regulated entities have critiqued both these modelling exercises, although the Panel notes the AER asserts the critique of the Davis modelling is erroneous.

The ES reports the arguments of experts and valuation professionals regarding the use of different terms for the risk-free rate when estimates of the cost of equity are being used for valuation. Based on this evidence the ES argues that "it appears unlikely that investors' required return would be invariant to the length of the period over which this return is expected to be recovered". (ES page 109)

The nature of the modelling exercises is that they require simplifying assumptions. It is also true that investors will likely consider there is a risk that the reset will not in fact replicate the cost of capital that will be faced over future regulatory periods. It is not however obvious that a 10-year term for the cost of equity addresses this risk.

Aside from consideration of the term appropriate to provide investors with the prospect of earning the appropriate equity return, the term adopted for the expected inflation forecast is relevant.

The alignment of the term of the expected inflation forecast with the regulatory period is a consideration that favours alignment of the equity term with the regulatory period as regards consistency between the rate of return and the other components of the regulatory framework.

The AER's decision does require additional complexity in the calculation of the MRP. As described above the calculation is based on the risk-free rate corresponding to the regulatory period (rather than a 10-year term, as previously). This requires estimation of a different MRP for each different possible regulatory period (noting that the vast majority of actual regulatory periods in Australian regulation are 5 years in length).

The additional estimation, however, does not appear to add more than a superficial complexity to the RORI.

4.2.4. Panel conclusion

The AER have responded comprehensively to the recommendation of the 2018 Independent Panel regarding the need for a full consideration of the issues regarding the equity term. The ES fully details the evidence and reasoning supporting the draft RORI's revision of the equity term. The case some stakeholders assert against the revision is outlined and the reasoning for rejecting those submissions is spelt out.

The apparent effect of the change on the ROR is partially offset by the corresponding change in the calculation of the MRP.

4.3. The beta value

4.3.1. The key issues

Equity beta plays an important role in determining the allowable rate of return on the regulated investments of network companies. It is the mechanism by which the estimated return on the market portfolio is adjusted to take account of the systemic risks that are specific to regulated network companies.

Equity betas can be estimated for individual network companies or for the regulated network industry as a whole. The AER's approach is to construct an equity beta for a benchmark representative regulated energy network business. The AER has applied the standard approach of using industry data to form a view about the appropriate value of the forward-looking beta. In deciding not to change beta from the 2018 estimate, the AER has exercised judgement regarding temporary influences rather than adopting the estimate resulting from a mechanistic approach of updating the data series to the end of 2021.

4.3.2. Explanatory Statement conclusion

After considering a range of factors, the AER concluded:

> "*We maintain our overall approach to estimating the equity beta parameter from the 2018 RORI, including:*
>
> - *placing most weight on the longest period estimates, while also being informed by 5-year estimates*
> - *maintaining the existing comparator set of 9 Australian firms, and not including international energy firms or domestic infrastructure firms in our comparator set*
> - *setting a single beta for regulated gas and electricity networks*
> - *not making an adjustment for low beta bias*
> - *not using other regulators' decisions on equity beta values to directly inform our estimates.*" (ES page 163)

4.3.3. Panel assessment of the evidence and reasoning in the Explanatory Statement

The Panel considers the reasoning in the ES supports the AER's conclusions including the decision to place most weight on the longest periods, the choice of the comparator set, setting a single beta for gas and electricity companies, and not adjusting for low beta bias. Many of these issues were comprehensively considered in the 2018 RORI and the rationale remains unchanged.

In summary, the AER has chosen to give most weight to the long-term estimate of beta and has concluded that the lower beta estimates in the recent period do not justify a reduction in the beta value for the RORI taking into consideration the likelihood that temporary factors had an influence on these results.

In the 2018 ES, AER discussed the factors that may give raise to short term variations in beta but which may not have implications for the long term value. In particular, they noted that:

> *"We observe cyclicality in short-term beta estimates. Long-term estimates better account for the cyclicality in factors affecting empirical equity beta estimates*" (2018 ES page 162)

The discussion in the 2018 ES of the interplay between market conditions and estimated parameter values was particularly informative and is highly relevant to the current situation given the issues outlined in the section 1.4 of this report on the current challenging environment. The Panel recommends that the AER include updated analysis of these considerations in the final report.

Overall, the Panel supports the approach adopted by the AER to updating its estimate of beta and notes this approach differs from the more mechanistic one adopted in the case of the MRP.

4.3.4. Data constraints

Ideally, data is averaged over multiple companies to help to smooth out company specific variations while averaging over long periods of time has the effects of mitigating the impact of cyclical variations.

In the case of the Australian regulated NSPs, a maximum of 9 firms have been included in the comparator set commencing in 1990. De-listings have occurred on a frequent basis with the maximum number of regulated network businesses peaking at 6 prior to the exit of Hastings Diversified Utilities Fund in late 2012. The churn in the composition of the comparator set rules out creating a broadly based sample to smooth out company-specific risks.

The time span for estimating beta also presents challenges. It was not until 2000 that there were two companies in the comparator set.

The AER recognises that the estimation period and the sample size are much less than ideal and has attempted to manage these shortcomings by running regressions and other statistical analysis over different time periods and with different sub-sets of companies. The AER acknowledges that its current methodology is becoming increasingly less robust and defensible as more network companies have delisted. At the time that the draft RORI was released, only one network company remained listed on the ASX. The AER has committed to actively investigate alternative methodologies.

The AER reports it has explored the possibility of utilising international beta estimates to help mitigate the impact of the depleting sample size but decided not to adopt this approach at present due to, inter alia, challenges in identifying international companies with the same risk profiles as regulated Australian network companies. The AER also dismissed the use of domestic infrastructure companies for similar reasons. We discuss the issue of future estimation of beta below.

In its final 2018 ES, the AER concluded:

> *"In 2013 we took a conservative step in setting the beta point estimate at 0.7 (down from 0.8) despite empirical estimates supporting a lower value. However, we now*

have an even longer time series for our empirical analysis. We give most weight to this longest period and long-term estimates continue to remain below 0.7" (2018 ES page 168)

The AER remains of the view that the risks facing regulated network companies have not changed and, as a consequence, the long-term value of beta is unlikely to have changed.

In considering the role of delisted entities, the AER concluded:

> "*The existing comparator set of domestic firms provides (historically) reliable information on the systematic risk of an efficient Australian regulated energy network business*." (ES page 178)

The Panel supports this view but recognises that the relevance of the historic data will decline over time.

4.3.5. Updating 2018 estimate of beta

Turning to the process of updating the 2018 estimate of beta, notwithstanding the emerging data issues, the AER argues that the analysis based on historic data provides a sound basis for determining the current value of beta. It argues that the risks facing regulated entities have not changed significantly therefore, beta is unlikely to have changed. In making this call, the AER noted that:

> *"Our network performance monitoring shows that networks maintained stable revenue profiles during the pandemic period. Domestic networks were largely insulated from the instability observed across the broader economy, which may explain the decrease in their equity beta estimates."* (ES page 171)

We agree that the regulatory regime has been stable and that this lends support to the AER's view.

Some of the network companies have argued that the risks that they face have in fact changed, citing the shift towards increasing reliance on renewables. The AER acknowledges that there have been changes in the energy landscape but do not believe that these changes are likely to have had a meaningful impact on the value of beta. The Panel considers the AER's reasoning supports this assessment.

4.3.6. Role of recent data

The AER discussed the advantages and disadvantages of using short and long run data and concluded that:

> "..*we have continued to give most weight to estimates from the longest period, while also giving limited consideration to the most recent 5-year period*." (ES page 176)

The draft ES provides updated estimates of beta for different comparator sample sets, taking account of the most recent data. The ES notes that the calculation of beta for the most recent five-year period is lower than the long-term average. In response to this

assessment, the AER explored factors that may have contributed to the short-term decline, but which may not be indicative of a fall in the true underlying beta.

The ENA has suggested takeover activity may have depressed the beta estimates for two of the three comparator companies available over the last 5 years. Inclusion in the final ES of beta estimates for APA, the one company not subject to such activity, could assist in assessing the relevance of takeover activity.

As noted above, the AER suggested that instability in the broader economy may have contributed to the decline in the short-term measure of beta. Their overall analysis has resulted in the AER viewing the short-term variations as anomalous, rather than as an indication of a change in the underlying value of beta.

In considering possible abnormal influences on recent estimates of beta, the AER has paid some regard to macroeconomic factors. Macroeconomic influences were explored more fully in the 2018 ES. The Panel recommends that the AER incorporates an analysis of the impact of macroeconomic factors on parameter estimates in the final report.

The AER identified macro and non-macro factors as potentially responsible for the reduction in the recent beta estimates and has concluded the change in beta is an anomaly. In the Panel's view the AER's consideration of potential anomalies in the beta estimate is appropriate (but could be improved by inclusion in the ES of beta estimates for APA).

In general, if the more recent data suggests that a parameter estimate should be modified, there should be an expectation that the reasons for the variation would be fully investigated before any change would be implemented. This is consistent with the view that there should be an appropriately high bar for changing variables that are expected to be stable over the long term.

As the key components of the allowable rate of return are not observable and must be estimated, the Panel agrees that it is prudent to seek alternative perspectives on possible changes in beta over time and encourages the AER to consider a wide a group of proxies and alternative sources of insight.

The inclusion in the draft ES of a very limited analysis of the recent beta estimates for potential international comparators, however, risks creating the impression that the AER is offsetting the decline in beta for the domestic comparators against the increase in beta for international comparators. Since the analysis of the international comparators is so limited, the implication that this offsetting approach has played a role in the AER's decision is problematic. In summing up the AER concluded:

> "*Our best data suggests an estimate in the range of 0.5 to 0.6. In view of the limitations of the other evidence, we think the better approach is to maintain our current value of 0.6.*
>
> *This is consistent with our principles of promoting stability and predictability.*" (ES page 165)

The Panel believes that this is a reasonable conclusion but should not be presented as the result of offsetting the decline in the beta results for Australian companies against the increase in beta results for international companies.

4.3.7. Future challenges

While deciding to base their current estimate of beta on historic Australian data, the AER notes that the relevance of this data is likely to degrade over time and that there is a need to undertake further research on alternative approaches prior to the commencement of the next RORI. The Panel notes that, if APA were to become a private company, the AER would not then have any betas for listed companies on which to assess claims that climate change policies have resulted in changes of beta for energy NSPs. This observation suggests it is critical that the AER complete, as soon as possible, an analysis of alternative methodologies for estimating beta including, but not limited, to use of international comparators.

The Panel recommends that the AER details the nature of the research it proposes to conduct or commission both on the use of international companies as proxies for Australian regulated NSPs and on other methodologies.

4.3.8. Alternative methodologies

The AER has sought advice from stakeholders and academics in an attempt to identify alternative methods of estimating the equity beta for network companies. We note that any alternative methodologies such as using international data is likely to involve multiple complexities due to different regulatory regimes and different business models. As such, we consider that there should be intensive analysis undertaken prior to placing reliance on alternative data sources.

In addition, to drawing insights from beta estimates for regulated international companies, the possibility of using risk and return data derived from Australian infrastructure stocks was also raised. The Panel believes that these opportunities should be given consideration.

The fact that 8 regulated network companies have been acquired by private investors since 2006, a process that typically involves a premium for control, provides market-based evidence that the revenue streams offered by regulated network businesses are attractive to investors. The take-over activity also indicates that investors are able to form a view about the attractiveness of regulated network assets notwithstanding the data constraints outlined above.

Pension funds and private equity firms have become major investors in unlisted infrastructure assets, including regulated assets. With increased volatility in listed markets, the Panel considers the shift towards unlisted assets is likely to continue. In assessing investment opportunities, including investing in regulated network assets, pension funds and private equity firms, use standard financial models to assess expected returns. They also take account of the expected risk of the investment and its expected contribution to the overall risk of their portfolios in making their assessment.

By engaging actively with funds who regularly review potential investments in unlisted infrastructure assets, the AER could enhance its understanding of the way in which risk is assessed by major investors in the sector.

Data constraints are not confined to the AER. Accordingly, several academics have suggested that the AER should look to the practices of other regulators. As with the use of international comparators, there are difficulties associated with utilising data derived from other regulators. Given the data constraints that the AER faces, however, the Panel supports the use of a wide range of inputs including practices of other regulators.

The AER notes that there is available some information which may help in the near term, including consideration of international comparators adopted by other regulators -including New Zealand Commerce Commission, Queensland Competition Authority, Economic Regulation Authority of Western Australia and the Independent Pricing and Regulatory Tribunal of NSW ; and a recent report by CEG (commissioned by APGA) which analysed beta estimates for a range of 24 international energy firms and 3 domestic firms.

This report has not yet been the subject of stakeholder consultation and therefore has not been considered in AER's draft determination. AER's conclusion is that further work is required to untangle the complex issues and interrelationships involved before greater weight could be placed on international data.

Ideally, that work would be undertaken prior to the final determination. In any event, AER has indicated its intention to undertake the work involved.

4.3.9. Sense checking beta estimate

The aim of the AER is to construct a rate of return that attracts investors to the sector while promoting the efficient use of network assets and avoiding opportunities to extract monopoly rents. As part of their sense checking, the AER compared the returns delivered on regulated assets with the relevant allowable rate of return. Their analysis indicated that network companies have typically delivered excess returns relative to the regulated rate and that such an outcome was not unexpected in the context of an incentive-based regulatory environment. The AER outlined a number of reasons why this result may not necessarily imply that the regulated rate was set too high. However, in the discussion on RAB multiples, the AER indicated that the current and expected rates of return are: "at least sufficient (as part of the overall regulatory compensation to investors) and potentially higher than that needed to attract investment." The Panel agrees with this assessment, particularly when it is taken together with private equity taking over at premiums virtually all of the network businesses. We examine this issue more fully in section 4.6 of this report on cross-checks.

More broadly, we note that as beta is only one of the components used in constructing the rate of return, it is not possible to draw any firm conclusions about the appropriateness of the chosen value of beta from the data on the ex-post profitability of network companies.

4.3.10. Panel recommendations

The Panel is in broad agreement with the approach adopted by the AER in updated the 2018 estimate of beta, however, we highlight some areas for improvement that would enhance the transparency of the final ES.

The Panel recommends that:

- The AER includes in its final report, a discussion of the impact of macroeconomic cycles on regulated NSPs and the interplay between market conditions and short-term beta estimates.
- The final ES includes beta estimates for APA.
- The AER details the nature of the research it proposes to conduct or commission both on the use of international companies as proxies for Australian regulated NSPs and on other methodologies.

4.4. Use of the AER industry debt index

4.4.1. The key issues

The AER has proposed very few changes to the return on debt approach adopted for the 2018 RORI. In particular, in framing the relevant benchmark assumptions the AER proposes to:

- Maintain the term of debt at 10 years;
- Maintain the credit rating at BBB+
- Estimate the cost of debt by reference to a weighted average of A and BBB (weighted one third and two thirds respectively) rated yield curves of 3 providers. The purpose-built Energy Industry Credit Spread Index (EICSI) will continue to be used for monitoring only;
- Continue to implement the 10-year trailing average cost of debt approach using equal annual weights;
- Maintain the debt averaging period (between 10 days and 1-year at the discretion to the NSPs) but provide greater flexibility in relation to the start and finish dates.

The key issues regarding the return on debt that are considered in the draft ES are the potential use of the EICSI and whether to introduce a weighting into the trailing cost of debt averaging process.

The first of these issues is discussed in this section and the second issue is discussed in the next section.

The EICSI is a simple index constructed (by Chairmont) using actual data relating to debt issuance by privately owned NSPs. The EICSI reports a rolling 12-month historical average of credit spreads across all new debt instruments issued by privately owned NSPs. The data were first compiled in 2018 and are available from 2013-14. To date the EICSI has been used as a sense check of the reasonableness of the existing approach, which employs a weighted

average of relevant yield curves published by the Reserve Bank of Australia, Bloomberg and Thomson Reuters (the Yield Curve approach).

The ES reports the EICSI has remained below the RORI estimated benchmark return on debt for almost the entire period observed. There have been only 11 months in the last 91 where the EICSI has been above the RORI benchmark – all within 14 basis points. On average the RORI benchmark has been 18 basis points above the EICSI with the gap being as high as 74 basis point but has closed since March 2021.

The AER's analysis of possible sources of the difference identifies the most significant factor to be that the average term of actual issuance is less than the 10-years to maturity yield curves used in the RORI estimate. The average term of issuance was 10 years in April 2018 before declining to 6 years in May 2020, with latest (June 2021) term at issuance being around 7.5 years.

Chairmont suggested use of a Weighted Average Term to Maturity at Issuance (WATMI).

4.4.2. The Explanatory Statement conclusion

The ES lists the options for consideration as:

- remove the residual outperformance and adjust the benchmark blend of credit curve
- remove the residual outperformance and adjust the benchmark term
- remove the outperformance

The ES rejects the first option, adjusting the blend of credit curves, on the basis that the credit rating is not the source of the gap.

The ES rejects the second option on the basis that the benchmark term of debt should match that of an efficient firm's borrowing consistent with the principles of incentive regulation. The ES suggests that it is not yet clear whether issuing short term debt is a temporary practice or reflects efficient borrowing practice that will continue. The ES rejects use of the WATMI on the basis that the gap is not sufficient to warrant the complications of changing the current transition from the ''on the day'' to the 10-year trailing average of 10-year debt rates.

The ES then argues that the residual outperformance is not sufficiently material to warrant an adjustment.

Based on the above arguments the draft RORI decision is to retain the 2018 RORI estimation.

4.4.3. Panel assessment of the evidence and reasoning in the Explanatory Statement

The fact that the Yield Curve approach so closely approximates the EICSI has provided reassurance to the AER.

The Panel considers that this logic should be extended and the AER should give further consideration to reversing the roles. That would involve using the EICSI as the primary

source and using the Yield Curve approach as the crosscheck. A primary motivation for this suggestion is that access to actual, observable data in this environment is rare (and valuable). It would be a pity if the opportunity to make use of such actual data was too lightly dismissed.

The Panel observes that the reason stated in the ES for rejecting the second option - that the benchmark term of debt should match that of an efficient firm's borrowing - in effect assumes the AER knows that the efficient firm's debt will have a term of 10-years. Figure 9.1 seems to indicate that for the entire period of the EICSI since January 2014 the average term has been less than 10-years, except in April 2018.

Since the cost of debt in the 2018 RORI assumes an average term at issuance of 10-years, any regulated company that has an average term at issuance of less than 10-years benefits from that divergence. Regulated companies have an incentive therefore to adopt a lower term at issuance if that is efficient for them. The principle of incentive regulation is that when regulated companies reveal efficiencies, the regulator should adjust its regulation to ensure those efficiencies are shared with consumers.

The Panel suggests therefore that the AER consider whether adoption of the term of the EICSI as the assumption for the term at issuance would be consistent with the principles of incentive regulation.

If, as discussed in the ES, a change in the assumption regarding the term of issuance would unduly complicate the on-going transition to a trailing average debt premium, the second-best approach would be to adjust the estimate of the debt premium derived from the yield curve data by the gap revealed by the EICSI.

In the case of the term at issuance, there is an additional aspect that warrants consideration.

Longer term debt commands a high debt premium because it prolongs the exposure of lenders to credit risk. Absent regulation, NSPs would determine the term of their debt issuance with the objective of benefitting shareholders (subject to the Directors' duty to lenders).

From the consumer’s perspective the higher cost of longer-term borrowing is justified to the extent the longer term (a) reduces the likelihood of financing problems that could impact on reliability or other aspects of service, (b) improves the likelihood of timely investment in beneficial capital expenditure or (c) smooths out volatility in the allowed ROR and thus prices.

Consumers do not receive the first and second benefits to the extent that the prices they pay are based on an RORI that provides an allowance for the higher cost of longer-term debt but a regulated NSP’s debt is for a shorter term. The smoothing benefit will be much the same for, say, a trailing average of the 8-year debt premium as for a trailing average of the 10-year debt premium.

The ES indicates that the average term at issuance reflects significant variation between regulated companies.

The ideal, in terms of the principles of incentive regulation, would be to adjust the allowance for the debt premium to reflect the actual term of debt issuance by individual NSPs. Absent such an adjustment, NSPs which issue shorter term debt will obtain a higher return from the allowable ROR albeit that their response to that incentive is sharply constrained by other considerations including their own concern to avoid financing problems.

The situation regarding the debt term at issuance differs conceptually from most issues regarding the ROR components because the actual term is known for each NSP. In contrast most other issues concern estimation of parameters that are intrinsically uncertain (or are proxies).

Although any tailoring of the current return on debt calculation methodology to the circumstances of individual NSPs would add complexities, the transition to the 10-year trailing average involves different specific calculations for different NSPs in any event.

4.4.4. Panel recommendations

The Panel recommends that the AER:

- Gives further consideration to using the EICSI as the primary source of data relating to credit spreads and using the Yield Curve approach as the crosscheck.
- Considers in greater depth options to achieve alignment with consumers' interests of incentives on NSPs regarding the term of debt issuance.

4.5. Weighted trailing average return on debt

4.5.1. Trailing average debt approach

The approach adopted in the 2018 RORI involves progressive updates on the historical cost of debt using equal weighted annual updates over 10 years. In this way the latest cost of debt is introduced to the calculated overall cost with a weight of 10%. This was a process begun in 2017 and due to complete in 2026.a

The assumption of equal weights is uncontentious if the level of the asset base is relatively stable, or if the cost of new debt is similar to the imbedded cost of debt. But the combination of strong demand for new investment at the same time as the cost of new debt is rising, could result in existing corporates being under-compensated by a continuation of the equal weighting approach. It is worth noting that the complications relate to existing NSPs; investment by new entities would not be affected by the equal-weighting approach.

The ES addresses the issue in some detail and quantifies the impact of a number of scenarios using a combination of greater level of investments and rising interest rates. It also discusses a range of options, some suggested by stakeholders, to avoid or minimise any distortions in these circumstances.

AER's analysis of these options concludes that:

- A number of the suggested options are likely inconsistent with the relevant legislation (NEL, NGL, NER, NGR), primarily because they involve solutions which are too narrow in scope;
- Moving to a weighted trailing average system would be complex and would introduce its own uncertainties.

Furthermore, the AER considers that the pre-conditions required to result in a material adverse outcome during the next regulatory period (prior to 2026) are unlikely and therefore proposes to retain the current equal-weighted approach in the meantime. The Panel agrees with this approach.

4.5.2. Panel recommendation

The Panel recommends that the AER:

- Undertakes further work prior to the 2026 Review on the methodology involved in moving away from equal annual weighting of debt, in order that modifications can be introduced if circumstances require.

4.5.3. Imputation tax credits

In making the Draft 2022 RORI, the AER has retained the approach and the estimates used in the 2018 Determination.

By way of brief background, the AER methodology involves a post-tax framework whereby the rate of return is determined after company tax, but before personal tax. The Tax component is a separate part of the building block framework. In turn, the Imputation Tax Credit is introduced as part of the Tax component. Specifically, the estimated company tax component (ETC) is calculated as

ETC = ETI x TR x (1-gamma),

where ETI is the estimated Taxable Income, TR is the corporate tax rate and gamma is the value of imputation credits.

In essence, gamma is used to modify the allowance for ETC in the building block model. Without a gamma adjustment the ETC would overstate the tax allowance because it would not take account of the extent to which some investors receive a benefit from imputation. The role of gamma is to estimate the extent of that benefit.

The AER's methodology involves estimating gamma as the product of two factors, the Distribution Rate (the proportion of an entity's imputation credits which is distributed to investors) and the Utilisation Rate (the extent to which distributed imputation credits benefit investors by reducing tax payable or generating a refund).

The methodology is both transparent and widely accepted as meeting the objective of the exercise.

4.5.3.1. Distribution rate (DR)

The DR is estimated by reference to large listed Australian corporations. Specifically, the DR used by AER is the calculated proportion of Imputation Distributions to Company Tax Payments for the top 50 companies on the Australian Stock Exchange (ASX). The same approach was applied in the 2018 RORI, based on data from the period 2000 to 2017 and resulting in an estimate of 0.888 (rounded to 0.90). The estimate has been updated using more recent data (to 2020), resulting in a very similar outcome (0.887, rounded to 0.90). The AER intends to update the estimate prior to the final RORI.

Both the methodology and the apparent stability of the outcome suggest that this approach has merit.

4.5.3.2. Utilisation rate

The AER's preferred approach is to estimate the weighted-average proportion of investors in the Australian equity market who are "domestic" and therefore eligible to apply any imputation credits received to reduce tax payments or generate offsetting refunds. The corollary is that foreign investors are assumed to have a utilisation rate of zero. This was the same as the approach used in the 2018 RORI.

The AER uses national accounts data from the Australian Bureau of Statistics (ABS) for this purpose. The estimates generated are quite stable based on 10-year averages [refer Table 10.2] and even on an annual basis the outcomes are reasonably well-behaved (in the range 62-70% over the period 2000 to 2021). Thus, the AER's choice of a point estimate of 0.646, rounded to 0.65, based on the ABS data is defensible.

But the bigger issue in relation to the Utilisation Rate concerns the choice of the data source. The Australian Tax Office (ATO) has produced alternative estimates of the Utilisation Rate, which were considered in both 2018 (based on estimates covering the period 2012-16) and in preparing the 2022 Draft RORI (2012-18). The estimates for those time periods are very similar and we focus solely on the later estimates here.

The ATO provided data on the Utilisation Rate on two definitions:

- Distribution to residents, which is calculated before taking account of any recycling within companies; and
- Net usage, which takes account of any inter-company transmission of imputation credits.

The AER notes that the "net franking credit usage" concept is more appropriate for the purposes of estimating gamma.

The ATO estimates for the period 2012-18 are

- Distribution to residents: 0.630
- Net usage: 0.539

The AER has placed no weight on the ATO data in the draft RORI for the following reasons:

- AER did not receive information about the ATO's detailed data or methodology that would enable it to undertake a thorough investigation
- Stakeholders did not provide substantive comments on the 2021 ATO note
- The approach using ABS data remains robust and is broadly supported by stakeholders
- Giving some weight to the ATO measures would be unlikely to lead to a material change to the overall gamma estimate.

The Panel is sympathetic to the first of those reasons; the ATO notes lack detail about the methodology and any potential shortcomings or qualifications in the data/approach. .

The Panel regards the second and third reasons as incidental.

The Panel suggests that further consideration be given to the fourth issue. In particular, the AER notes that if it applied equal weight to gamma estimates based on its preferred (ABS) method and the two ATO Utilisation Rates, the resultant gamma would decline from 0.585 to 0.555, which by implication it does not regard as a "significant change". Leaving aside the question as to whether a decline from 0.585 to 0.555 is "significant" the comparison itself is flawed, in the sense that it includes the non-preferred definition, which yield a higher estimate of the Utilisation Rate. If the ABS method and the preferred ATO method are given equal weight, the outcome for gamma would be 0.540.

Moreover, there remains the very real possibility that the ATO data may justify more than equal weighting, which would imply a more significant reduction in the estimated gamma, to as low as 0.495 if the ATO Net usage measure was given 100% weighting. In that context the Panel notes the view of one of the stakeholders that

> *"the ATO is the only organisation that holds actual data on how companies use imputation credits*" [ES page 253].

Before ruling out the use of ATO data, the AER should seek to gain a better understanding of the difference between the utilisation estimates based on the ABS and ATO data.

Putting all this together, the Panel recommends that the AER engages further with the ATO to gain a better understanding of any data issues that may have a bearing on the accuracy of this sources of information in order to generate estimates of the Utilisation Rate in which it has greater confidence.

On a more technical point, the AER's approach to rounding in the calculation of gamma seems inconsistent, both internally and with the approach adopted elsewhere in the ES. The AER currently rounding the Distribution Rate and the Utilisation Rate to the nearest 0.05 and then expresses the result (the product of the two) to 3 decimal places. The Panel recommends that all of the Distribution Rate, the Utilisation Rate and gamma be rounded to two decimal places.

4.5.3.3. Panel recommendation

The Panel recommends that the AER:

- Engages further with the ATO to gain a better understanding of any data issues that may have a bearing on the accuracy of this sources of information in order to generate estimates of the Utilisation Rate in which it has greater confidence.
- In calculating the Distribution Rate, the Utilisation Rate and gamma, utilises a policy of rounding to two decimal places.

4.6. Crosschecks on the overall rate of return

4.6.1. The key issue

The AER considers various crosschecks on the overall rate of return: RAB multiples, scenario testing, financeability tests, historical profitability, investment trends, other regulators' rates of return, and practitioner discount rates.

The purpose of crosschecks is to test whether the overall rate of return is consistent with regulatory objectives.

4.6.2. The Explanatory Statement conclusion

Overall, the ES concludes that (ES page 260):

> *'We find that our draft decision has the potential to promote stability and manage volatility across different scenarios and, therefore, promote efficient investment in, and efficient operation and use of, energy network services.'*

In more detail, it concludes that:

- These crosschecks have limitations but are useful as a sense check on the overall rate of return.
- The primary focus should be on RAB multiples, scenario testing, and financeability tests.
- Historical profitability, investment trends, other regulators' rates of return, and practitioners' discount rates have no role (Table 11.1) as crosschecks.
- The crosschecks broadly support continuation of the 2018 RORI (ES page 32).

4.6.3. Panel assessment of the evidence and reasoning in the Explanatory Statement

We do not find sufficient evidence in the ES regarding the central issue of whether the incentive to invest is too low or too high. We recognise the difficulties involved in assessing this. Nevertheless, a crucial part of concluding whether the rate of return is too high or too low is to gather as much evidence as reasonably possible regarding whether it has led to the right level of investment in the past and is likely to do so in the future. We encourage the AER to consider the practices of other regulators regarding this issue, which include using benchmarking exercises and various indicators of investment demand.

We encourage the AER to engage in more sensitivity testing and scenario analysis that is motivated by possible future scenarios rather than by past variation. The system needs to

be robust and satisfy its goals under the possible future states of the world that could emerge. To that end, we encourage the AER to develop a series of scenarios and stress tests that represent a broad possible range of outcomes given the challenges facing the economy at the moment.

We encourage the AER to judge the evidence from crosschecks in the round without attaching full weight to some and discarding others.

4.6.4. Role and usefulness of crosschecks

The AER uses crosschecks as contextual evidence to challenge the overall level of rate of return, rather than in a formulaic way. We agree with this approach. A formulaic approach would create the danger of being hostage to fortune, whereby any predetermined triggers might fail to operate in the most beneficial way.

As the AER says, all the crosschecks it mentions have limitations. However, in our view all contain some information relevant to the overall rate of return. The AER says that historical profitability, investment trends, other regulators' rates of return, and practitioners discount rates have 'no role' as crosschecks (Table 11.1). We think that it is too extreme to discard these sources of information. Given that the use of crosschecks is the holistic one stated by the AER the evidence from crosschecks should be judged in the round without the necessity of attaching full weight to some and discarding others. In this aspect the use of crosschecks is different to the building blocks of the cost of capital, where such choices must be made in order to give clarity to the process in the RORI.

4.6.5. RAB multiples

The multiple of market value relative to an accounting measure of asset value, such as RAB, is a commonly used indicator in corporate finance, capital markets, and valuation. In general, a higher ratio of market value to RAB indicates that investors assess future prospects more favourably. The issue to be addressed by AER is whether the level of the RAB multiple says anything about its estimate of the cost of capital.

The use of such multiples is based on one of the most fundamental formulas in accounting. This says that the market value of a firm is equal to the accounting value of its assets plus the present value of all future excess rates of return that are expected from those assets. In this instance the accounting value of assets we are interested in is the RAB, so the relationship is:

Market value of firm = RAB + PV (all future excess profits earned on RAB)

To implement this equation, the excess rate of return in any year is defined as the expected accounting rate of return in that year minus the cost of capital. The amount of excess profit is the excess rate of return multiplied by the RAB at the beginning of that year.

The relevance of this equation to regulation is that if the goal of regulation is always to set the expected rate of return on the RAB equal to the cost of capital, and if the market expects that goal to be achieved, then the PV of all future excess returns will be zero. Consequently, the market value of the firm will be equal to RAB and the RAB multiple will be

equal to one. Thus, if the ratio of market value to RAB is above one it indicates that the market expects that at some future time the firm will be able to earn a rate of return above its cost of capital.

The AER, stakeholders, and Grant Thornton have mentioned various difficulties with interpreting the level of the RAB multiple as an indicator of the unbiasedness or otherwise of the cost of capital, including that:

- Unregulated activities are part of the market value of the firm, so that the measured ratio does not reflect only regulated activities;
- Excess profits leading to a high RAB multiple (positive NPV) may reflect the future beyond the current regulatory period, rather than anything to do with the current cost of capital;
- Excess profits may derive from 'regulatory slack' or deliberate incentives, whereby the returns regulated firms will earn are expected to exceed their cost of capital; and
- The high valuation reflected in a high multiple in a transaction may be the result of aggressive bidding by acquiring firms.

We agree that all of these are relevant to the interpretation of the RAB multiple.

These factors mean that the level of the RAB multiple cannot be taken as a direct indicator of unbiasedness of the cost of capital. For example, the cost of capital could be correct but the RAB multiple above one because the market expects that the regulated firm will earn a return above its cost of capital. Or the same RAB multiple greater than one could be generated by a cost of capital that is too high, with no expectation of earning more than that. Hence the same RAB multiple, which is above one, can be consistent both with a correct cost of capital and with a cost of capital that is too high. Without further analysis one cannot say which of these is the correct interpretation and, therefore, one cannot draw a direct line from the RAB multiple to under- or over-estimation of the cost of capital.

The AER accepts the relevance of the above factors:

> *'We accept that the factors identified by Grant Thornton are relevant to our consideration. However, we have seen, for a number of years, that the businesses we regulate have been traded at multiples well above 1.0. Further, we have seen vigorous competition among investors for these assets. In this context, it is difficult to conclude there is a material under-remuneration of investors. We consider RAB multiples indicate that investors are confident in the current and future regulatory returns as being sufficiently high to remunerate their costs. Further, it could be argued that our current and expected rates of return are sufficient (as part of the overall regulatory compensation to investors) and potentially higher than that needed to attract investment.'* (ES page 266)

We note that most of this conclusion does not directly refer to the cost of capital being correct, but rather 'current and future regulatory returns ... being sufficiently high to

remunerate their costs.' We agree that this is the correct interpretation. The expected excess returns that generate RAB multiples greater than one come from the entire regulatory system, not from the cost of capital estimate alone.

If it is to be used to inform decisions on the cost of capital considered alone, the RAB multiple must be decomposed using evidence that attempts to quantify the extent to which the ratio is affected by the above issues, and to remove the effects from sources other than the cost of capital estimate.

The AER is in the process of gathering views on the disaggregation of RAB multiples:

> *'In addition to reviewing raw RAB multiples, we have been undertaking work to disaggregate some of the components implicit in RAB multiples. We recently published a report prepared by CEPA undertaking this analysis. We have not yet had the opportunity to test the findings of the CEPA work with stakeholders and so have not given it weight in this draft decision.'* (ES page 266)

Given that this work and consultation is in process, and has not been used in the AER report, we make only one further comment at this stage on how it should be done or what evidence might emerge.

To identify whether a high RAB multiple is caused by a cost of capital that is too high or by a cost of capital that is correct combined with an expectation of earning more than the cost of capital inevitably involves a judgment of whether the regulated firm can earn more than its cost of capital. One way of doing that is to examine the past results of rates of return compared to cost of capital. That is done by the AER in other contexts (AER Electricity Network Performance Report, September 2021) and we discuss below whether it is useful to discard that information if one is seeking to interpret RAB multiples.

We note another important issue regarding the use of RAB multiples, which has been highlighted by stakeholders. Given the declining number of relevant regulated firms with observable share prices, there may be a problem with obtaining adequate data in the future. This is a broader issue that also affects the estimation of beta, which the AER will need to address.

We also note a technical point. In its summary of key points (Table 11.2) the AER says that lower interest rates should lead to lower RAB multiples. We do not agree with that analysis. Lower interest rates lead to lower discount rates. In the above equation a lower discount rate will give higher present value (PV) of future excess returns. That will result in a higher RAB multiple if the excess return remains the same.

Notwithstanding all the above difficulties, one should not reach the conclusion that the RAB multiple says nothing about the effectiveness of the regulatory regime as a whole. For example, if the RAB multiple is 1.5 for the regulated business it means that a regulated firm can buy new regulated assets for $100 and, if the ratio remains the same, they will immediately be valued by the market for $150. The difference, of $50, is the NPV of this investment.

Thus, in the broader context of the operation of the entire regulatory system, the RAB multiple is directly related to the fundamental questions of whether investments satisfy the NPV=0 principle and whether the incentive to add assets to the system will potentially lead to excessive investment and 'gold-plating'. We comment further on this below.

4.6.6. Financeability

The AER has carefully considered indicators of financeability and concludes that this has not emerged as a problem since 2018.

4.6.7. Sensitivity analysis and scenario testing

The AER conducts both sensitivity analysis and scenario tests to examine the robustness of its procedures to changes in interest rates, inflation, beta, and the term premium. However, although they state that they have conducted sensitivity testing for interest rates and inflation they do not report all the results of those tests. The emphasis of the testing is more on the mechanics of their estimation methods rather than the potential impact of changes in the macroeconomic environment.

It also examines the differences that would have arisen if it had used a 50:50 weighting of DGM and HER to estimate the MRP, rather than HER alone. It concludes that:

> *'Overall, we consider that our overall rate of return decisions are robust to a high inflation and high interest rate scenario because the Instrument:*
> - *automatically reflects market conditions for corporate debt rates through the trailing average debt mechanism*
> - *reflects changing equity markets at each regulatory determination*
> - *reflects inflation over the long term (via additions to RAB) and protects consumers from short-term spikes.*
>
> *When energy consumers are experiencing large increases in their other costs of living (for example, fuel and mortgage costs) it is beneficial that the cost of energy network services are not increasing to the same degree. It is also appropriate that essential energy services have these stable features.'* (ES page 288)

We encourage the AER to explain the above statement more fully and to link it more specifically to evidence that is presented in the ES.

The AER uses scenario testing in a different way to the other crosschecks. It is not used to check whether the level of the rate of return is too high or too low, but rather how the rate responds to changes in key inputs and how the consequent variation in the rate of return feeds through into prices.

The conclusion in the above quotation goes beyond issues that have to do solely with the cost of capital and comments on the way that the price of essential energy services should vary over time. This is a complex topic, that involves far more than the cost of capital. As the AER notes, using the relatively fixed MRP from the HER results in more variation in the rate of return than would the combined HER and DGM approach. In the current environment it will mean that the effect of rising interest rates will be felt in a one-for-one rise in return on equity that will feed through to prices (Table 11.5).

The AER reduces the emphasis on price stability when it reaches its conclusion on the robustness of the RORI, stating 'our objectives under the NEO and NGO require us to set appropriate allowances, which we expect will be higher in some periods than others'.

We agree with the AER's analysis of sensitivity testing and scenarios to examine how changes in the economic environment, particularly interest rates, will feed through to prices. The current RORI has the effect of passing interest rate rises completely through to the cost of capital. This is the other side of the coin from the fact that it has in the past resulted in the same one-for-one effect from interest rate declines.

We also encourage the AER to engage in more sensitivity testing and scenario analysis that is motivated by possible future scenarios rather than by past variation. The system needs to be robust and satisfy its goals under the possible future states of the world that could emerge. To that end, we encourage the AER to develop a series of scenarios and stress tests that represent a broad possible range of outcomes given the challenges facing the economy at the moment.

4.6.8. Historical profitability

The AER examines the possible role of historical profitability as a crosscheck. It notes various problems with interpreting such data, including accounting manipulation, and the fact that historical data are not forward-looking. Nevertheless, it does reach a conclusion regarding profitability, that:

> *'In summary, our analysis of this crosscheck clearly shows return on regulated equity declining with interest rates in combination with the progressive application of the 2013 Rate of Return Guideline and the 2018 Instrument. However, it also shows average returns significantly above our regulated return due to a range of factors, including the incentive framework we operate.'* (ES page 271)

We note that the information from this analysis of historical data regarding the excess return over the regulated return is vital to the decomposition of the RAB multiple, as discussed above. We also note that the reason given for this excess, that it is a deliberate consequence of the incentive framework, is vital to the interpretation of whether the RAB multiple indicates a problem with the cost of capital. Therefore, we do not agree with the dismissal of historical profitability as part of the crosschecks.

4.6.9. The level of investment

Whatever is the outcome of other crosschecks, the primary matter of interest regarding the use of the cost of capital in regulation is whether it gives too much incentive to invest and encourages excessive investment in inefficient assets and gold-plating, or whether it results in underinvestment and, over time, unreliability, excessive operating costs, and operational problems from an inefficiently low and wrongly configured set of capital assets.

The AER discusses this issue under Investment trends in section 11.2.1.4. It concludes that stakeholders agree with its position that 'investment trends are of little value as crosschecks and can be excluded, though they should be reported for completeness.'

The key issue is that aggregate investment levels are determined by many factors and rate of return is only one of those. We suggest, however, that analysis of individual investment proposals can be much more informative than this comment suggests. Specifically, applications for approval of major network projects can be analysed as an indicator of the enthusiasm or lack thereof for investment. In particular, applications for approval of discretionary network investments which are justified as reliability enhancing are an indicator that the rate of return provided by the RORI is sufficient to incentivise investment.

If regulated companies are proposing to increase reliability beyond that required by quality standards that would seem to be definitive evidence the RORI is providing an incentive for investment. Why else would a regulated entity seek to increase investment it is not compelled to undertake?

The AER then uses evidence from acquisition prices at high RAB multiples and financeability tests to conclude that there is a 'supportive investment environment'. This echoes the conclusion from the RAB multiple and financeability sections, that current and expected rates of return are 'at least sufficient (as part of the overall regulatory compensation to investors) and potentially higher than that needed to attract investment.' (ES page 266)

If the AER maintains the view, based on RAB multiples, that the incentives to invest are potentially higher than is necessary to attract efficient investment, then it would be helpful for it to state what evidence supports the view that this has not led to excessive investment.

We do not find sufficient evidence in the ES regarding the crucial issue of whether the incentive to invest is too low or too high. We recognise the difficulties involved in assessing this, but a crucial part of concluding whether the rate of return is too high or too low is to gather as much evidence as reasonably possible regarding whether it has led to the right level of investment in the past and is likely to do so in the future. We encourage the AER to consider the practices of other regulators regarding this issue, which include using benchmarking exercises and various indicators of investment demand.

4.6.10. Other regulators' rate of return decisions

The AER points out the difficulties involved in comparing the levels of rate of return used by other regulators (ES page 273). We agree that the problems listed by AER make a direct comparison of rates with those of other regulators unreliable.

However, there are two aspects of the RORI that could be tested more thoroughly using comparisons both with international regulators and with other Australian regulators. The first is to test parameters that should be the same, such as the level of MRP in similar markets and in Australia, and the risk-free interest rate within Australia. The second is the methodological approach. For example, if all other regulators were using the DGM rather than HER to determine the MRP that could indicate an issue with the methodology being used by AER and it would certainly need explanation.

We encourage the AER to focus its comparison with other regulators on things that should, in principle, be the same rather than things that should, in principle, be different. If that is done, we believe that there is value in crosschecks with other regulators. In particular,

within the regulated sector in Australia it would be desirable to have similar ways of estimating common parameters such as MRP, so as not to distort incentives between regulated sectors.

4.6.11. Practitioners' discount rates

The AER completely discounts the use of practitioners' discount rates as a crosscheck. The primary reason given is that there 'may be issues with comparability and methodology' (ES page 279). As an example, it says that practitioners 'may use a long-run or blended risk-free rate rather than our current approach of the prevailing risk-free rate'.

The issue that the crosschecks are designed to test is whether there is anything about the overall estimate of the cost of capital produced by the AER that is inconsistent with unbiased investment incentives given the NPV=0 goal. If it were the case that the firms making these investments and their investors systematically estimate a higher cost of capital than the AER then that would indicate a potential problem, whatever the reason for that difference. In our view it is not sufficient for the AER to discard evidence on the overall rate of return because it does not fit with the AER's own chosen methodology. The crosschecks are designed to test whether the chosen methodology has resulted in the wrong outcome, so discarding checks because they use a different methodology is not an appropriate test.

We encourage the AER to consider the evidence from practitioner discount rates in this broader way. For example, some stakeholders have mentioned expert evidence on the cost of capital given in Australian regulatory proceedings that are directly related to the AER's mandate, and also the outcomes of those proceedings. It would be helpful if the AER could discuss that evidence and those outcomes in more detail and say why it is not a relevant crosscheck on the overall rate of return, regardless of any methodological differences.

4.6.12. Other information that could be used

The AER is willing to use analysts' forecasts of dividends as part of its DGM approach. There is also data on analysts' forecasts of future profitability if it wishes to examine profitability in a forward-looking way to overcome one of the issues with historical profitability.

4.6.13. Panel recommendations

The Panel recommends that the AER:

- Considers the practices of other regulators regarding the use of crosschecks, which include using benchmarking exercises and various indicators of investment demand.
- Engages in more sensitivity testing and scenario analysis that is motivated by possible future scenarios rather than by past variation. To that end, the AER should develop a series of scenarios and stress tests that represent a broad possible range of outcomes given the challenges facing the economy at the moment.
- Judges the evidence from crosschecks in the round without attaching full weight to some and discarding others.
- Expedites the process of consulting on and using the decomposition of RAB multiples and completes it before the RORI is finalised.

- Says how it will deal with another important issue regarding the use of RAB multiples: given the declining number of relevant regulated firms with observable share prices, there may be a problem with obtaining adequate data in the future. This is a broader issue that also affects the estimation of beta.

5. Panel conclusion

The Panel's conclusion regarding the first question asked by AER is that the draft RORI is supported by evidence and reasons, subject to the reservations regarding specific issues which are summarised in the High Level Review section of this report.

The recommendations of the Panel, listed at the end of the Executive Summary, suggest how the specific reservations should be addressed.

The Panel's view regarding the second question asked is that the draft RORI is likely to contribute to the Energy Objectives based on the process that has been conducted, the general way the AER has communicated and used evidence, and the transparency with which it has operated.

The Panel concludes that that AER should undertake and present in its final ES a more conclusive analysis of the efficacy of the RORI since its first creation in 2018. This is crucial to assure stakeholders, particularly consumers, that they can be confident regarding the contribution of the RORI to their long-term interests and hence to the Energy Objectives.

Subject to these recommendations, the Panel consider the ES and RORI fulfil their role at this stage of the current review of the RORI.

Appendices

Appendix 1 – National Energy Objectives

The National Electricity Objective (NEO)

The National Electricity Objective as stated in the National Electricity Law (NEL) 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:
>
> a) price, quality, safety and reliability and security of supply of electricity
> b) the reliability, safety and security of the national electricity system."

The National Gas Objective (NGO)

The National Gas Objective as stated in the National Gas Law (NGL) is:

> "to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas."

Appendix 2 – Comparison of AER draft RORI decisions and approach

Subject	**Summary of AER 2022 Draft Decision and Approach** ***2022 values.***[1]	**Is this a change from 2018?** ***2018 values.***	**Views of Independent Panel in 2018 to AER approach in 2018 draft**
Overall rate of return.	*Indicative rate of return 4.76%.*	*Indicative rate of return 4.71%.*	
	Nominal, vanilla weighted average cost of capital, updated annually to reflect annually updated return on debt.	No change.	Generally found that AER's decisions were supported by the evidence available to it and its reasoning was explained sufficiently. But AER could have improved its explanation of -Choice of fixed methodology and fixed values. -Why it rejected the use of RAB multiples and historical profitability measures.
Gearing Ratio.	*0.6*	*0.6*	
	Use benchmark gearing ratio.	No change.	Concluded that AER had accessed relevant data and interpreted data accurately. Suggested it should consider whether consistency is necessary in the treatment of hybrid and subsidiary debt for gearing as compared to treatment for estimating beta.
Return on debt	*Indicative return on debt 4.00%*	*Indicative return on debt 4.00%*	
	Estimated using 10 year trailing average, continuing transition already underway.	No change, except minor tweak to the start and end of window for nomination of averaging periods.	Believed generally that AER accessed relevant data and interpreted these accurately and explained any judgements clearly. AER should:

	Benchmarked to observed market rate curves for BBB+ credit rating using 3 sources of market rate curves. Averaging periods nominated before start of period/ not after regulatory proposals and within a specified window.		-Provide clear justification for setting benchmark issuance at 10 years rather than relying on the judicial review decisions. -Investigate the possibility of expanding the scope of future debt information collection.
Return on Equity	*Indicative return on equity 5.90%*	*Indicative return on equity 5.78%*	
	Estimated using Sharpe-Lintner Capital Asset Pricing Model, set for entirety of regulatory period and not updated annually.	No change.	Believed AER's process for setting cost of equity is clear.
	Value of market risk premium varies between 6.8% for regulatory periods of 5 years and 6.5% for periods over 9 years.	*Value of market risk premium 6.1%.*	Concluded that AER has used a wide range of sources and adequately considered available relevant information. AER is also clear why it did not use the Dividend Growth Model. But AER could be clearer on: -Why arithmetic averages are appropriate for setting allowed returns. -The methodology for adjusting historical excess returns for imputation credits. -Its discussion of market risk premium and the level of risk-free interest rates. AER could also check the reasonableness of its proposed market risk by examining market risk premium in other countries.

	Value of equity beta 0.60	*Value of equity beta 0.60*	Believed that AER used and evaluated a wide range of relevant information. AER could be clearer on: -The conceptual analysis of business and financial risk. -Discussion of the Black model and the low beta bias. -The decision to limit the reduction in beta to "promote stability and predictability".
	Indicative risk-free rate 1.82% (5-year term)	*Indicative risk-free rate 2.12% (10-year term)*	
	Risk free rate estimated using yield to maturity on Govt bonds with term matching regulatory period (usually 5 years) averaged over period nominated by regulated business within specified window.	Change to term from 10 years in 2018. Minor tweak to nomination window.	Overall, AER used relevant data and appropriate methodology. However, AER should explain: -More clearly explain/justify its reasoning on the use of a 10-year term for the risk-free rate, including the justification for adopting a 10-year term for the cost of equity. - Why supplier nominated periods need to be confidential and whether there is scope for suppliers to "game" this process.
Imputation credits	*Value of;* *Imputation credits 0.585.* *Distribution rate 0.90.* *Utilisation rate 0.65.*	*Value of;* *Imputation credits 0.585.* *Distribution rate 0.90.* *Utilisation rate 0.65.*	
	Utilisation approach, where gamma product of utilisation rate and distribution rate.	No change.	Concluded that AER used available, relevant information and sound reasoning, but should give clearer explanations of the rationale and methodology used to establish values of gamma, distribution rate and utilisation rate.
AER approach to arriving at its draft			Generally positive about AER's process and engagement and level of detail of evidence, analysis and conclusions.

			Suggested some areas where AER's explanations and reasoning could be improved: -AER's lack of openness on averaging periods for risk free rate and return on debt. -AER's use of judgement e.g. rounding to determine value of gamma; and switching of methodologies to establish beta. -A fuller explanation about whether the overall rate of return is neither too high nor too low, as part of AER's comments on how the RORI will contribute to the Energy Objectives.

1. Values from ES Table 0.1, based on February 2022 data. ES Table 0.2 provides updated values based on April 2022 data.

Appendix 3 – Members of the Independent Panel

Pat Duignan

Pat Duignan has wide executive and advisory experience in economic regulation, corporate finance, economic policy decision making and investment management governance. He now undertakes advisory mandates through Munro Duignan Limited.

His experience includes the roles of Finance and Economics Expert Lay Member of the New Zealand High Court under the Commerce Act 1986, Commissioner at the New Zealand Commerce Commission, General Manager Finance for the Telecommunications Corporation of New Zealand, Director in the Investment Banking Division of CS First Boston (NZ), Treasurer of the New Zealand Debt Management Office, Director of Policy Coordination and Development at the New Zealand Treasury, First Secretary Economic at the New Zealand London High Commission and long-time membership of the New Zealand Accident Compensation Corporation Board Investment Committee.

Pat served as a Commissioner at the New Zealand Commerce Commission from 2010 to 2015. The Commission regulates energy and telecommunication networks and airports, and implements competition and consumer protection regulation. Pat played a major role in implementation of the utility regulation framework and served on the competition regulation division.

Pat was an expert member of the Accident Compensation Corporation (ACC) Investment Committee for 14 years, during which excellent returns were achieved. The Committee is responsible for oversight of the management of the NZ$35B portfolio that finances the future costs of past accident claims.

Prior to 2001, Pat managed the corporate finance, treasury and taxation areas as General Manager Finance for Telecom Corporation of New Zealand Ltd ("Telecom"). Pat managed Telecom's NZ$1B share buyback and later issue of equity and quasi-equity (under changed circumstances). His team raised term debt, maintained commercial paper issuance and secured project financing for the US$1.2B Southern Cross cable project.

Earlier, Pat was responsible for management of New Zealand's public debt (at that time totalling NZ$46B) as Head of the New Zealand Debt Management Office ("NZDMO"). Pat also has experience as an Investment Banker (with Credit Suisse First Boston NZ) and as Director of Policy Coordination and Development for the Treasury.

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

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

Carol Austin

Carol is an experienced finance professional and board director. She combines strong commercial judgement with a deep understanding of economics, investment management, superannuation, banking and financial markets.

She is currently a director of State Super, the Grattan Institute and Infoxchange and is chair of the ACT Investment Advisory Board. She previously served on the boards HSBC Bank Australia, the Future Fund and the Tasmanian Public Finance Corporation and was a member of the advisory boards of the Australian Office of Financial Management and the Melbourne Institute of Applied Economic and Social Research. Carol was also a Commissioner with the NSW Independent Planning Commission.

During her executive career, Carol held senior management and Chief Economist roles in the public and private sectors.

Carol has a Bachelor of Economics (Hons) from ANU and a Bachelor of Science from Monash University. She is a Fellow of the Australian Institute of Company Directors and a member of Chief Executive Women and the Australian Institute of Community Directors.

Professor Ian Cooper

Ian Cooper is Professor of Finance at the London Business School. He currently teaches corporate finance and valuation. He has also held visiting positions at the University of Chicago and Australian Graduate School of Management.

Ian carries out research on corporate finance, valuation, and international finance. His research has appeared in top academic journals such as the Journal of Finance, Journal of Financial Economics, and Review of Financial Studies. He disseminates the practical implications of his work through publications in leading practitioner journals such as Journal of Applied Corporate Finance and Oxford Review of Economic Policy, and in published consulting reports.

He has taught across the MBA, EMBA, and Masters in Finance programs, as well as Executive Education. For many years he directed and taught the Corporate Finance Evening and Modular Programs. The quality of his teaching has been recognised by multiple teaching prizes.

Ian has more than 40 years of international consulting experience on valuation, corporate finance, and cost of capital. He has advised companies, financial institutions, regulators, and governments around the world. He has appeared as an expert witness in international tribunals and high courts.

Geoff Frankish

Financial markets and public policy professional with over 40 years experience in private and public sectors. An extensive view of the financial world from a number of different vantage points. Experience in a range of industry sectors, including transport, energy, water and communications and embracing both competitive markets and regulated assets. This

involved working as a portfolio manager for two separate infrastructure funds, investing in both Australian and offshore assets. More recently, activities have focused on acting in a number of non-executive director roles.

Key Skills and Experience

- Financial Markets – extensive experience in Australian and global markets, both equity and debt.
- Corporate Relationships – high level interaction with boards and senior management of a wide range of corporates, both listed and unlisted. Hands-on involvement with corporate governance issues.
- Public Policy – detailed interaction with Governments and regulators in corporatisation, privatisation, pricing policy and economic regulation covering a range of industry sectors.
- Areas of expertise: Equity Research, Portfolio Management, Financial Modelling and Valuation, Negotiation, Asset Sales, Economic Forecasting and Analysis, Strategic Planning, Regulation Policy and Practice, Price Determination, Energy Policy, Corporate Governance, Debt Markets, Mentoring, Business Development

Tony Smith

Tony has 30 years senior experience of regulation in utilities, as a consumer advocate, regulator and as a company director. He recently retired as Chief Executive of the Consumer Council for Water (the statutory water consumer body in England and Wales), where he led the transformation of the water sector and regulation to improve its focus on customers and value for money and produce a 70% reduction in customer complaints. During the 14 years in this job, Tony advised governments and regulators in the UK and overseas on consumer issues and regulation and played a central part on behalf of customers in three regulatory price reviews using his knowledge of regulation to help regulatory authorities deliver credible results with high customer acceptance.

Before his role with the Consumer Council for Water, he was Director responsible for consumer issues at water regulator Ofwat, playing a full part in the 2004 price review and prior to that was heavily involved in regulation as a Director of a water utility in Scotland and with a UK electricity utility. In 2020 he was chosen for a prestigious UK Utility Industry Champion award for his “outstanding commitment and passion” and “having made a unique and positive impact on the utilities industry and those it serves.”

He is currently working part time with an independent Customer Engagement Group of a UK electricity company as part of energy regulator Ofgem’s distribution price review. Tony’s early career was in strategy and marketing, implementing turnarounds in oil, aerospace, automotive and fast moving consumer goods businesses. He has a first class degree and an MBA.