Advice to the Australian Energy Regulator

CRG Response to the
AER's December 2021 Information paper

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Foreword

This advice to the AER has been prepared in response to the AER's December 2021 *Rate of Return, Final omnibus working paper (Final omnibus paper)* [1]*,* its December 2021 *Rate of Return: Information paper and call for submissions Information Paper* (*Information paper*) [2] and its September 2021 *Term and Low Interest Rate Environment Final Working Paper*.[3]

In preparing this advice we have also considered the views expressed by the experts during the AER's four Concurrent Evidence Sessions held In February 2022. The CRG thanks the AER for the opportunity to observe the expert sessions and soon after for publishing the transcripts. The AER's timely publication of this material, affirms the AER's commitment to transparency and information sharing with all stakeholders.

This penultimate stage of the AER's consultation process on the making of the 2022 Rate of Return Instrument (RoRI) is largely focussed on the more technical aspects. Our advice to the AER in this submission therefore emphasises these technical aspects of the AER's rate of return decision. We have responded seven technical topics corresponding to the issues the AER has defined as '*having a preliminary position'* or '*taken no position'* in its *Information paper*[4].

Nevertheless, consistent with our statutory role,[5] our advice is based on relevant evidence of consumer priorities and preferences revealed over the course of our extensive engagement with energy consumers, consumer and industry representatives and independent investors. Accordingly, our advice includes key evidence of consumer perspectives which supports our overarching consumer-oriented principles and our advice on the AER's rate of return technical issues.

Three expert consultant reports prepared for the CRG are accompany this advice:

- Sapere Research Group, *Systematic risk and the role and measure of equity beta*, June 2021

- Woollahra Partners, *Dividend Growth Model Results: Market Risk Premium Estimate*, 8 March 2022

- Partington, G., & Satchell, S., *Report to the CRG: AER Cross checks*, 8 March 2022

This advice also references an expert report on systematic risk and equity beta prepared by Sapere in June 2021.[6] This report accompanied our 2021 advice to the AER on its *Draft omnibus paper*.

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[1]   AER, *Rate of return, Overall rate of return, equity and debt omnibus, Final Working Paper*, December 2021

[2]   AER, *Information Paper and call for submissions*, December 2021

[3]   AER, Rate of Return, *Term of the rate of return and Rate of return and cashflows in a low interest rate environment*, September 2021

[4]   AER, *Information Paper and call for submissions*, December 2021, Table 2, pp. 10-11

[5]   The National Electricity Law, Schedule – National Electricity Law, Part 3, Division 1B, Subdivision 3, 18N. Subdivision 18L (a) states the AER must, in making the instrument have regard to "*advice, recommendations or submissions given by a consumer reference group".* These requirements are also included in the National Gas Law.

[6]   Sapere Research Group, Systematic risk and the role and measure of equity beta, June 2021

We thank the authors of these reports for their valuable insights into these controversial topics. We would also like to thank the various energy consumers, consumer representatives, independent investors and others who so willingly engaged with us to help inform our advice. Energy Consumers Australia must also be thanked for helping to fund our engagement with consumers as well as the AER for its ongoing support.

"It would be foolish, in forming our expectations, to attach great weight to matters which are very uncertain.[1] It is reasonable, therefore, to be guided to a considerable degree by the facts about which we feel somewhat confident, even though they may be less decisively relevant to the issue than other facts about which our knowledge is vague and scanty. For this reason the facts of the existing situation enter, in a sense disproportionately, into the formation of our long-term expectations; our usual practice being to take the existing situation and to project it into the future, modified only to the extent that we have more or less definite reasons for expecting a change."

JM Keynes, *The General Theory of Employment, Interest and Money*, 1936

1. By "very uncertain' I do not mean the same thing as "improbable". *Cf.* my *Treatise on Probability,* chap. 6, on "The Weight of Arguments".

Abbreviations and short forms

The CRG has adopted the following abbreviations and short forms in this advice.

Abbreviation/short form	Long form/full name
AEC	Australian Energy Council
AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
AFR	Australian Financial Review
AST	AusNet Services
BEE	Benchmark Efficient Entity
capex	Capital expenditure
CAPM	Capital Asset Pricing Model
CCP28	Consumer Challenge Panel Sub Panel 28
CGS	Commonwealth Government Securities
CRG	Consumer Reference Group
DGM	Dividend Growth Model
ECA	Energy Consumers Australia
EICSI	Energy Infrastructure Credit Spread Index
ENA	Energy Networks Australia
Energy objectives	National energy objectives
Final omnibus paper	AER, Rate of return, *Overall rate of return, equity and debt omnibus, Final Working Paper*, December 2021
HER	Historical Excess Returns
Information paper	AER, *Rate of return. Information paper and call for submissions*, December 2021
ISP	Integrated System Plan
MRP	Market Risk Premium
NEL	National Electricity Law
NEM	National Electricity Market
NEO	National Electricity Objective
NER	National Electricity Rules
NGL	National Gas Law
NGO	National Gas Objective
NPV	Net Present Value
NSG	Network Shareholders Group
NSP	Network Service Provider
RAB	Regulated Asset Base

Abbreviation/short form	Long form/full name
REZ	Renewable Energy Zones
RoD	Return on Debt
RoE	Return on Equity
RoRI	Rate of Return Instrument
RPPs	Revenue and Pricing Principles
SACOSS	South Australian Council of Social Service
Sapere	Sapere Research Group
SKI	Spark Infrastructure
SL-CAPM	Sharpe-Linter Capital Asset Pricing Model
TNSP	Transmission Network Service Providers
WACC	Weighted Average Cost of Capital

Abbreviation/short form	Long form/full name

Erratum

The following corrections were made to this Advice on 22 March 2022.

Page	Error	Corrected to:
28	Incorrect residential sample size in Figure 2-2 Residential sample size (n=808)	Residential sample size (n=1,008)
30	Incorrect residential sample size in Figure 2-3 Residential sample size (n=808)	Residential sample size (n=1,008)
36	Incorrect residential sample size in Figure 2-7 Residential sample size (n=808)	Residential sample size (n=1,008)
39	Incorrect residential sample size in Figure 2-10 Residential sample size (n=808)	Residential sample size (n=1,008)
142	Last paragraph is obsolete: "Data collection for Consumer Survey 2 was only completed late in August 2021, so data from the second survey is yet to be fully analysed. With the time available we have included some results in this submission and will provide the AER with a more detailed report in the coming weeks."	Last paragraph deleted
142	Footnote associated with the above last paragraph which read as follows is obsolete: "The CRG expects to fully analyse the results from Consumer Survey 2 during September 2021 and will use the findings from the survey, along with other consumer and stakeholder evidence to inform additional advice to the AER, particularly around building consumer trust and confidence in regulatory processes and outcomes."	Footnote deleted

Erratum

Table of Contents

Executive summary

The CRG is pleased to provide this advice in response to the AER's December 2021 *Information paper and call for submissions (Information paper)*. As we approach the final stages of the 2022 Rate of Return Instrument (RoRI) review, the role of judgment in the AER's decision is being brought into ever sharper focus. This is evidenced by:

- The lack of consensus amongst the experts in the concurrent expert sessions on the best method to estimate key parameters – or how to take multiple methods into account

- The range of open options remaining in the lead-up to the draft Instrument – including several debates that had apparently been concluded at the time of the 2018 RoRI

- The challenges of navigating an external environment characterised by macroeconomic uncertainty and an accelerating energy transition.

The CRG considers the best way for the AER to exercise its judgment is to, as far as possible, maintain the long-term focus it established in the 2018 RoRI. This option is most consistent with the long-term interests of consumers, the AER's assessment criteria and the CRG's consumer-oriented principles. Our reasoning for this position is set out in detail in Chapter 1 of our advice and is summarised as follows:

- There should be a high bar for change, recognising a stable regulatory framework is in customers' long-term interests

- A long-term approach is also aligned with the interest of the long-term investors (pension funds, private equity and governments) that increasingly dominate the sector

- Regulatory risk is increased when attempting to capture transient market conditions in a binding rate of return that will have application for up to a decade

- No evidence has been provided that the 2018 RoRI is having a detrimental impact on the ability of NSPs to raise finance; to the contrary these assets remain highly sought after by global investors.

We recognise that the 2026 RoRI may require greater change, due to the near-complete delisting of privately owned networks, and the consequent paucity of market data, which impacts several RoRI parameters. Energy transition may also be a driver of change. However, in both cases, there is much work to be done before the AER responds by changing its approach to estimating the cost of capital. Analysis of the information deficit and potential remedies is required, and challenges to the regulatory framework need to be considered holistically before concluding whether changes to the RoRI are an appropriate solution. This is another reason to avoid *ad hoc* changes in the 2022 RoRI.

Our views are consistent with, and informed by evidence from consumers, consumer representatives and independent investors (see Chapter 2).

Chapters 3 to 9 set out our views on individual parameters and the key questions raised in the AER's *Information paper*. Our specific views reflect our overall concerns outlined above. Mostly, we recommend no change from the 2018 RoRI, but we have identified some areas where we consider the case for change is justified.

Term of the risk-free rate

We find Dr Lally's 2021 report[7] to the AER (Section 3.3) does not support his proposition that the term for the risk-free rate should match the term of the regulatory period (Sections 3.4 to 3.5). Accordingly, the term for estimating the return on equity remains a matter of judgement. While previous reviews consistently found in favour of a ten-year term, the AER left few realistic options on the table when it decided in December 2020 to shorten the estimation term for inflationary expectations. On that basis alone, the CRG accepts the AER should now align the term for the return on equity with the estimation term for inflationary expectations. It is essential that the AER explain if and what impacts this change has on the assessment of other parameters and the materiality of the overall impact on consumers (Section 3.6).

Market risk premium (MRP)

The AER's challenge in estimating the MRP is significant, given the true MRP is unknowable, and all estimation methods have their weaknesses. However, neither the AER nor stakeholders have provided any empirical evidence that the prevailing approach has a detrimental impact; so the prevailing approach, which puts most weight on the Historical Excess Returns (HER) method, should be retained. This method is the most appropriate for long-lived assets with long-term investors, and when the impact of the estimate endures for up to a decade due to the application of the binding RoRI (Section 4.4.1).

Dividend Growth Models (DGMs) are subject to wide variability making them unsuitable for point estimates of MRP in the context of the AER's regulatory task. Other methods and indicators have significant flaws that could lead to misleading or unreliable results and should not carry significant weight (Section 4.4.2).

Overall, and based on the latest data, we consider the 2018 point-estimate represents the upper bound of a reasonable MRP estimate for the 2022 RoRI (Section 4.6).

Beta

The AER should attach reduced weight to estimates of beta that derive from firms that have delisted or firms for whom regulated revenues are a small proportion of their overall revenues (Section 5.2.3). It should not seek to compensate for the small number of remaining comparators by including non-energy infrastructure firms or international energy firms in the comparator set for estimating the value of beta in the 2022 RoRI (Section 5.2.3). The AER should use the longest, reliable estimation period when estimating the value of beta (Section 5.2.1).

Return on debt

We accept the AER's findings that the Energy Infrastructure Credit Spread Index (EICSI) provides evidence of 18 basis points of outperformance versus the trailing average benchmark, 14 basis points for term and 4 basis points for other factors. The development of the EICSI is an invaluable analytical tool and its use should be continued (Section 6.5).

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[7]   Lally, M., *The appropriate term for the allowed cost of capital*, April 2021

Given the relatively low outperformance, and the AER's apparent belief that transition is necessary when adjusting for term, we accept adjustment to the benchmark is unlikely for this RoRI (Section 6.4).

Nonetheless, the AER should also consider that it has identified and is allowing continued outperformance when considering the overall rate of return and relevant cross-checks such as financeability (Section 6.4).

The AER should signal in the strongest terms that the trailing average should continue to be applied through the interest rate cycle. This is the best way to defend against pressure to abandon it when interest rates begin to rise (Section 7.3).

The AER should not put significant weight on the risk of policy intervention. Second-guessing government policy actions has no place under the energy laws or rules and risks distorting the AER's decision-making. Regardless, interventions such as public financing of capex driven by decarbonisation or other policy objectives (including ISP projects) may be the best response from a consumer perspective (Section 7.4). Accordingly:

- There is no case for introducing a capex weighted average for the great majority of networks.

- For transmission businesses faced with significant new capex, there are other options available for addressing genuine financing issues that are more direct and less costly to consumers than introducing a capex weighted trailing average or amending the rate of return (Section 7.6).

Cross-checks and overall rate of return

We agree with the AER that cross-checks should not have a determinative role and should be used with caution.

We do not consider *ex ante* financeability testing, of the sort carried out by regulators such as IPART and Ofgem, to apply to a standalone rate of return. Regardless, the detailed design of such a test would require extensive consultation in its own right as IPART has done, which the AER has not had the opportunity to undertake before the 2022 RoRI decision. We interpret the AER's *ex post* financeability test of extant rate of return decisions as evidence that those decisions have provided NSPs with at least an adequate rate of return (Section 8.4).

We consider Regulated Asset Base (RAB) multiples capable of supplying relevant evidence and urge the AER to perform this cross-check using plausible indicative ranges for the factors that could result in RAB multiples greater than one (Section 8.5).

We recognise the challenges in constructing an appropriate analytical framework for using historical profitability as a rate of return cross-check. Given its importance to customers in evaluating the overall regulatory framework, at a minimum we recommend it constitutes a qualitative "conditioning variable" that the AER takes into account when applying its judgment, particularly given the AER's own evidence of a consistent pattern since 2014 of over-recovery on the key profitability measures across almost all networks. (Section 8.6)

We agree that scenario testing can be a useful cross-check of the robustness of the AER's rate of return decision, but we caution that great care must be taken in the process of selecting the relevant forecasts to ensure scenario testing is applied symmetrically. The AER should also clarify how it seeks to interpret the output of scenario testing (Section 8.7).

When the AER is considering cross-checks and their role in its decision, it should also look at them collectively. That is, the AER considers whether a specific cross-check reveals under- or over-performance against the AER's benchmarks across time; if this outcome is material, and whether similar results are observed across the majority of businesses. The AER can also consider if different cross-checks indicate the same conclusion about under- or over- performance

We see no case for changing the benchmark gearing ratio or the value of gamma (Section 9).

1   Setting the scene

1.1   Overall context of this advice

It is important to consider the rapid changes in the external environment and the need to be flexible to respond to these changes, even within the constraints of the Rate of Return Instrument (RoRI) framework. We set the scene for the upcoming RoRI and our advice in the following sections where we identify some of these challenges and consider how the AER should best take account of these challenges when exercising its judgement. However, the AER should not become hostage to these uncertainties, rather it should look through the shorter-term impacts to the long-term interests of consumers.

We conclude this Chapter with an assessment of the high-level strategic options available to the AER and the CRG's recommendations in response.

1.1.1   Making regulatory decisions within a consistent conceptual framework

The AER's revenue decisions, including the rate of return, can be better understood if they are made within a consistent overarching conceptual framework that links to the national energy objectives (energy objectives). The energy objectives are expressed in terms of the long-term interests of consumers. The Australian Energy Market Commission (AEMC) interprets this as follows:[8]

> *"The energy objectives refer to the timeframe of the 'long-term'. In this context, the long-term does not refer to a particular period of time, but rather to when the capital or fixed components used in the provision of energy services can be changed".*

and[9]

> *"Therefore in practical terms, 'long term' can be considered to be the economic life-span of energy infrastructure i.e. 20-25 years."*

The AEMC also states:[10]

> *"Efficiency in the long-term interests of consumers is the fundamental objective".*

The AER has previously understood the above to mean that the National Electricity Objective (NEO) and National Gas Objective (NGO) referred to the economic efficiency of investment in, and operation and use of network services over the long term. Economic efficiency involves allocative, productive and dynamic efficiency, with dynamic efficiency being relevant to the **efficient allocation of resources over time**.[11] In this context, the Net Present Value (NPV) =0 efficiency criteria was best satisfied by considering returns over the (approximate) life of the network assets.

In its review of the regulatory treatment of inflation, the AER considered the question of the term of the expected inflation[12]. In our advice to the AER on regulatory inflation we recommended that the

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8   AEMC, *Applying the Energy Market Objectives,* July 2019, pp. 10-12

9   Ibid

10   Ibid, p. 5

11   AER, *Rate of return, Assessing the long-term interests of consumers, Position paper*, May 2021, p. 17

12   CRG, *Advice to the AER on the regulatory treatment of inflation, response to the Draft Position Paper*

AER's decision on the term of inflation be best considered 'in parallel' with the AER's review of the RoRI given the potential interrelationships between the estimation of expected inflation and the expected return on equity and to avoid the 'slippery slope' of 'cherry-picking' individual components or the rate of return.[13] In its final decision on the regulatory treatment of inflation, the AER changed its long-standing view that expected inflation is best estimated over a ten-year term. For example, in its 2017 review of the regulatory treatment of inflation, the AER stated:[14]

> *"In choosing the duration for inflation expectations we match the term for the return on capital determined in our most recent Rate of return guideline, which is 10 years …the nominal risk-free rate used in the calculation of the return on debt and the return on equity is the 10 year CGS [Commonwealth Government Securities] rate. We therefore use 10-year expected inflation estimates."*

In 2020 however, the AER determined that the NPV=0 efficiency criterion was best satisfied when the estimate of expected inflation matched the length of the regulatory period (in this case, five years).[15] The AER came to this conclusion, notwithstanding our evidence that investors in networks, and consumers of energy related equipment were focused on considering long-term returns/discount rates.[16] Their decisions did not appear to be linked to the concept of matching the regulatory period (of five years).

These different interpretations may also have significant implications for setting the return on equity parameters. A conceptual framework will assist the AER in making its assessment of impacts of any change across the full range of potential impacts on other parameters

If the length of the regulatory period becomes a primary reference point for term considerations the AER may even need to consider whether the current practice of five-year periods is in consumers' best interests.

> **If the AER moves to a five-year term for return on equity, the AER needs to explain how such changes interact with all the other parameters in the rate of return to ensure there is a clear and consistent conceptual framework that underpins its overall decision on the rate of return.**

1.1.2   Is the RoRI decision suitable for a rapidly changing energy market?

The energy industry is entering a period of unprecedented change in the supply and demand for electricity and gas; changes that will fundamentally alter the way network services operate, where they are built and how they might be funded.

This change is accelerating as technological breakthroughs affect the way energy is produced and consumed, federal and state governments adopt more ambitious decarbonisation targets[17] and consumers demand more control over their energy supply.

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13   Ibid, p. 21

14   Australian Energy Regulator, *Final position: Regulatory treatment of inflation*, December 2017, pp. 22-23

15   Australian Energy Regulator, *Final position: Regulatory treatment of inflation*, December 2020, p. 6

16   Evidence of consumer perspectives of the long-term is presented in Section 2.5

17   For example, Queensland, New South Wales, and Victoria have set a goal to achieve 50% renewable energy supply by 2030. South Australia has reached 60% net renewable energy supply status and has a target of 100% by 2030.

These changes are accompanied by changes in the ownership of energy networks. From early 2022, there will not be any companies primarily composed of regulated energy networks listed on the Australian Stock Exchange.[18] Significant sources of equity and debt have largely moved offshore, with international private equity firms and pension funds dominating recent investments. The transparency of network business information will inevitably decline, challenging the AER's current approach to estimating the rate of return.

We are also in a period of significant economic and international political turbulence. The ongoing challenges of COVID-19, international geopolitical, security and financial developments and supply constraints all increase the chance of shocks to Australian economic growth, inflation and interest rates.

We have considered these external events and uncertainties in our advice and how the AER might best respond as it determines the 2022 RoRI.

An approach to the assessment of the rate of return that is relatively robust to these events is essential to supporting the long-term interests of consumers. A wider consideration is whether the AER's RoRI is sufficiently flexible to meet these challenges, or even if the AER should attempt to do so in this 2022 RoRI decision, given the increasing lack of transparency on relevant market information.

The absence of reasonably current market information on the financing and operations of regulated electricity and gas networks progressively increases the chance of the AER's current approach leading to significant errors. By 2026, the AER will need to conduct a major review of its approach. The CRG contends that in the face of the 2026 challenge, the AER should adopt a conservative approach to introducing major changes in the 2022 RoRI unless there is substantive evidence of a material problem.

> **As a result of these externally driven changes, the time is approaching when the AER, AEMC and legislators must reconsider the whole approach to the rate of return. While we recognise that changes will have to be made in 2026, the 2022 RoRI is not the time to make changes in the absence of a material problem. It is far better to make substantive changes in the 2026 RoRI and in the context of a more comprehensive review of the energy markets and risks and the role of the AER in managing these risks through the regulatory rate of return, incentive schemes, and expenditure allowances.**

1.1.3   The diversity of expert views poses a further problem

The AER's task is to adopt a rate of return that best satisfies the energy objectives of efficient investment in, operation and use of the network in the long-term interests of consumers. As the AEMC highlighted, the energy objectives are economic efficiency objectives.[19] The AER does this by estimating the cost of equity using well-established economic models such as the Sharpe-Linter

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Tasmania achieved net 100% renewable energy supply in 2021, and now targets 200% by 2040 based on expected exports to the mainland.

[18]   We exclude APA, whose main business is gas transmission and whose regulated asset base is a small part of its overall enterprise value.

[19]   See for instance, AEMC, *Applying the Energy Market Objectives,* July 2019, pp. 10-12. The AEMC states "*Efficiency in the long-term interests of consumers is the fundamental objective*". p. 10

Capital Asset Pricing Model (SL-CAPM) and estimating the cost of debt in a manner that best matches the current credit rating and debt raising practices of the regulated networks.

However, beyond that general principle, economic and finance experts, regulators and investors, do not agree on the best approach, despite the many hundreds of research papers on the topic. Moreover, the AER is seeking to estimate investors' and debt providers' **expectations** of returns but there is no agreed *ex-ante* or *ex-post* method of validating whether one approach to estimating expectations is better than another.

As a result, regulatory judgement must sit at the heart of the final RoRI outcome. The AER's regulatory judgement will be assessed by stakeholders in the context of the energy laws and rules, the AER's assessment criteria and the impact of its decision on consumer welfare, now and over time.

The CRG has developed a set of consumer-oriented principles to assist the AER with this process[20]. These principles stress the importance of consumer confidence, consistency, a fair allocation of risk and a 'high bar for change'. We have evidence of strong support for these principles by consumers and consumer representatives.

> **Determining the rate of return that best satisfies the energy objectives requires the AER to exercise its judgement. It must do so in compliance with the energy laws and rules, while taking account of its assessment criteria and consumer priorities and preferences as captured in the CRG's consumer principles and consumer research.**

1.1.4   Is the RoRI's legislative structure still fit for purpose?

The RoRI requirements are set out in the National Electricity Law (NEL) and National Gas Law (NGL).[21] The RoRI is binding on both the AER in exercising its economic regulatory functions and on each network service provider. The RoRI requires the AER to set the inputs to the rate of return as a fixed number, or a fixed formula. These elements cannot be changed until the mandatory review and replacement of the RoRI four years later. However, the NEL and NGL require the AER to undertake extensive consultations with stakeholders including the CRG in the process of developing the RoRI.

The RoRI is intended to provide greater certainty for consumers and investors, and to limit the costs and resources involved in industry-led litigation of the AER's regulatory decisions. Undoubtedly, consumers have benefited in terms of certainty in the process since 2018 and there is no evidence of harm to investment in the network or to the performance of the network.

The AER's reports such as the annual *State of the Energy Market*[22] and the AER's annual network performance reports all provide evidence of these conclusions. For example, in the *State of the Energy Market 2021* report, the AER summarises network reliability trends as follows:[23]

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[20]   See Section 2.4

[21]   *National Electricity (South Australia) (New National Electricity Law) Amendment Act 2005*. South Australia. 2005, Division 1B, subdivision 18F- 18Y

[22]   See: AER, *State of the Energy Market 2021*, Section 3

[23]   Ibid, p. 172

> *"Across the [electricity] distribution sector, 'normalised' levels of reliability have improved over the past decade delivering fewer unplanned interruptions to and few unplanned minutes off supply."*

This improvement in reliability has come about despite the progressive reduction in the AER's allowed rate of return from 2013.

The process of developing the 2022 RoRI has, however, revealed a number of challenges and potential contradictions in the application of the RoRI as described below. The uncertainties identified above exacerbate these challenges and highlight the contradictions.

- While the RoRI is fixed for four years, the AER is also making a series of five-year revenue determinations, staggered across the four-year RoRI period. The result is the 2022 RoRI will have an impact on network revenue allowances and consumer price outcomes until the year 2031.

- The underpinning conceptual framework for the AER is to estimate a rate of return consistent with the prevailing market conditions. In particular, the Laws refer to the AER having regard to "*prevailing conditions in the market for equity funds*".[24]

- The AER must determine each parameter in the allowed return on equity using either a fixed value or a fixed formula. These fixed values and formulas are set in 2022 and apply to revenue determinations irrespective of whether a network determination is made in 2023, 2024, 2025 or 2026. By 2026 it will be questionable whether the fixed values and formulas still reflect the "prevailing conditions" which may have changed.[25]

- The AER uses the SL-CAPM as its 'foundation' model and is currently considering using one or more versions of a DGM in its estimate of the MRP. In its 2018 interpretation of the SL-CAPM, the AER sets the three input parameters as follows:

    o **Risk–free rate**: fixed formula based on 'prevailing' 10-year CGS at the commencement of each revenue determination; this value is then but fixed for the period of the relevant determination.

    o **Equity beta**: fixed value, applies to each revenue determination made across the four-year RoRI period.

    o **MRP**: fixed value, applies to each revenue determination made across the four-year period.

- The challenge for the AER and stakeholders is to consider if a return on equity derived from the SL-CAPM, can satisfy the requirements under the Law to consider 'prevailing market conditions' for each revenue determination made over the four-year period given this mix of fixed values and fixed formula.

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[24] *National Electricity (South Australia) (New National Electricity Law) Amendment Act 2005*. South Australia. 2005, Division 1B, subdivision 18F
Note, this is only a requirement for estimating equity, as the Law allows the AER to use a trailing average approach for debt.

[25] For example, the next Victorian electricity distribution revenue determinations will apply from July 2026 through to June 2031.

- The inclusion of other equity models such as the various forms of the DGM, is more likely to complicate rather than resolve the matter given the number of inputs to the models, and the variability of outputs to variation in the inputs.

- Similarly, it will be difficult to capture any interrelationships between the rate of return parameters using either a fixed value or a fixed formula that will remain relevant across the four-year RoRI period.[26]

- An overemphasis on recent market data (including recent data on expectations) is likely to increase rather than decrease the risk of estimation error, on average, across all the relevant revenue determinations as you do not know at what point in the cycle the observed data is located – the more so when there is significant volatility in the equity market.[27]

> **For these reasons we advise the AER the 'current market conditions' for equity beta and the MRP are best estimated on the basis of long-term averages (or trends if applicable) which require minimal assumptions about how future conditions will evolve. We refer here to the AEMC's interpretation of the 'long term interests of consumers'.** The AEMC states:[28]
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> > *"The long-term interests of consumers require that market design and regulatory arrangements … are both flexible and resilient enough to respond and evolve whatever the future may bring … Flexible and resilient market and regulatory frameworks are those that rely on the **least demanding assumptions** about how the future may evolve and are robust to a range of different potential future outcomes".* [emphasis as per the quote's source]

1.1.5   How should the AER exercise its regulatory judgement?

Given the uncertain future conditions in the energy market and the wider economy, the diversity of expert views and the structure of the RoRI, the issue of the AER's regulatory judgement becomes an even more important matter for consumers and other stakeholders. The discussion below sets out matters for the AER to consider when exercising its judgement.

The legislative framework

The starting point for the AER in exercising its judgement is the legislative framework, i.e., the energy objectives and the Revenue and Pricing Principles (RPPs) set out in the NEL and NGL. The

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26 For example, it has been argued that there is a relationship between the risk-free rate and the MRP. Even if this is the case, there is no theoretical or empirical evidence that such a relationship is constant over time, nor is there evidence about what drives the relationship. It is therefore very difficult to determine a fixed value or a fixed formula that can reasonably be applied to each five-year revenue determination made during this four-year RoRI period. The Expert Panel agreed that it was not possible to quantify in a fixed formula relationship in the context of the RoRI given the evidence to date.

27 This is because the more volatile the market, the more assumptions must be made such as the rate at which the market increases or decreases, the size of the variations around the mean, and what factors might serve to adequately predict these swings. Recent economic data and measures such as market volatility reveal significant movements in equity returns in both directions, but the duration of these swings is short before returning to an unconditional mean. The CRG has separately requested the AER to conduct tests on historical equity return data to better understand the nature of these relationships.

28 AEMC, *Applying the energy objectives*, July 2019, p. 7

energy objectives require the AER to promote efficient investment in, and efficient operation and use of energy services for the long-term interests of consumers. The RPPs direct the AER to, *inter alia*, have regard to the economic costs and risks of over and under investment, and over- and under- utilisation of the network.[29] There are other legislative requirements that are more specific to the RoRI. For example, the laws require the AER to explain:[30]

> *"why the AER is satisfied the instrument will, or is most likely to, contribute to the achievement of the national [electricity/gas] objective to the greatest degree".*

In 2021, the AER again addressed the question of how its decision could best advance the energy objectives. The AER concluded that:[31]

> *"In our view, for the 2022 Instrument to advance the NEO and the NGO to the greatest degree, the expected rate of return should be an **unbiased estimate** of the expected efficient return, consistent with the relevant risk involved in providing regulated network services". (emphasis added)*

While we have some concerns with aspects of this statement, we support the view that the decision should be 'unbiased'. Our advice to the AER in this submission takes account of the AER's stated goal of making an unbiased decision. We have also considered whether the AER's preferred approaches for the 2022 RoRI are in fact unbiased. For example, the AER's preferred approach for estimating the value of equity beta would appear to include statistical bias.[32]

The AER's assessment criteria

In 2013, the AER established six assessment criteria to assist it in selecting the estimation methods, financial models, market data and other evidence that are most relevant to the AER's task of estimating the efficient rate of return. The AER added two new and important criteria in its Overall Rate of Return Draft Working Paper. They were:[33]

- The materiality of any proposed change
- The longevity or sustainability of any new arrangements.

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[29] *National Electricity (South Australia) (New National Electricity Law) Amendment Act 2005*. South Australia. 2005,Part 2, clause 7A (6) and (7)

[30] *National Electricity (South Australia) (New National Electricity Law) Amendment Act 2005*. South Australia. 2005, Schedule, 18F (d)

[31] Australian Energy Regulator, *Rate of return, 'Assessing the long-term interests of consumers', Position paper*, May 2021, p. 12

[32] See Section 5 of this advice

[33] AER, *Overall rate of return, Draft working paper*, July 2021, p. 22

The AER explained the reasons for adopting these two new criteria as follows:[34]

> *"These additional criteria ensure that change is not to be adopted lightly in the absence of compelling evidence. Importantly, any case for change must demonstrate there to be a clear improvement or a benefit to be realised".*

Because of the uncertainties facing the AER and stakeholders, the AER should place most weight on the criteria of: 'fit for purpose' (given the RoRI framework); 'materiality;' and 'sustainability' – i.e., the case for change must demonstrate there is a clear improvement or benefit.

> **The CRG has assessed the proposed rate of return options against the AER's assessment criteria. For example, we have considered whether a focus on transient market conditions will produce the most appropriate estimate of the rate of return – that is, a sustainable approach for each determination to be made over the next four years.**

The CRG's consumer-orientated principles

In 2020, we developed five consumer-orientated principles, which we then tested with consumers and consumer representatives. These principles were strongly supported.[35] Of particular relevance to our advice in this submission are the following principles:

- The AER's rate of return decisions should promote confidence of consumers in the regulatory process

- Risk should be allocated to the party best able to manage it

- There should be a high bar for change. Proposals for change should be supported by persuasive evidence, compelling reasoning and broad consensus.

There is a clear overlap between the AER's criteria and our consumer-orientated principles. In its *Information paper*, the AER compared our principles with its assessment criteria, concluding the CRG's principles are covered by its assessment criteria. We have reproduced this comparison in Appendix B.

> **We have consistently tested our advice against these consumer-orientated principles; particularly given they have been strongly supported by consumers and consumer representatives. It is pleasing to see the AER acknowledging these principles and reflecting them in part through the additions to its assessment criteria. Nevertheless, the AER could more fully integrate consumer-oriented principles into their judgement on the rate of return parameters that that best promote the long-term interests of consumers.**

Evidence of harm to businesses and/or difficulty in accessing capital

The risk-benefit assessment of a regulator's rate of return decision has been generally (and in our view simplistically) described in terms of the risk of under-investment if the rate of return is too low, and over-investment if the rate of return is too high.

Typically, regulators have been more concerned about the risk of under-investment than over-investment. The AER's statement about an 'unbiased decision', explicitly rejects this asymmetry and

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34 Ibid

35 See Section 2.4.1 for a full list of our principles

seeks to balance the risks of over or under investment (see above). The CRG concedes the 2018 RoRI decision was also made with the intent of balancing these matters. As the former AER Chair, Paula Conboy, stated on publication of the 2018 RoRI:[36]

> *"The final decision balances the need for efficient and stable investment to build and maintain Australia's future energy networks, while ensuring consumer pay no more than necessary for a safe and reliable energy".*

The Energy Networks Australia (ENA) CEO, Andrew Dillon, claimed the decision was not compatible with meeting the investment requirements and was not in the long-term interests of consumers:[37]

> *"The Rate of Return decision misses the critical point that a key part of lowering long-term power prices is strategic investment in the grid, increasing the risk that timely investment will not occur"*

These two quotations represent competing propositions from the AER and the ENA respectively. It is appropriate then for consumers to ask how the two propositions can 'tested'.

1.1.6   How should the AER assess if its decisions achieve the expected outcomes?

Given the uncertainties described above, it is appropriate to ask the AER to reflect on the outcomes of its decisions and whether these outcomes indicate that the AER has achieved its objectives.

We appreciate that assessing outcomes is a difficult task, but it is one that the AER should consider if it is to enhance consumer confidence in its decision making and judgement. To start, we propose three 'tests' for the AER to consider:

1. The collective application suite of cross-checks to assess the actual total rate of returns (see Chapter 8)

2. Feedback from consumers on their confidence in the AER's regulatory processes and decisions, their priorities and trade-offs between price and reliability of supply, price and future investment[38]

3. Information on the performance of the networks and satisfaction of consumers with this performance.

Additionally, it is important to consider measures of consumption efficiency in line with the NEO and NGO.

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[36] See for example, EN+RGY, "2018 Rate of Return Instrument Issued", December 2018

[37] Ibid

[38] See Chapter 2

> **The available evidence suggests consumers are satisfied with the performance of the networks, so are unwilling to pay higher prices for greater reliability and they are sceptical of network claims for higher returns to support new investment. The CRG also considers that there is no evidence of a capital shortage either from the network's revenue proposals or a lack of willing investors – to the contrary. Network performance measures continue to demonstrate performance equal to, and often above, the regulatory standards.[39] There is no evidence that the 2018 RoRI has caused a reduction in efficient investment and harm to the long-term interests of consumers.[40]**

1.2   What options are available to the AER given the above conditions?

The AER has three general options available when deciding on the 2022 RoRI, noting that these options represent selected points on a continuum. They are:

1. Maintain the basic approach adopted in the 2018 RoRI.

2. Make some limited changes, where these are material, supported by strong evidence, compelling reasoning, well supported and are demonstrably in the long-term interests of consumers.

3. Make more substantive changes for example to better reflect 'current market conditions'.

Having considered these three options, we advise the AER as follows:

*   **Absence of compelling evidence to the contrary, the AER should for the most part maintain the approach it adopted in the 2018 RoRI.** Most relevant to the AER's decision here is our evidence from consumers and investors that the value stability in process and outcomes[41]

*   If there is compelling evidence for a change in approach to one or more of the AER's parameters, the changes must be based on compelling reasoning that considers the interrelationships between parameters and the overall impact on the rate of return.

*   It is not appropriate for the AER to make substantive changes in the 2022 RoRI given the lack of material evidence and reasons for a significant change in approach and in the context of the significant review and changes that will be required for the 2026 RoRI as a result of the changes in market and ownership structures.

To the extent that changes are warranted, the CRG considers they should be limited to the following:

*   **Term of the risk-free rate**. In principle, the AER could choose either five or ten years. Existing practice strongly favours ten years. However, the CRG notes that the AER's unilateral change to the term of inflation has - as we warned at the time – consequential effects, including on the appropriate term of the risk-free rate.

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[39]   AER, *State of the Energy Market, 2021*, Section 3, pp. 169-173.
        For example, on page 173 the AER states *"On average, in 2020, the distributors performed 17% better than their (weighted) SAIFI targets and 3% better than their (weighted) SAIFI targets"*

[40]   While capex has reduced since the peaks of 2012-2014, this is largely driven by declines in augmentation expenditure, replacement expenditure remains close to historical levels. See for example, AER, *State of the Energy Market*, 2021, Chapter 3

[41]   See Chapter 2

- **Point estimate of beta**. The overall approach remains reasonable. However, four more years increases the distortion of including old comparators, leading to evidence that beta of 0.6 represents an over-estimate.

- **Selection of cross-checks**. While we don't expect these to have a direct impact on the RoRI, we consider it is important to consider a range of evidence that historical outcomes have provided NSPs with at least a more than adequate rate of return. This serves as a counter to ambit claims that previous decisions are insufficient.

1.3   The ISP and investment in new transmission capacity

Having reached the conclusions above with respect to 'business-as-usual' type investment, we separately considered the issues relating to the ISP and the need to fund significant expansion of the transmission system in order to maximise opportunities for least-cost decarbonisation of the energy market.

We conclude that while this will be a challenge to the industry, the challenge does not warrant a change to the allowed regulated rate of return. It would be a major error to use the ISP as the basis for an increase in the rate of return across the whole $112 billion regulated electricity and gas asset bases.

The more pertinent question is whether the multi-billion-dollar investment required in transmission under the 2022 ISP[42] will need an increase in the regulated rate of return in order for investment to proceed.

We tested this proposition with consumer representatives in February 2022. They strongly objected to the suggestion that the rate of return should be increased specifically to attract investment in the ISP projects. They commonly viewed ISP projects as are a reflection of government policies and the overall net benefits would be enjoyed by the community as a whole. Therefore, electricity consumers should therefore not be the parties funding the incremental costs.[43]

To the extent that additional funding sources might be required by the transmission networks (and some were sceptical), the appropriate response was for governments to contribute through low interest loans, long-term power purchase agreements or equity investments.

We agree with consumer representatives and emphasise there are many other, lower cost options available for funding these projects rather than imposing a new regressive cost ('tax') on all energy users, including allowing competitive bidding for the projects.

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[42]   AEMO, *Draft 2022 Integrated System Plan,* December 2021, footnote 3, p. 11
Here AEMO identifies some $ 12.5 billion investment in network costs for 'actionable ISP projects' (i.e., transmission projects that are likely to be developed in the period up to 2030). See for example,

[43]   See Chapter 2

2   Consumer support for our response

2.1   Our engagement approach and key evidence

The NEL and the NGL mandate the appointment of a Consumer Reference Group (CRG) to assist the AER in making the RoRI, indicating governments have formally recognised the need for the advice, experiences, and preferences of consumers in both the content of the instrument and the process for making it. For example, the NEL provisions covering the making of the rate of return call for effective consumer consultation and for the AER to have regard to advice and recommendations from the CRG (with additional provisions detailed in Appendix A).

The CRG has a key responsibility to ensure consumer interests and preferences shape our advice to the AER. We also recognise the importance of gathering primary evidence from consumers, consumer representatives and other stakeholders to support our advice.

Despite the challenges associated with the arcane nature of the RoRI, resource constraints and COVID-19 restrictions, over the last 18 months we engaged broadly and deeply with energy consumers, consumer representatives and others. We have broadly surveyed residential and commercial energy consumers about their views on regulatory processes, and their price-service preferences. Among with more informed energy consumers and their representatives we discussed in issues associated with the rate of return and possible impacts on consumers and with some technically skilled consumer representatives we even sought their views on rate of return parameters, as illustrated below:[44]

Figure 2-1: CRG's breadth and depth of consumer engagement
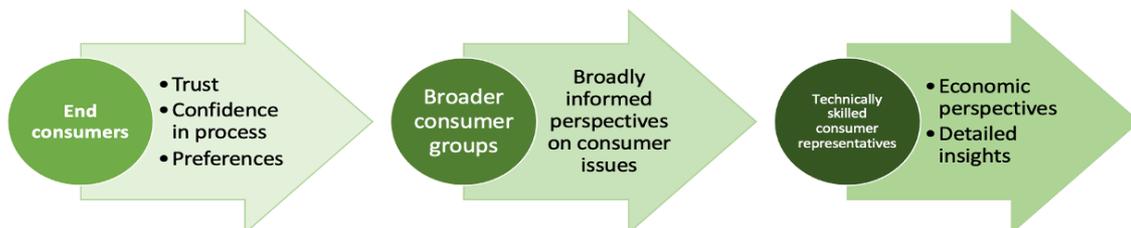
Importantly, we wanted to ensure:

- We captured as diverse a range of consumer perspectives as possible

- Our approach to gathering evidence was appropriate, sound, professional, unbiased and would stand up to scrutiny, and underpinned by our *Consumer Engagement Framework*[45] prepared in accordance with best practice public participation principles in line with the IAP2 Quality Assurance Standard[46]

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[44]   See also Section 2.2

[45]   CRG, *Consumer Engagement Framework*, September 2020

[46]   International Association for Public Participation, *Quality Assurance Standard*, May 2015

- We had a balanced understanding of network investment drivers, leading us to also engage with influential independent investors[47] to consider the impacts of the rate of return from an alternative perspective to the views presented by consumers, consumer representatives or the networks themselves

Among the diverse individuals and groups, their views were generally consistent.

The following table summarises the key evidence we gathered from consumers, consumer representatives and independent investors, which supports this advice to the AER.

Table 2-1: Sources of evidence in support of our advice to the AER

In support of …	Consumers	Consumer representatives	Independent investors
Consumer principles: especially consumer confidence and a high bar for change	✓	✓	
A long-term perspective	✓	✓	✓
Current service levels	✓		
Stability of process		✓	
Avoidance of price increases	✓	✓	
Energy consumers should not bear too much risk, including in large scale transmission projects		✓	✓
Rejecting use of the DGM		✓	✓
EICSI		✓	✓
Assessment of network risk (beta)		✓	✓
RAB multiples and historical profitability cross-checks		✓	✓

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[47] The CRG has adopted the terms "independent investment specialists" and "independent investors" to differentiate those individuals it interviewed in its engagement activities from those individuals who belong to the AER's Investor Reference Group and have a specific interest in regulated energy network investments.

2.2   Key engagement activities that informed this advice

With Energy Consumers' Australia (ECA) assistance, we explored and tested regulatory concepts and ideas relevant to rate of return processes and the decision including:[48]

- Surveys of relatively large samples of residential energy consumers and small to medium commercial energy consumers (**broader consumer sample**) to establish sound evidence in support of its principles, as well as exploring their perspective on the "long-term interests of consumers", price and reliability trade-off, and how to build consumer trust and confidence in regulatory proposals.

- Additional broad engagement with consumers, on a range of energy regulation related issues through the Choice Community platform.

- Interviews and workshops with consumer representatives and others who represent a diversity of consumer interests, including those of the most vulnerable customers to those of global-scale large energy consumers. Collectively, these representatives have considerable knowledge and experience of regulatory processes, including the RoRI, and who provided more detailed feedback and on the impact of different aspects of the rate of return as they relate to consumer interests.

- Interviews with independent investment advisors (**independent investors**), such as superannuation fund managers who provided insight into how they make investment decisions and the possible impacts of RoRI decisions on their investment advice.

Evidence in support of our position follows.

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[48]   Further details of our consumer engagement activities are provided in Appendix C; details of our consumer research are included in Appendix D; details of our engagement activities with consumer representatives are included in Appendix E, and details of our investor interviews are included in Appendix F.

2.3 Consumers and independent investors alike support the AER in its role

As established in our first consumer survey, and shown below, most consumers support the AER in its role, even those who had not previously heard of the AER.[49]

Figure 2-2: Consumer support for the AER, regardless of awareness of the AER
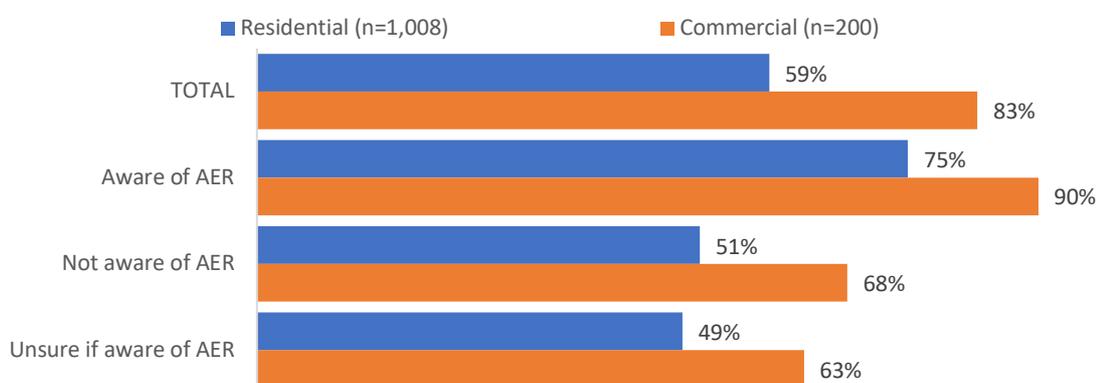
2.4 The AER must give weight to consumer-oriented principles

2.4.1 Our guiding principles

Consumers will more likely have confidence in regulatory processes and the RoRI decision if the processes involved in reaching that decision are based on sound principles, especially as most end consumers would arguably struggle to understand the arcane and technical parameters of the RoRI.

The CRG established and tested with consumers and consumer representatives its consumer-oriented principles to guide its advice to the AER and has continued to reference these principles in its written and verbal advice.

The CRG's views its five principles as integral to the AER achieving the second part of its statutory objective, namely the promotion of efficient operation and use of energy for the long-term interests of consumers. They are:

• Principle 1 – A regulatory framework serving the long-term interests of consumers must promote behaviours that engender consumer confidence in the framework.

• Principle 2 – Any change to the regulatory model must be tested against detrimental consumer impacts in relation to absolute prices and price changes.

• Principle 3 – Any change to the regulatory model must be tested against acceptable consumer impacts in relation to service standards.

• Principle 4 – Risks should be borne by the party best placed to manage them.

• Principle 5 – There should be a high bar for change.

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[49] In our first consumer survey we advised participants as follows:
Some aspects of the Australian Energy Regulator's work is technical, involving a detailed understanding of legislation, finance and economics.
They were then asked:
Do you support having an organisation like the AER make decisions in the long-term interests of energy consumers?

The AER agrees with us that it[50]:

> *"should use a principled approach to assessing new information before making a change and as noted above our assessment criteria is for that purpose"*

In accordance with its legislative objectives the AER uses a set of assessment criteria to evaluate information to inform its rate of return decision. The AER considers that the CRG's principles overlap the AER's assessment criteria and aims to demonstrate this in Table 1 of its *Final omnibus paper.[51]*

The CRG's principles neither compete with, nor seek to displace, the energy laws and rules, but they are aimed at ensuring consumer interests are fairly considered, as the laws make clear that the efficiency objective includes both efficient investment in *and* the efficient operation and use of networks and these represent two distinct requirements for the AER to consider.

2.4.2   Consumers support our guiding principles

In our first Consumer Survey we tested a simplified version of our consumer-oriented principles with residential and commercial (small to medium enterprise) consumers. We also tested, and continue to directly test, our principles with consumer representatives, and indirectly when we discuss individual rate of return parameters with them.

Survey participants were asked to respond to the following question using a 5-point scale ranging from "strongly disagree" to "strongly agree" and including "neutral" as the mid-point. The order of the principles was randomised between survey participants to reduce the risk of bias due to any possible ordering effect. The following chart shows large proportions of survey participants "agree" or "strongly agree" with each principle.

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[50]   AER, *Overall rate of return, equity and debt omnibus. Final working paper*, December 2021, p. 12

[51]   See Appendix B, which is a reproduction of this table

Figure 2-3: Consumers' support for our principles

The CRG has a set of principles as the basis of its advice to the AER. To what extent do you agree or disagree with each?
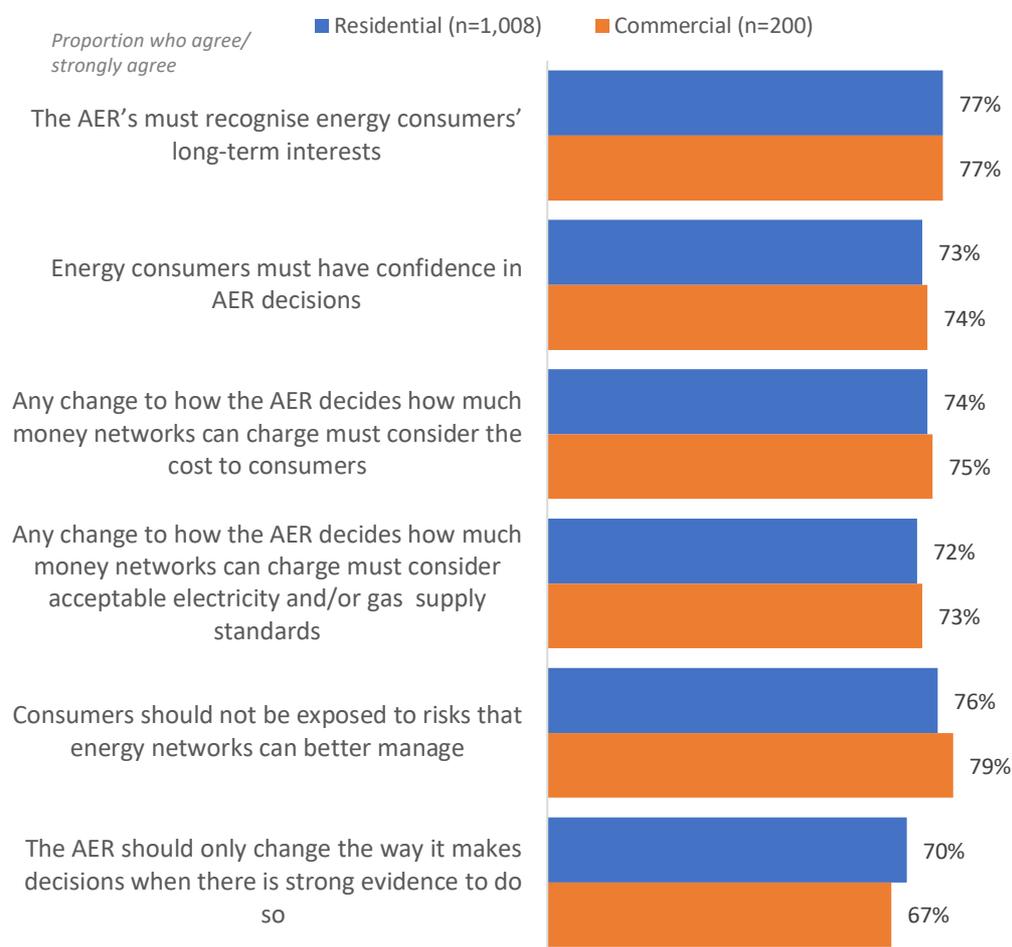
Consumer representatives and investors echo direct support for our consumer-oriented principles. Consistent with the AER's materiality criterion, stakeholders expect a 'high bar for change' for the AER's 2022 RoRI decisions.

Consumer representatives are cynical about network moves for promoting change to the 2018 RoRI approach and concerned networks will be able to push the AER to review otherwise settled positions in the 2022 RoRI, commenting in numerous interviews/workshops that:

1. A high bar for change is necessary for consumers to have confidence in the AER's regulatory process. Constant reviews erode trust.

2. Consumers never see a benefit from the regulatory process because of constant reviews sought by networks.

> *"There's got to be a high bar for change. At the moment, what we are seeing is, if there is going to be change its always in the networks' benefit it's not in the consumers' benefit." (Workshop participant, August 2021)*

3. Changes disrupt the cycle of 'ups and downs' – *"heads networks win, tails consumers lose"*.

4. Asymmetry of resources and information means networks issues and positions will dominate reviews.

5. The proponent of change must be able to demonstrate the need for change and how the change will benefit consumers.

   "Consumers expect and value fairness, stability and predictability [in the regulatory process]. A comprehensive case for change must be made and with the burden of proof with the proponent." (Workshop participant, June 2021)

6. There is a lack of evidence for a problem with the 2018 RoRI.

   "If there were problems with the current approach, new infrastructure such as Marinus Link would not be seeking to be included as a regulated Link within the national electricity markets. You can guarantee if the current approach was not providing owners with a sufficient risk/reward trade-off, they would be seeking to develop and operate outside the regulatory environment." (Workshop participant, June 2021)

   "I think we must reinforce the need for the problem to be identified and more importantly receive information as to how the changes will improve customer outcomes" (Workshop participant, June 2021)

A stable and predictable regulatory framework will also promote investor confidence and investment:

   "Network owners and consumers have something in common, the need for stability" (Consumer representative interview, June 2021)

   "Revenue expectations [for the networks] are very transparent and predictable and that should be taken into account in the cost of capital." (Consumer representative interview, June 2021)

2.5   Consumers support a focus on the long-term

2.5.1   What is the long-term?

In Consumer Survey 2, we asked participants to define "long-term":

The Australian Energy Regulator must consider network prices in the long-term interests of consumers. When you think of the long-term in this context. How many years do you think of?

As shown below, 32% of residential consumers and 25% of commercial consumers associated "long-term" with a ten-year period, with 62% of residential consumers and 48% of commercial consumers associating "long-term" with a period of at least ten years.

Figure 2-4: Energy consumers' definition of "long-term"
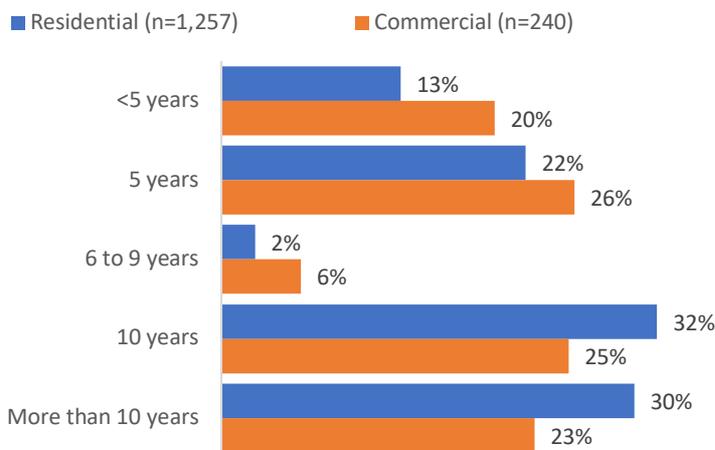
From a consumer perspective, the average and median periods defining "long-term" were:

- Average:
    - 14.1 years among residential consumers
    - 12.5 years among commercial consumers
- Median
    - 10 years among residential consumers
    - 8 years among commercial consumers

2.5.2   The importance of long-term

To then understand consumers' views about AER making decisions in their *long-term* interests, we asked survey participants in Survey 2:

When the AER determines the amount of money networks can charge, it could consider the long-term as five years or ten years, what period do you think makes more sense?

Both residential and commercial consumers were more likely to support the AER considering a ten-year period as "long-term" rather than a five-year period:

Figure 2-5: Whether consumers think the AER should consider "long-term" as five or ten years
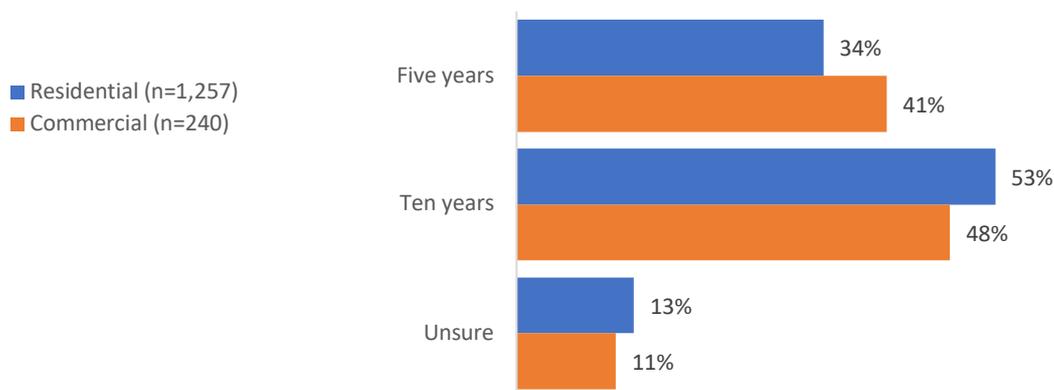
Consumer representatives believe 'long-term" refers to periods beyond a five-year regulatory period.

Consumer representatives elaborated on the consumer view above, describing the benefits of considering the "long-term" as a ten-year rather than a five-year period. Investors also consider investment in a regulated is a long-term proposition. Consumer representatives told us:

> *"As far as I'm aware, investors tend to be looking for longer term returns." (Consumer representative interview, September 2020)*

> *"[I] favour estimate within ten-year framework. A lot of noise in short-term data. Long investment." (Consumer representative interview, October 2020)*

> *"Longer term investment. More in a five- to ten-year band." (Consumer representative interview, October 2020)*

> *"Regulatory certainty and confidence in the processes relies on [them] not being changed on a short review cycle so why are we even looking at change." (Written response from interviewee, 2020)*

Independent investors also consider investment in a regulated network is a long-term proposition.

In applying the Net Present Value (NPV) =0 condition, the period over which it should apply should be assessed against the likely life of the assets rather than a short regulatory period, as investors look beyond the relatively short terms for the regulatory period in the case of long-lived assets.

They acquire interests which they expect to retain for the long-term and this is especially true of lower volatility lower return investments such as those in regulated network service providers.

Investors told us:

> *"In my experience, investors acquire interests [in regulated networks] which they expect to retain for the long-term and this is especially true of lower volatility, lower return shares such as those in a regulated network service provider". (Independent investor interview, August 2021)*

> *"With longer periods, you tend to have a better feel for what's happening within a particular market" (Independent investor interview, August 2021)*

> *"Investments of this character [i.e., regulated network investments] are often on a much longer term than other investments." (Independent investor interview, August 2021)*

> *"What we look at is the cash flow to the business over the long-term, consistent with the risks." (Independent investor interview, August 2021)*

2.6   Consumers are generally satisfied with current service levels

We know from the ECA *Consumer Sentiment Survey*, repeated every six months, that most customers are satisfied with their electricity and gas services provided by their retailer. The ECA

survey asks consumers to rate the provision of their electricity and gas services on a scale from very dissatisfied (0) to extremely (10), over the six months prior to the survey.[52]

Over the last two survey periods, the proportions of satisfied customers (based on a rating of 7 or more out of 10) have been consistently high.

Figure 2-6: Consumer satisfaction with their energy service
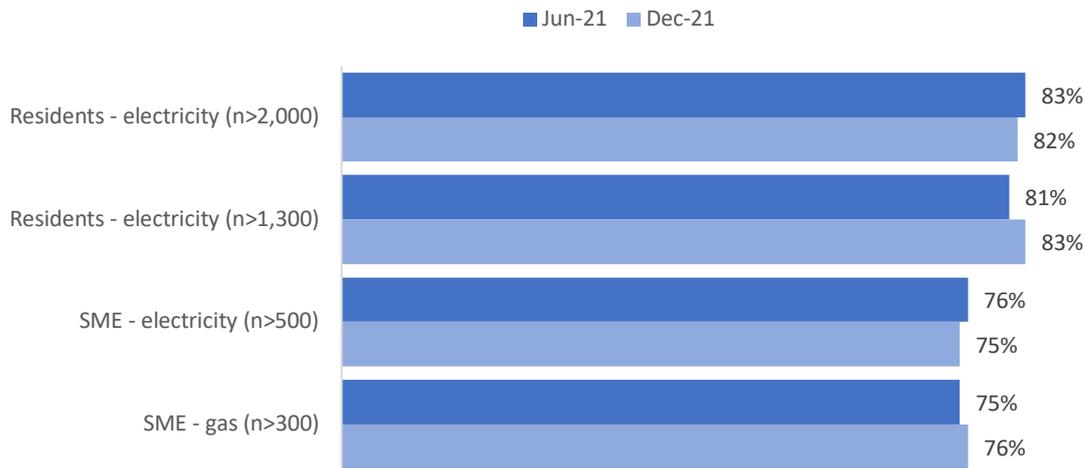
Whilst the components of a customer's bill that cover energy transmission and distribution are not directly referenced in the above, it is reasonable to infer that the above results also apply to customers' satisfaction with regulated services.

2.7   Maintain a stability of process

Stability of framework is seen by consumer representatives as critical as it enhances consumer confidence. For example, one representative explained why a stable framework is essential, citing key reasons as follows:

1. Customers have certainty:

    •   *"Relative certainty for customers and businesses. I mean businesses win like crazy if there is any instability in their processes." (Consumer representative interview, January 2022)*

2. Reduced risk of gaming by the networks:

    •   *"Stability of framework reduces the risk of regulatory gaming [in] which we had 15 years of nonsense, with the networks gaming the rate of return and every variable … So, stability of framework allows less opportunity for regulatory capture." (Consumer representative interview, January 2022)*

3. Reduced regulatory capture:

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[52]   ECA, *Consumer Sentiment Survey*, June 2021 and December 2021 results. Available from https://ecss.energyconsumersaustralia.com.au

- *"There is less propensity for regulatory capture or for gaming the regulator by any side if there is stability of framework and the regulator is consistent in that." (Consumer representative interview, January 2022)*

Consumer representatives also emphasised that they do not have the resources or capacity for continual debate to the same extent as networks, and therefore support a more stable process:

- *"Given the asymmetric bargaining and lobbying power in the energy sector between the industry players and their ability to bring influential lobbyists into the process, stability of inputs and process must be favoured." (Consumer representative interview, January 2022)*

- *"The cost that consumer advocates have already borne in these debates through turning up at the better regulation meetings, … all the debates and stuff we've hand in the past has been a significant cost that we've borne, and we just haven't got the capacity to keep turning up for the same arcane debates." (Consumer representative interview, January 2022)*

- *"The cost that consumer advocates have already borne in these debates … has been significant [to us] and we just haven't got the capacity to keep turning up for the same arcane debates." (Consumer representative interview, January 2022)*

The criteria of compelling evidence, materiality and sustainability are all valued by consumer representatives, and therefore there must be clear criteria for any changes to the framework.

2.8   Consumers are sensitive to price changes

Energy consumers are sensitive to price changes. We tested and clearly established consumers' sensitivity to energy price changes with residential and commercial consumers, consumer representatives and large energy users using various approaches, including:

- In consumer surveys

  o   Top of mind reactions to an increase in the price of energy

  o   Top of mind reactions to a decrease in the price of energy

  o   Sensitivity and expected reaction to different percentage price changes

  o   Trade-off between affordability and reliability

- In interviews with large energy users via open-ended questioning

- In interviews and workshops with consumer representatives via open-ended questioning

2.8.1   Top of mind reaction to an increase in the price of energy

In consumer Survey 1 we asked participants:

If the price you pay for energy increased, how would you react?

Most residential consumers (97%)[53] and commercial consumers (90%)[54] indicated they would act in some way if the price they pay for energy increased, with *looking at ways to use less energy* being the most common response among both groups.

Figure 2-7: Impact of potential price increase
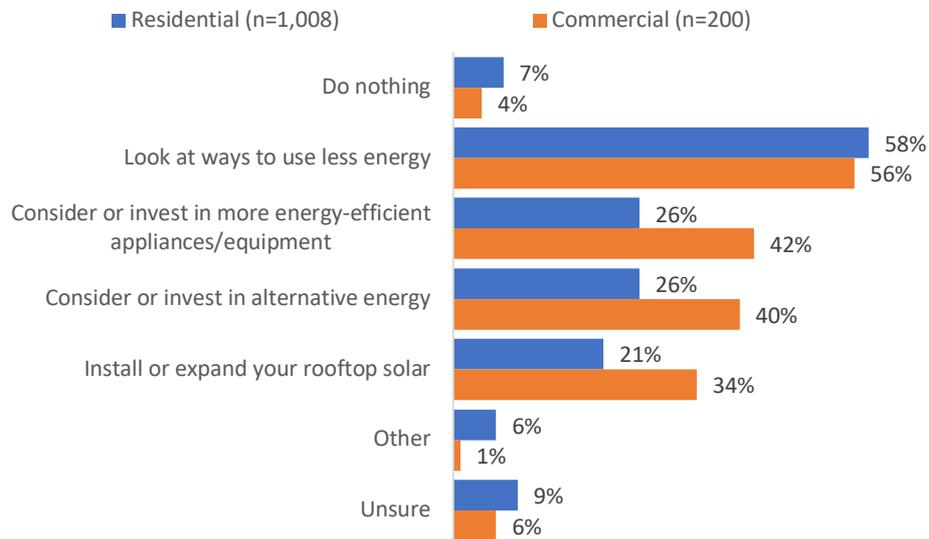
Similarly, consumers indicated they would respond to a price decrease by changing their energy use behaviour (see Appendix G).

2.8.2 Consumers' sensitivity and expected reaction to price changes

To further understand energy consumers' sensitivity to price increases, in Consumer Survey 2 we asked participants, in either ascending or descending order of price increase, the following question:

If the price you pay for energy increased by 1%/2%/5%/10%/15% and 30%, how would you most likely react? or

If the price you pay for energy increased by 30%/15%/10%/5%/2% and 1%, how would you most likely react?

The greater the price increase the greater the potential impact on consumers and the more likely they are to modify their energy use behaviour. A full comparison of the impact of different price increases is presented in Appendix G.

We then considered the proportions of energy consumers who would "do nothing" at each of the price increase points. As expected, and shown below, the larger the price increase the smaller the likelihood that energy consumers would "do nothing". Even with a 1% price increase a minority of residential consumers (43%) and commercial consumers (35%) indicated they would do nothing, i.e., most consumers believe they would react in some way to even a small price increase.

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53 Calculated as 100% less the proportion of consumers who indicated they would do nothing or were unsure how they would react

54 Calculated as 100% less the proportion of consumers who indicated they would do nothing or were unsure how they would react

Figure 2-8: Energy consumers' sensitivity to energy price increases
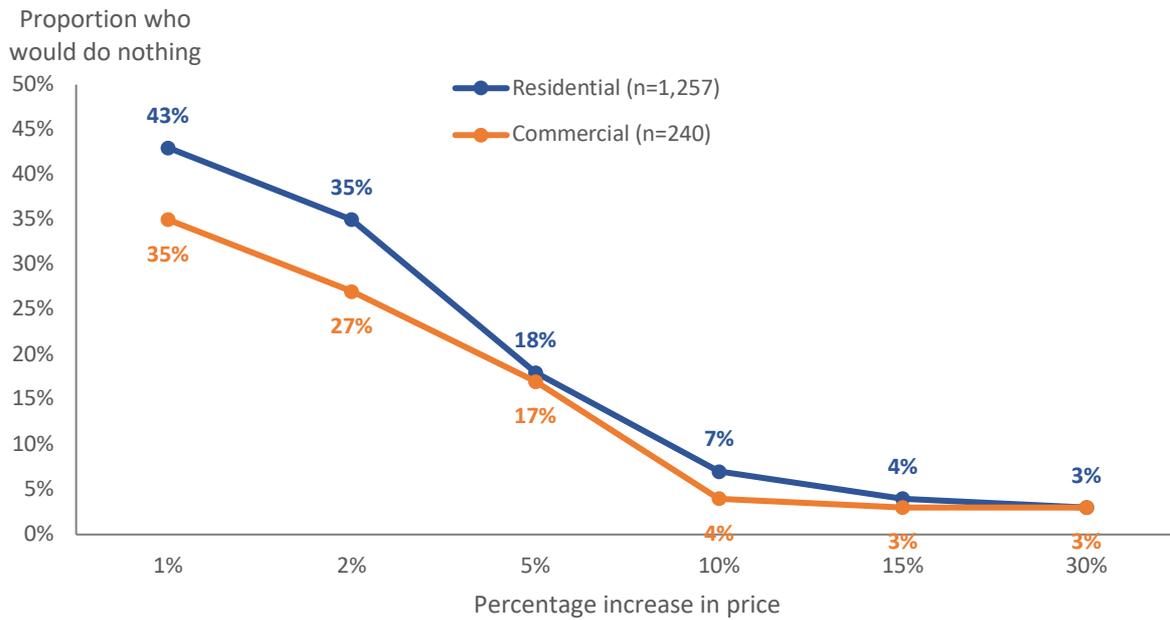
Vulnerable[55] energy consumers are particularly sensitive to a small price increase on their energy bill, with most (59%) indicating they would act in some way to even a 1% increase in their energy bills (i.e., 100% less the proportion who would do nothing).

Figure 2-9: Energy consumers' sensitivity to energy price increases
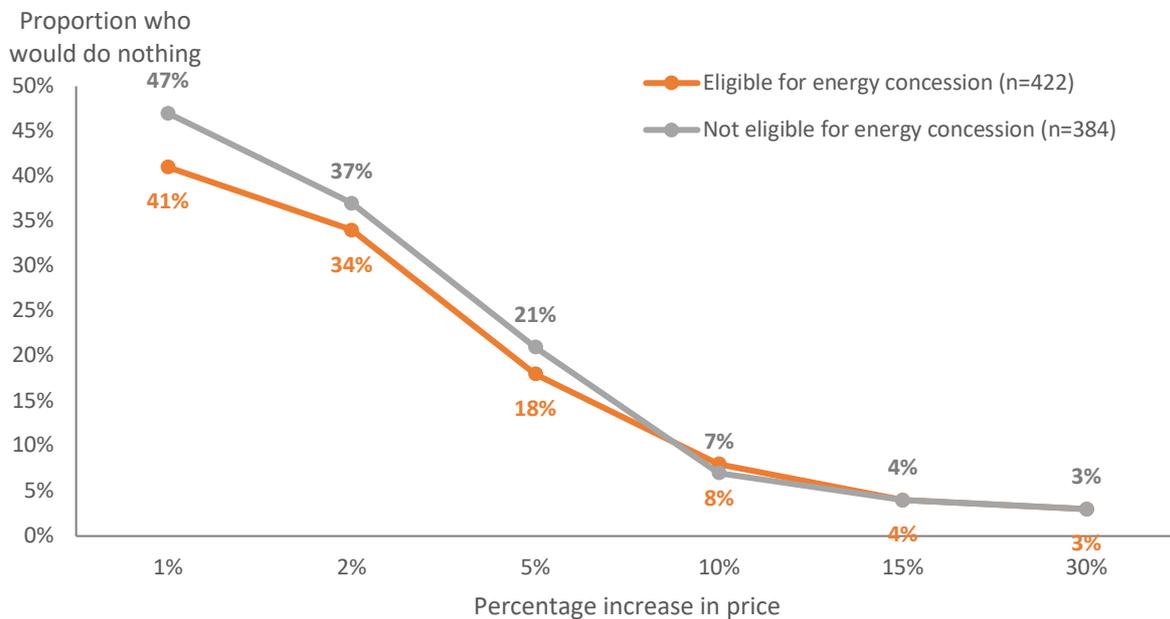
Vulnerable energy consumers indicated that a 1% increase in their energy bills would lead them to:

- Looking at ways to use less energy (38%)

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55 Defined as residential energy consumers who indicated they are eligible for a concession on their energy bills

- Consider or invest in more energy efficient appliances (6%)

- Consider or invest in alternative energy (6%)

With greater increases in energy bills, larger proportions of vulnerable energy consumers indicated they would consider or invest in alternative energy. For example, if their bills increased by 5%, 11% would consider or invest in alternative energy. The proportion increases to 22% if the bill increased by 30%.

In our interview an advanced manufacturer, who is currently on a contract with a retailer, we explored possible impacts of price increases to his business. He commented as follows:

> *"A less than 10% increase, I might look for a better deal and would include this in an annual review of our processes. If the price increased by more than 10%, I would start to pass the cost onto customers, or suck it up if customers couldn't afford the increase. I have started looking at solar to minimise impact of prices going up." (Large energy user interview, January 2022)*

2.8.3 Trade-off between affordability and reliability

A key issue in considering the long-term interests of energy consumers is the trade-off between "affordability" of services and the "reliability" of supply, such that the more reliable supply energy We CRG acknowledge the reality of this trade-off is not straightforward nor is the relationship necessarily directly linear. Nevertheless, to start to understand energy consumers' priorities, in Consumer Survey 1 we presented participants with a nine-point "slider" question:

Thinking about your electricity and/or gas and the price you pay, to what extent do you prefer a highly reliable energy supply over affordable energy?

Highly reliable energy supply	Neutral	Affordable energy
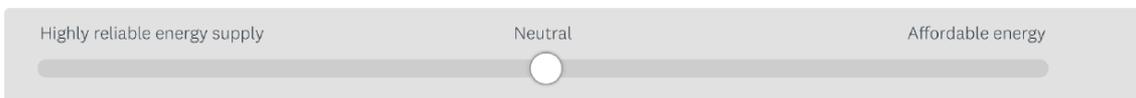
To reduce any bias, the question was randomly transposed, i.e.

Thinking about your electricity and/or gas and the price you pay, to what extent do you prefer a affordable energy over a highly reliable energy supply?

Affordable energy	Neutral	Highly reliable energy supply
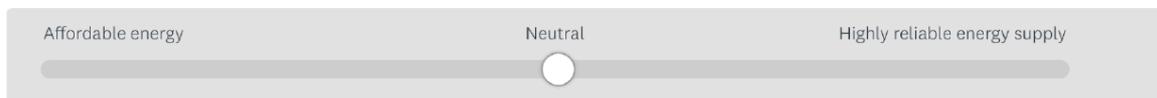
On balance, residential and commercial energy consumers favour affordable energy over a highly reliable supply:

- Among residential consumers, 48% favoured affordable energy over a highly reliable energy supply, while 28% favoured a highly reliable energy supply (25% were neutral)

  o Eligible concession cards were slightly more likely to favour affordable energy over a reliable energy supply

- Among commercial consumers, 45% favoured affordable energy over a highly reliable energy supply, while 39% favoured a highly reliable energy supply (19% were neutral)

Figure 2-10: Trade of between affordability of energy and reliability of service

	Highly reliable energy supply	-3	-2	-1	Neutral	1	2	3	Affordable energy
Residential (n=1,008)	6%	4%	7%	11%	25%	12%	12%	10%	14%
Eligible concession card holders (n=483)	7%	5%	8%	10%	22%	11%	12%	9%	17%
Commercial (n=200)	7%	8%	13%	11%	19%	13%	16%	7%	9%
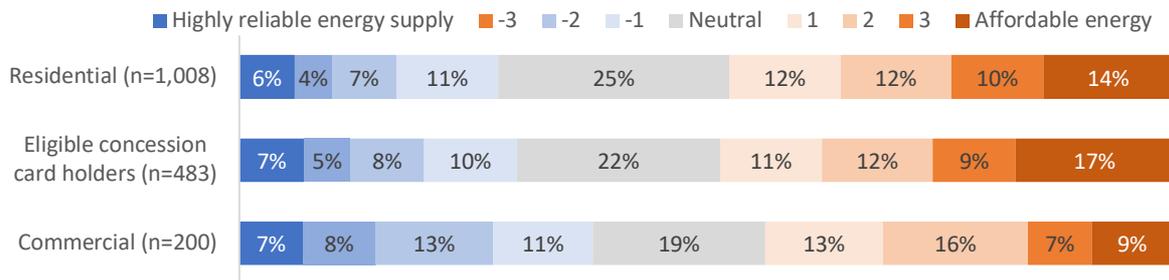
During our interviews with large energy users, including the advanced manufacturer for whom a reliable energy supply is critical, we heard a similar story. Whilst the price of energy is important, reliability is also *"very important … one brown out costs us $20k"*. Importantly this business is currently investing in solar to increase confidence they will have a reliable energy supply, manage their costs and in line with the company's commitment to sustainability.

We also met with a representative from the Australian Aluminium Council, the peak body representing the aluminium industry, which reportedly consumes around 10% of the available electricity from the National Energy Market. Both reliability and price are critical to this industry, especially for it to remain competitive in Australia. Notably members of this sector have long-term energy contracts (e.g., ten to 15-year contracts) which helps avoid exposure to price increases over time.

Consumer representatives also emphasised extreme sensitivity to price increases for consumers. This includes residential and business consumers in metropolitan and regional locations throughout the National Electricity Market (NEM). For example, participants in the CRG's Omnibus workshop in August 2021 reported the following in relation to residential consumers:

> *"…on the basis of the two or three years of running consumer energy literacy programs off the coast of NSW, I have the perception that there's **widespread anxiety** in the older community about energy prices." [emphasis added] (Participant in CRG Omnibus workshop, August 2021)*

> *"In the residential sector there are **more and more people experiencing hardship**. So, across the board there's an increase in concern about affordability." [emphasis added] (Participant in CRG Omnibus workshop, August 2021)*

They provided similar comments in relation to commercial and industrial consumers:

> *"…commercial and industrial consumers…are already under **extreme pressure**, particularly in the gas market. They have seen a little bit of relief in the electricity market but having said that, we also are seeing…quite significant increases in the spot price for electricity." [emphasis added] (Participant in CRG Omnibus workshop, August 2021)*

> *"Across the country, the business guys are saying 'power is too dear, we can't get any cheaper, even with these different little discounts offered with some of the companies.' The guys in the domestic market are the same." (Participant in CRG Omnibus workshop, August 2021)*

High energy prices also affect commercial customers' ability to compete with international markets:

> *"The large commercial industrial sector is saying 'we have to compete in international markets quite frequently; our energy prices have gone up far more than many of our competitors in*

*other countries, and that's **hurting** us." [emphasis added] (Participant in CRG Omnibus workshop, August 2021)*

Participants in the CRG Omnibus workshop agreed that price levels are a genuine concern. This view is supported by the earlier CRG engagement with consumer representatives, summed up by one representative interviewed by the CRG in August 2020:

"The price is way too high in achieving the outcomes" [of reliability, quality, security of supply] ...it must be a fair price" (Consumer representative interview, August 2020)

2.9   Appetite for risk

We explored the appetite for risk with nine consumer representatives in the context of the Australian government's decarbonisation agenda and the proposed large scale transmission Integrated System Plan (ISP) investment which is targeted at delivering on this agenda.

Consumer representatives unanimously told us that, in relation to the large-scale ISP transmission investments, they do not believe energy consumers should bear the risk for attracting the necessary investment. Importantly they agree government should bear the risk as illustrated by the following three quotes:

"If it is government policy to do decarbonisation and that brings forward costs, then they can wear that risk." (Consumer representative interview, February 2021)

"It is a public policy question and government is saying, 'we are needing to invest more in networks...' and that investment is at a cost greater than what the prevailing market is going to be, then it is the role of government to make that investment." (Consumer representative interview, February 2021)

"If the money can't be forthcoming from a private market because they're not prepared to bear that risk, then the government has to bear it." (Consumer representative interview, February 2021)

Consumer representatives stated that it is more appropriate for government to bear the risk because the taxation system is progressive, while energy bills are more regressive:

"In terms of economic theory...[to] basically push public policy effectively onto energy customers is... poor public policy, but it is also regressive and energy costs are regressive because lower income people pay proportionately a lot more. A small increase in energy costs is a much bigger increase for lower income customers." (Consumer representative interview, February 2021)

"It is regressive, it is not fairly apportioned and some of the most vulnerable pay the greatest percentage of their incomes in energy which is an essential service... [It] just needs to be fair." (Consumer representative interview, February 2021)

They also suggested it is easier for governments to bear the costs than energy consumers, for example:

"They [government] can go beyond early work contributions and they can contrive up to whatever level is necessary to get the project built ... they are not short of capital, they can continue to borrow at incredibly cheap rates and in the context of the Commonwealth budget, a billion dollars here or there is chicken feed. Especially since it will be off-budget funding

because they would be expecting it to make a return over the life of the asset." (Consumer representative interview, February 2021)

Consumer representatives are strongly opposed to the AER taking special measures through the rate of return to make ISP investment more attractive:

"Mr AER, it is not your problem to solve the risk allocation decision that policy makers have made." (Consumer representative interview, February 2021)

"Because if I [i.e., the AER] do that, then basically I throw out the NEO, I throw out all of my assumptions about the efficiency of markets and the ability for them to deliver and I throw out any notion of the best interests of the customer." (Consumer representative interview, February 2021)

Some consumer representatives talked about the high costs current consumers already pay for these large-scale transmission projects, in terms of depreciation costs and the writing down of RABs over time. They argue that increasing the RoR to guarantee this investment greatly adds to costs for current consumers:

"The consumers of next year pay outrageous prices for a big new transmission link - to then go and say, 'oh so we can get some more certainty, we will whack up the rate of return' just magnifies a huge current cost for near current consumers". (Consumer representative interview, February 2022)

We also discussed risk during our interviews with independent investors in the context of a balanced investment portfolio. They commented on the importance of a balanced portfolio that includes lower risk investments, such as regulated assets:

"A balanced portfolio will include a proportion of defensive assets from which a lower yield would be expected." (Consumer representative interview, February 2022)

"Regulated revenue assets have low risk equity, more defensive equity, and therefore you would expect a lower average rate of return, a lower expected rate of return is fine as long as you have a lower expected level of risk." (Consumer representative interview, February 2022)

2.10 Stability of approach is valued

The CRG's continuing detailed discussions with consumer representatives and independent investors on both high-level and technical matters related to the RoRI commenced three years ago (refer to Appendices C to E for details of our engagement activities).

The preceding discussion in this Chapter demonstrates the degree of alignment between views expressed by consumers in broad-based surveys and those expressed by consumer representatives in interviews and workshops. This alignment has added to our strong view that consumer representatives are well-positioned to be able to represent broad consumer perspectives on RoRI technical matters, which are otherwise difficult to discuss directly with end-use consumers.

We engaged with consumer representatives and investor stakeholders on the following rate of return parameters and issues:

- Term

- Use of the DGM in estimating the MRP

- Equity beta

- EICSI

- Cross-checks

Specific evidence from consumer representatives and independent investors related to the above are contained within the relevant Chapters.

3   The term of the risk-free rate

3.1   Summary of CRG advice

The following table summarises our responses to the AER's *Information paper* questions and includes cross references to the relevant in this Chapter.

Table 3-1: AER information paper questions and CRG advice

AER question	CRG advice
24 Should the same principle/s (such as NPV=0) be used to assess the term for the return on equity and the term for expected inflation? If so, how do the principles we applied in our 2020 Inflation Review translate to the term of the return on equity?	On careful re-examination of Dr Lally 2021 report to the AER, the CRG finds it does not support his proposition that the term for the risk-free rate must match the length of the regulatory period (see Section 3.3)

The appropriate term for the risk-free rate remains wholly a matter of judgement. While previous reviews consistently found in favour of a ten-year term, the AER left few realistic options on the table when it decided in December 2020 to shorten the estimation term for inflationary expectations. On that basis alone, the CRG accepts the AER should now align the term for the risk-free rate with the estimation term for inflationary expectations (see Sections 3.4 and 3.5) |
| 25   Should the term for equity match to the length of the regulatory period or the underlying asset lives? | The term of the risk-free rate has no obvious bearing on how other Weighted Average Cost of Capital (WACC) inputs should be estimated (with the exception of the HER approach to estimating the MRP) (see Section 3.5.6) |

3.2   Introduction

There is nothing new about debates over the term of the rate of return and specifically, the risk-free rate used in the Capital Asset Pricing Model (CAPM). The explanatory note accompanying the AER's 2018 Final RoRI Decision outlined the reasons the AER determined to continue using a ten-year risk-free rate at that time.[56] The AER's reasons are reproduced in Box 3-1 and are based on the AER's judgement rather than formal or empirical proofs.

Box 3-1: AER's reasons in 2018 for supporting a ten-year risk-free rate

"We consider the appropriate term for the risk-free rate should be ten years because this will lead to an overall return on equity that will better contribute to the achievement of the NEO and NGO. Networks and investors supported this decision. However, the CRG raised concerns that a shorter term of five years was more appropriate. We reached our decision for the following reasons:

- The ten-year term is consistent with the theory of the SL-CAPM, which is a single period equilibrium model, that estimates the returns an investor requires over a long-term investment horizon.

- The ten-year term is a sufficiently long investment term to serve as a proxy for the long-lived assets under regulation.

- The ten-year term is consistent with actual investor valuation practices and academic works as shown by findings in the KPMG market practitioner surveys, indicating that 85 per cent of practitioners use a ten-year risk-free term.

- This is comparable with the investor valuation practices used to value other stocks within the market, with a similar degree of systematic risk

- It is consistent with our estimation of the MRP and equity beta."[57]

"We see two reasons that could support the use of a different term in our estimation of the appropriate risk-free rate:

- If it was used by most market practitioners and agreed upon by academics as the appropriate term for equity investments

- If cash flows from an equity investment in a regulated business are effectively similar to an investment in a floating government bond, which implies investors might value it using a term equal to the regulatory period.

We have not received evidence that market practitioners and or academics consider the appropriate term for equity investments should be equal to the length of the regulatory control period, on the contrary the recent KPMG market valuation survey indicated that ten years is commonly used by market practitioners." [58]

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[56]   AER, *Rate of return instrument. Explanatory statement*, December 2018, p. 88 and p. 129

[57]   AER, *Rate of return instrument. Explanatory statement,* December 2018, p.88

[58]   Ibid, p. 129

Not surprisingly, the AER's support for a ten-year term was somewhat equivocal.[59]

> "We consider a reasonable argument could be made in support of either a five-year term or a ten-year term. However, we found support for using a ten-year term in actual investor valuation practices and academic works and consider the evidence for a 5-year term was less persuasive than that for a ten-year term."

Less than three years later, the AER reached a different conclusion. It summarised its reasons as:[60]

> "Based on our thinking from the inflation review, our further review of previous material and the 2021 Lally report, we consider matching the term of return on equity to the length of the regulatory period would satisfy the NPV=0 principle each period and thus may better contribute to achieving the NEO and NGO [National Gas Objective]."

Lally's report was cited heavily in the AER's final working paper on the term of the rate of return.[61] [62] Despite acknowledging stakeholders remaining unconvinced, the AER is not dissuaded.[63]

> "We still considered that there are merits with matching the equity term to the length of the regulatory period despite not receiving strong stakeholder support."

The AER convened an expert session on 10 February 2022 to consider this matter.[64] The discussion was inconclusive with the experts finding little common ground. The sentiment of those disinclined to agree with Lally can be summarised by a statement from one of the experts:

> "Martin's logic is unassailable, but it's not what investors do or seem to do based on all the available evidence."

The experts' sentiment, aligning with Lally's views, was neatly captured in the statement:

> "In the absence of market evidence, the AER should use the best available theory."

It seems the experts cannot quite agree on what they are disagreeing about. This impasse dashed the AER's hope that:[65]

> "...additional information and evidence that may become available via submissions to the information paper and concurrent evidence sessions."

As this is the last submission the CRG can make to the 2022 RoRI review before the AER publishes its draft decision, and given the absence of agreement among the experts, we have returned to Lally's

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[59]   Ibid, p. 88

[60]   AER, *Term of the rate of return & Rate of return and cashflows in a low interest rate environment. Final working paper*, September 2021, p. 53

[61]   Lally, M., *The appropriate term for the allowed cost of capital*, April 2021

[62]   AER, *Term of the rate of return & Rate of return and cashflows in a low interest rate environment. Final working paper*, September 2021

[63]   AER, *Rate of return. Information paper and call for submissions*, December 2021, p. 11

[64]   AER, *Transcript of Proceedings, rate of return instruments concurrent evidence session 2 of 4 Transcript of proceedings*, February 2022

[65]   AER, *Term of the rate of return & Rate of return and cashflows in a low interest rate environment. Final working paper*, September 2021, p. 46

2021 report and comprehensively re-examined his model and arguments. This Chapter proceeds as follows:

- Section 3.3 reproduces Lally's two-period model and mathematical example. It then highlights a feature of the model not given much attention in the 2021 report – namely, the role of expectations.

- Section 3.4 examines the conclusions that can be drawn from Lally's model and reflects on his arguments support of his proposition that the term of the risk-free rate should match the length of the regulatory period. We find his report does not support this proposition. The section concludes with a discussion about the market outcomes that might be expected if the AER has been using the wrong risk-free rate until now.

- Section 3.5 acknowledges the role regulatory judgement must play in the absence of clear evidence or arguments in support of either five-year or ten-year risk-free rates. A range of inputs to that judgement are considered including consumer preferences and the AER's earlier decision to shorten the term for estimating inflationary expectations.

- Section 3.6 concludes the Chapter with the observation that it is not clear what the AER expected to gain over the past 15 months from consulting stakeholders on the term of the risk-free rate. Looking to the upcoming draft decision, the CRG suggests the AER can enhance consumers' confidence in its decision-making processes by fully addressing the concerns raised in this submission.

The AER's explanatory note to the 2018 RoRI provides the following explanations for its support of a ten-year risk-free rate.

3.3   Dr Lally's model

This Section initially recapitulates the model used by Lally in his 2021 report to the AER to support his central contention that the term for estimating the cost of equity should match the length of the regulatory period.[66] For ease of exposition, like Lally, we focus on a two-period model. Section 3.3.2 summarises the numerical example provided in Lally's report. In Section 3.3.3, we draw attention to the important role of expectations in the model.

3.3.1   The model

Section 2.1 of Lally's report applies a two-period model where the owner receives a return on the asset and a depreciation allowance in each period. There are no opex, capex or taxes in the model. The regulatory cycle is assumed to be one year. In the model, a regulated asset is purchased at t=0 with a value A. Regulatory depreciation in the first regulatory period is denoted DEP_1. The revenue cap in period 2 is represented as REV_2 while the value of the business at t=1 is given by V_1.

The cost of capital allowed by the regulator is given by k_0 and k_1 at t=0 and t=1, respectively.

The applicable discount rate (or cost of capital) in each regulatory period is represented by k_{e01} and k_{e12} at t=0 and t=1, respectively. The report states that k_{e01} and k_{e12} represent the prevailing one-period cost of capital in each period.

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[66]   Lally, M., *The appropriate term for the allowed cost of capital*, April 2021

Equations (1) and (2) in the report solve for the value of the business at t=1 and t=0, respectively.

$$V_1 = \frac{E(REV_2)}{1 + k_{e12}} = \frac{(A - DEP_1)k_1 + (A - DEP_1)}{1 + k_{e12}} \qquad (1)$$

$$V_0 = \frac{E(REV_1) + E(V_1)}{1 + k_{e01}} = \frac{[Ak_0 + DEP_1] + E(V_1)}{1 + ke_{01}} \qquad (2)$$

where $E(REV_2)$ denotes the expected value at t=1 of the revenue to be earned in period 2 and $E(V_1)$ denotes the expected value of the business at t=1.

The report explains:

> *"The NPV = 0 principle requires that $V_0 = A$. This can only occur if the allowed cost of capital k_1 in the numerator of equation (1) matches the discount rate k_{e12} in that equation (which is the one-year cost of equity prevailing at time 1) and the allowed cost of capital k_0 in the numerator of equation (2) matches the discount rate k_{e01} n that equation (which is the one-year cost of equity prevailing at time 0 [zero])."*

Applying the two conditions mentioned in this quote allows equations (1) and (2) to be rewritten as:

$$V_1 = \frac{(A - DEP_1)k_{e12} + (A - DEP_1)}{1 + k_{e12}} = A - DEP_1 \qquad (3)$$

$$V_0 = \frac{[Ak_{e01} + DEP_1] + (A - DEP_1)}{1 + ke_{01}} = A \qquad (4)$$

These latter two equations lead to Lally's central conclusion:[67]

> *"So, the NPV = 0 test is satisfied. By contrast, for example, if the allowed cost of equity in the numerator of equation (4) were larger or smaller than the discount rate in that equation, the present value of the future cash flows of the business (V_0) would not match the initial investment of A."*

Using the paper's notation, Lally's conclusion can alternatively be expressed in the following terms. For the NPV=0 principle to be met, two conditions must be satisfied – namely:

$$k_0 = k_{e01} \qquad (A1)$$

$$k_1 = k_{e12} \qquad (A2)$$

That is, Lally finds the regulatory allowance for equity (k_0, k_1) should equal the relevant discount rate (k_{e01}, k_{e12}) in each regulatory period.

Importantly, in its own right, Lally's mathematical derivation does not explain *how* the value of any of these variables is determined. His mathematical conclusion only demonstrates the necessary relationships between these variables for NPV=0 to be satisfied over the life of the asset.

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[67] Ibid, p. 8

3.3.2   Mathematical example

The 2021 report that Lally prepared for the AER includes a simple but very instructive mathematical model. The numerical example proceeds as follows.

- At t=0, the risk-free yield curve slopes upward.

- The observable risk-free rate for the first period is 2 per cent (i.e., k_{e01}.= 0.02)

- The risk-free rate applying across two-periods is 3 per cent -- implying the one-period risk-free rate in the second period is 4 per cent (i.e., k_{e12} = 0.04).

The report demonstrates (p. 10) that the NPV=0 principle is satisfied when "the allowed risk-free rate is matched to the regulatory cycle" – that is:

$$k_0 = k_{e01}. = 0.02 \qquad k_1 = k_{e12}. = 0.04$$

The report then considers the consequences of applying the long-term risk-free rate (i.e., the two-period rate of 3%) as the return on investment when the one-period discount rate is 2%. To simplify matters, the report assumes "that a proponent of this approach would still use the one-year risk-free rate to set the allowed revenues in the last year of the project's life."[68] As the report correctly notes, this allows the reader to focus only on the first year.

In the report's notation, this mispricing is represented by:

$$k_{e01} = 0.02 \qquad k_0 = 0.03 \qquad k_{e12} = k_1 = 0.04$$

Under these conditions the paper finds the NPV=0 is not satisfied because "the allowed revenues for the first year have been set using the two-year rate rather than the one-year rate."

3.3.3   The role of expectations in the model

The following discussion focusses on one element not explored in depth in Lally's report, namely, the role of expectations. This analysis is important for the discussion in Section 3.4.1 which reflects on the important role played by expectations formation.

We agree with Lally that equations (1) and (2) correctly identify that it is the *expected* values of REV_2 and V_1 that are relevant inputs for these two equations. However, somewhere, when deriving equations (3) and (4), the paper appears to have overlooked the role of the expectations operator in equations (1) and (2).

Re-instating the important role of expectations and solving the model (as per the paper) results in the following conditions for satisfying the NPV=0 principle at t=0.

$$k_0 = E_0\{k_{e01}\} \qquad (B1)$$
$$E_0\{k_1\} = E_0\{k_{e12}\} \qquad (B2)[69]$$

Equation (B1) differs from equation (A1) because it recognises that the regulator can never observe investors' true cost of capital and therefore must form expectations about what that cost might be

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[68]   Ibid, p. 10

[69]   In Lally's notation, $E_0\{k_{e12}\}$ can also be written as k_{e02}

when setting the allowed return (k_0).[70] Equation (B2) differs from (A2) in two ways. Unlike equation (A2), equation (B2) recognises that at t=0 neither the true cost of capital nor the regulatory allowance are observable.

Rewriting equations (B1) and (B2) helps highlight an additional point.

$$k_0 - E_0\{k_{e01}\} = 0 \qquad (B3)^{71}$$

$$E_0\{k_1\} - E_0\{k_{012}\} = E_0\{k_1 - k_{e12}\} = 0 \qquad (B4)$$

Equations (B3) and (B4) highlight that for the NPV=0 principle to apply, the regulator must act consistently in all regulatory periods. That is, the regulator must be expected to set the regulatory allowance at a rate equal to the expected cost of capital in that regulatory period.

While equations (B3) and (B4) highlight the importance of regulatory consistency for the NPV=0 principle, they do not explain *how* the regulator should form its expectation about investors' discount rate (or cost of capital) at the time of each reset. In other words, Lally's model does not demonstrate his proposition that the term for estimating investors' cost of capital must match the length of the regulatory period.

3.4   Reflections on Lally's model

This Section examines the implications that can be drawn from Lally's model and reflects on the arguments in support of his proposition. Section 3.4.1 initially explains why, although Lally's modelling is correct, it does not in its own right explain why the term for the risk-free rate should align with the length of the regulatory period. Sections 3.4.2 and 3.4.3 examine two arguments Lally puts forward in support of his proposition that the term of the risk-free rate should match the length of the regulatory period. Section 3.4.4 turns to the market outcomes that might be expected if the AER has been using the wrong risk-free rate until now.

3.4.1   Limited conclusions can be drawn from the model

Lally's model demonstrates the conditions to be satisfied for the NPV=0 principle to be upheld when the regulator determines the regulatory allowance on capital. These conditions require the allowed return on capital to match the [expected] discount rate privately applied by investors to the cashflows generated by the model in each regulatory period. The model does not provide a proof insofar as the conditions are true by construction (of the model). Nonetheless, the model is helpful in demonstrating the relevance of these conditions.

However, it is important to note there is nothing in the mathematical model that determines the values of investors' cost of capital in each period. These variables are determined exogenously in equations (1) to (4) above – namely: k_{e01} and k_{e12}.

To take the discussion further, Lally states:[72]

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70   See quotes from AER, and CRG at beginning of Section 3.4.4

71   At t=0 the regulator knows with certainty its regulatory allowance in the first period, that is, $E_0\{k_0\} = k_0$.

72   Lally, M., *The appropriate term for the allowed cost of capital*, April 2021, p. 3

> *"[T]he valuation problem for a regulator is like that for an unregulated business terminating in five years' time, or a floating rate bond whose coupon rate is reset every five years. In each of the latter cases, the correct discount rate to use for the payoffs over the next five years is the current five-year rate, just as it is for the regulatory situation."*

This statement allows Lally to move from his mathematical model to a numerical example based on an observable upward sloping yield curve which objectively provides values for the parameters k_{e01} and k_{e12}. Returning to the mathematical model, Lally then demonstrates these observable values determine the appropriate values for the allowed return(s) on capital (i.e., k_0 and k_1, respectively).

Herein lies the shortcoming in Lally's argument.

The model demonstrates the only conditions that need to be satisfied for an NPV=0 outcome are those described by equations (B3) and (B4) – that is (I) in the current regulatory period the regulatory allowance must equal the expected cost of equity, and (ii) the same discipline is expected to apply in all future regulatory periods. But that is the absolute limit of the model. It does not explain the determinants of investors' required cost of equity, k_{e01} and k_{e12}. Nor does the model demonstrate how the regulator would, or should, form its expectation in any regulatory period – that is, $E_0\{k_{e01}\}$, $E_0\{k_{e12}\}$ or $E_1\{k_{e12}\}$.

Although the following example is rather silly, it is offered merely to demonstrate this point.

Let us imagine a world where the AER has strong reason to believe that investors determine an internal discount rate based on the average number of ducks in the local pond. How would the AER go about pursuing the NPV=0 principle? Presumably, it would send its staff members to the pond to count the ducks over a number of days or weeks. Having then formed a reasonable estimate of the average number of ducks, and therefore investors' internal discount rate, the AER would then ensure the regulatory allowance for the upcoming regulatory period was set equal to its estimate of the number of ducks. In so doing, the AER could be satisfied it had done everything reasonable to satisfy the NPV=0 principle.

Of course, this is a silly example, but if instead of counting ducks, what if the AER had strong reason to believe that networks determine their internal discount rate based on the long-term government bond rate? If the AER followed Lally's advice, it would result in a lower risk-free rate than implied by a long-term bond rate (assuming a normal yield curve). This would violate the NPV=0 principle and lead to investors under-recovering their investments. As it has emphasised many times in its working papers, the AER would expect this to lead to inefficient (underinvestment) in the provision of network services.

To be clear, we do not disagree that **if** the valuation problem for a regulator can be framed as a floating rate bond, then there may be merit in Lally's argument that the term for estimating investors' internal discount rate should match the regulatory period. What the modelling does not explain, however, is **why** a regulator should frame its valuation problem in this way.

Lally's 2021 report to the AER provides two arguments in support of his proposition that the term of the risk-free rate should match the length of the regulatory period. We examine these arguments in the following two Sections.

3.4.2 Schmalensee (1989)

As discussed above, the mathematical model in Lally's 2021 report for the AER does not, of its own accord, explain why the term for regulatory allowance should match the term of the regulatory period. That is, even though it is not self-evidently true from the model that k_{e01} must equal the prevailing (and observable) one-year risk-free rate at t=0, Lally imposes this requirement on the basis of:[73]

> *"Schmalensee (1989) shows that satisfying this [NPV=0] principle requires that, at the commencement of each regulatory cycle (when the allowed cost of capital is set), the term to which the allowed cost of capital relates matches the term of the regulatory cycle."*

Lally's paper provides no further explanation of Schmalensee's finding, how it was derived or why it is applicable in the current context.[74] We note that none of the working papers published during this RoRI review have referred to Schmalensee's paper, suggesting the AER has accepted Lally's above contention at face value. The CRG suggests the AER ought to be more curious.

Schmalensee does not set out to prove that the term of the cost of capital must match the term of the regulatory period. Rather, he seeks to demonstrate that when the regulatory allowance matches the cost of capital then the NPV=0 principle is satisfied for any method of computing depreciation. Schmalensee assumes the cost of capital in each period is the one-period interest rate in that period (even if the future is not known perfectly) and he finds that the NPV=0 principle is satisfied "as long as regulators adjust the [allowed] rate of return to equal the [cost of capital] in each period."[75]

Schmalensee does not demonstrate that the cost of capital in each period must be equal to the one-period interest rate applicable in that period. He assumes it. And having assumed it, he finds the regulatory allowance (which must equal the costs of capital for NVP=0) must equal the same one-period interest rate. Schmalensee observes regulators might set the regulatory allowance based on a longer-term interest rate. He notes this would violate the NPV=0 principle, however, that is true by construction, not deduction.

For the AER's purpose, there are two relevant observations to be drawn from the Schmalensee paper. First, he does not show the cost of capital is equal to the one period interest rate; he only assumes it. Therefore, by extension, his paper does not provide evidence as suggested in Lally's statement above.[76] Second, despite the first observation, we are not suggesting Schmalensee's assumption is unreasonable. We are only suggesting he has not identified the conditions under which the assumed relationship is either necessarily true or even probably true.

Lally's 2021 report to the AER also cites a paper he published in 2004 supporting his proposition that the term to which the allowed cost of capital should match the term of the regulatory period.[77]

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[73] Ibid, p. 7

[74] Schmalensee, R. (1989), An Expository Note on Depreciation and Profitability Under Rate-of-Return Regulation, *Journal of Regulatory Economics*, 1989, Vol. 1, pp. 293-298

[75] Ibid

[76] We acknowledge *if* it can be proven that the cost of capital is equal to the one period interest rate (plus an appropriate premium), then Schmalensee's (and Lally's) latter conclusion about the inappropriate use of longer-term interest rate would indeed follow from that proof.

[77] Lally, M., Regulation and the choice of the risk-free rate. *Accounting Research Journal*. 2004, Vol 17. No.1

This earlier paper also cites Schmalensee (1989) and like Schmalensee's paper, it defines (rather than finds) the cost of capital is equal to the one period risk-free rate "plus an appropriate premium for cost and demand risk over the following period."[78] The discussion in Lally (2004) is otherwise very similar to the one provided in his 2021 report. On that basis, we won't repeat the comments outlined above.

If the AER wishes to rely on Lally's advice, it must fill in this missing piece in his argument. The AER needs to identify the conditions under which it may be true that the term for estimating investors' internal discount rate (and the relevant risk-free rate) must match the term of the regulatory period.

Although the CRG has not had the capacity to identify the relevant conditions, we suspect they would involve the following characteristics (or similar):

- Investment in network assets and five-year bonds are seen by investors as near-substitutes, noting the former would include an "appropriate premium for cost and demand risk over the following period".[79]

- The 'price' of a network investment is observable at all times, noting the delisting of all network-owning firms from the Australian Stock Exchange is now almost complete (see Section 5.2.3).

- The market for network investments is highly liquid ensuring no enduring arbitrage opportunities exist between investments in networks and five-year bonds (see Section 3.4.4 for further discussion on arbitrage opportunities).

If the CRG's suspicions are right, then it would be reasonable to conclude that none of these conditions are satisfied for energy networks regulated by the Australian Energy Regulator (AER).

The AER should identify the conditions under which ownership of a network asset can be considered comparable to ownership of a five-year bond, and then it must satisfy itself that those conditions are reasonably satisfied in the context of the energy networks it regulates.

3.4.3 The floating rate bond comparison

As noted in the previous Sections, Lally addresses the gaps in the model by reference to work by Schmalensee and by stating the regulatory valuation problem can be viewed as a "floating rate bond whose coupon rate is reset every five years"[80]. We now turn attention to the latter statement.

The relevant question is: Under what conditions would a long-term investor invest funds in a bond of this nature? That is, when would a long-term investor commit funds for, say, 30 years if the rate earned on those funds is subject to variation every five years?

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[78]   Ibid, p. 19

[79]   Lally, M., Regulation and the choice of the risk-free rate. *Accounting Research Journal*, 2004, Vol 17. No.1, p. 76

[80]   Lally, M., *The appropriate term for the allowed cost of capital*, April 2021, p. 3

Some relevant observations:[81]

(i)   Long-term investors would only agree to surrendering their access to those funds for 30 years if they could achieve a rate of return that reflects their time preference over that period. Presumably, they would require a return greater than the prevailing five-year rate at the outset of their long-term investment (i.e., assuming a normal yield curve).

(ii)   In the first period, a long-term investor deliberating between a 30-year fixed rate bond and a 30-year floating rate bond whose coupon rate is reset every five years, would only invest in the latter if the first period rate matched the 30-year fixed rate.

(iii)   A long-term investor presumably has a higher risk aversion than shorter term investors, therefore, such an investor can be expected to favour the fixed term bond even if observation (ii) was satisfied – that is, this investor would prefer price certainty than 'taking a gamble' on future five-year rates.

There can be no denying there are certain outward similarities between the regulatory cycle and the floating rate bond to which Lally refers. In both cases, investors commit their funds for long periods spanning many regulatory periods and the revenue allowance ("coupon rate") is reset at the start of each of those periods. However, as the three observations above suggest, this does not support the conclusion that investors' cost of capital (or internal discount rate) is based on prevailing five-year interest rates.

We also note that, to the best of our knowledge, floating rate bonds, while very popular in financial markets, very rarely exceed a term of 2-3 years. This clearly indicates such bonds offer nothing of value for long-term investors and therefore they offer nothing of value by way of analogy when seeking to explain the regulatory valuation problem.

3.4.4   In search of tell-tale signs and other clues about the return on equity

As demonstrated in Sections 3.4.1 to 3.4.3, the CRG finds that no *a priori* foundation has yet been established supporting Dr Lally's proposition that the term for estimating investors' cost of equity should match the term of the regulatory period – that is, there is no *a priori* reason why the AER must apply a five-year risk-free rate.

Until reason alone can provide the foundation for how the AER should proceed when estimating investors' internal discount rate, it would seem the only way forward is for the AER to base its judgement on a range of considerations including observations that may be drawn from the market. Unfortunately, the market is not forthcoming in these matters. Indeed, this is the one thing on which the AER, ENA and CRG all agree.

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[81]   We assume the long-term investor (a) looks at the yield curve and finds the long-term rate reflects better 'value for money' than shorter rates given their time preference for money and risk aversion, (b) is a price taker, (c) is not looking to trade in the bond market after the initial purchase, and (d) has an unbiased view about possible future movements in the yield curve (e.g., due to changed economic conditions).

The AER states:[82]

> *"[S]etting the expected rate of return is not an exact science. The market cost of capital for providers of regulated energy network services cannot be directly observed and must instead be estimated."*

Likewise, ENA notes:[83]

> *"[T]he true cost of capital (i.e., the minimum return required by investors in order to commit capital) can never be observed."*

And the CRG has previously commented:[84]

> *"[T]he expected RoE [return on equity] cannot be observed. As the AER notes in its draft working paper, estimating the return on equity is "complex and contentious" and "there is no one right answer".*

Clearly, if the market cost of equity cannot be directly observed then neither can the appropriate term for the risk-free rate. This means that were the AER to look at market data, it would have no option but to rely on inference.

This challenge is somewhat analogous to astronomers' hunt for black holes. Theorists who pre-date Einstein have hypothesised that black holes must exist (as must investors' required cost of equity), but they are invisible to all known methods of observation. Therefore, the presence of black holes can only be inferred by astronomers aiming their telescopes at the space surrounding a suspected black hole in search for tell-tale signs that one is in the vicinity.

The discussion below looks for tell-tale signs and other insights from which support or repudiation of Lally's proposition may be inferred – namely, that the estimation term of the risk-free rate should be based on the length of the regulatory period.

The following considerations are discussed in no particular order.

Over-investment in network assets

Lally's proposition implies the AER has been mispricing the cost of capital in all its past revenue determinations by applying a ten-year risk-free rate, rather than a five-year rate. The generally upward sloping yield curve for government securities suggest this mispricing has resulted in overly generous compensation for networks' investments in assets. The AER has outlined on many occasions the risk of persistently over-estimating the cost of capital. For example:[85]

> *"If the rate of return is set upwardly biased:*

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[82] AER, *Rate of return. Assessing the long-term interests of consumers Position paper*, May 2021, p. 8

[83] ENA, *Rate of return and cashflows in a low interest rate environment, Response to Draft AER Working Paper,* July 2021, p. 45

[84] CRG, *Submission to AER. Return on Equity*, October 2020, p. 20

[85] AER, *Term of the rate of return & Rate of return and cashflows in a low interest rate environment. Final working paper.* September 2021, p. 10

- *Investors will be over compensated for the risk involved in supplying capital to networks, so will show increased willingness to invest in regulatory assets in comparison with other investments in the economy.*

- *Networks will have an incentive to over-invest in regulated assets over the longer term, increasing the regulatory asset base above the efficient level.*

- *Energy consumers will pay inefficiently higher prices, which will distort energy consumption decisions, and downstream investment decisions."*

The AER has not suggested that any of these outcomes are evident in the data – indeed, the AER rejects any suggestion that it should even attempt to look for such patterns due to a range of limitations.[86]

> *"[I]t is difficult to see how investment trends can be used to inform the rate of return."*

The AER's concerns specifically relate to the use of investment trends as a cross-check when it sets the rate of return. That is a very different purpose to the one being discussed here. The CRG is simply suggesting investment data can be used to assess whether Lally's proposition can be ruled out, even at the risk of a Type 1 error (which is why we propose multiple tests based on indirect market data).

Exploiting arbitrage opportunities

According to Lally's proposition, there has been a persistent price wedge between the regulatory allowance (based on a ten-year risk-free rate) and networks' claimed cost of capital (based on a five-year risk-free rate) for the past two decades. All things being equal, this would suggest there has been long-standing opportunity for networks and their investors to profit from arbitraging this enduring price wedge.

The AER has provided some quantification of the scale of the wedge.[87]

> *"The difference between the yield on five-year and ten-year CGS was recently approaching historic highs (Figure 1). RBA data suggest that, historically, the average difference between five and ten-year CGS is around 25 basis points. However, recent data indicated a difference of 98 basis points before declining to around 55 basis points in August 2021. This difference would be partially offset by an increase in the MRP estimate in the resulting allowed rate of return. In these circumstances, the difference in the allowed rate of return due to the difference between the five- and ten-year equity terms is likely to be material."*

Figure 1 mentioned in the above quote is reproduced below (as Figure3-1). As shown in Figure 3-1, in the period since the introduction of economic regulation of energy networks, the wedge has generally been above the longer-term average (except for 2004-07). Since 2009, when the AER assumed responsibility for network regulation the wedge has almost always sat above the long-term average.

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[86]   AER, *Overall rate of return, equity and debt omnibus. Final working paper*, November 2021, p. 136

[87]   AER, *Term of the rate of return & Rate of return and cashflows in a low interest rate environment. Final working paper*. September 2021, p. 48

All this suggests the opportunities for arbitrage have been enduring and even at 25 basis points, this represents a significant opportunity for profit when considered in the context of a regulatory asset base value at around $110 billion.

Figure 3-1: Difference between Australian Government five and ten-year bonds
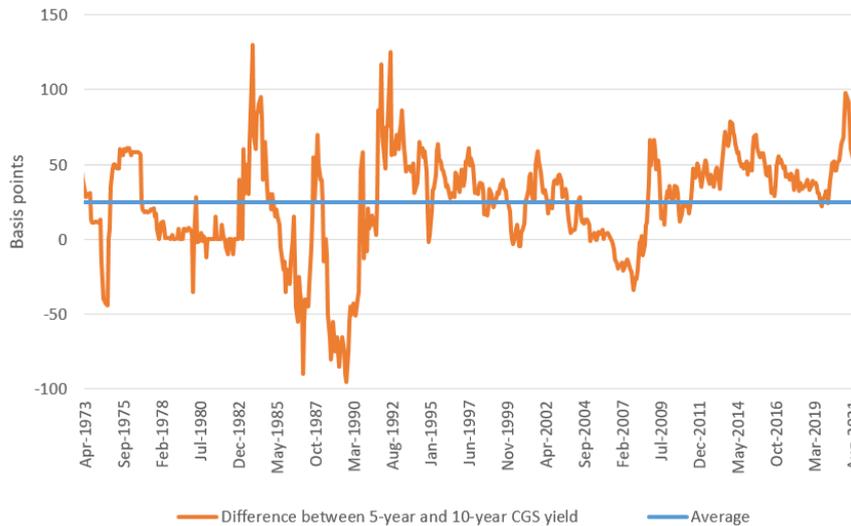
It is beyond our resources to identify the mechanisms networks and investors might pursue in seeking to take advantage of this arbitrage opportunity. However, given the quantum of profits to be made by exploiting this wedge, we find it difficult to accept there would be no traces of evidence of such financial engineering were it taking place. This invites the obvious question: If there is no evidence of this type of conduct, then does it suggest there is no wedge to exploit? Or is there no evidence of financial engineering because the AER has not looked for it? We do not presuppose the answers to these questions.

RAB multiples and profitability measures

The third possible area of relevant market-based data we identified for testing Lally's proposition involves RAB multiples and broader profitability measures – where the former is forward-looking, and the latter is backward-looking.[88]

Regarding RAB multiples, the AER has observed:[89]

> *"Network businesses are consistently trading at a price range that represents regulated asset base (RAB) multiples of 1.2 to 1.6 since the 2018 Instrument and recent takeover offers indicate RAB multiples of 1.5–1.725."*

All things being equal, high RAB multiples would be consistent with the AER providing a regulatory allowance in excess of networks' internal cost of capital. That said, the CRG acknowledges the substantial challenges involved in disaggregating the information contained in RAB multiples and

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88   The broader use of RAB multiples and profitability measures as cross-checks is discussed in Chapter 8 of this advice.

89   AER, *Overall rate of return, equity and debt omnibus. Final working paper*, December 2021, p. 22

historical profitability measures. The AER has described these limitations at some length but again, these concerns refer to the use of these measures as cross-checks when exercising its judgement over the regulated rate of return.[90,91]

The CRG contends the AER need not be so reluctant to analyse RAB multiples and broader profitability measures when it comes to seeing whether they support inferences regarding Lally's proposition. Like all the tell-tale signs mentioned in this Section, no single measure would ever be expected to be definitive.

3.4.5   CRG conclusions about Lally's proposition

Lally's 2021 report to the AER has certainly enlivened debate about the appropriate estimation term for the cost of capital and whether this estimate should rely on a five-year or ten-year risk-free rate. Given the rather nebulous reasons previously given by the AER for adopting a ten-year estimation term (refer back to Box 3.1), Lally's report prompts a worthwhile set of questions. Yet when the questions were put to the experts, it was evident they couldn't even agree on what they were disagreeing about.

This intellectual impasse led us to return to Lally's report to re-examine his proposition that the term of the risk-free rate should match the length of the regulatory period. We have also re-examined the arguments put forward by the AER in support of its proposal to amend the regulatory framework in line with Lally's proposition. We find:

- Lally's report does not 'prove' the term of the regulatory allowance for equity should match the length of the regulatory period.

- The report's mathematical model demonstrates that the regulatory allowance must match the regulator's estimate of the investors' true discount rate for the NPV=0 principle to be satisfied. This is true by construction rather than a proof. It does not explain how the regulator should estimate investors' true discount rate.

- This gap in the argument is filled by the report's assertion that a proof already exists showing that the appropriate discount rate is one that matches the term of the regulatory period. The CRG is not convinced this proof does in fact exist. We also find the AER has not sought to confirm for itself whether such a proof has been previously derived. It appears to have accepted the report's assertion at face value.

- The report contends, and the AER accepts, that the regulatory valuation problem is analogous to the pricing of a floating rate bond. The CRG finds this analogy does not support Lally's proposition. Indeed, we find this analogy might support the opposite conclusion to the one being asserted.

- If Lally's proposition is correct, then the AER has been systematically overpricing the cost of capital over multiple rounds of regulatory resets. If so, it should be possible to identify some tell-tale signs of this mispricing. The AER has not attempted this analysis.

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[90]   Ibid, p. 130 and p. 133

[91]   AER, *Overall rate of return, equity and debt omnibus. Final working paper*, December 2021, p. 135

Based on these findings, the CRG concludes neither Lally's report nor the AER's consideration of it have provided sufficient support for his proposition that the term for estimating investors' internal discount rate (and the appropriate risk-free rate) should match the length of the regulatory period. This is not to say the proposition is wrong, only that it is no more proven than the arguments on which the AER has traditionally relied when adopting a ten-year term for the risk-free rate (as earlier described in Box 3-1).

In the absence of anything more substantive, the AER remains in the same position it has found itself in every other review of the rate of return – namely, having to exercise its judgement on the appropriate term for estimating risk-free rate. The next Section delves into the matters to which the AER should have regard when exercising its judgement.

3.5   Other considerations

There can be no denying there are certain outward similarities between the regulatory cycle and the floating rate bond on which Dr Lally's proposition relies. The CRG does not consider these superficial similarities to be sufficient to warrant that AER's proposed change of approach.[92]

> *"Our regulatory framework sets revenue requirements for the length of the regulatory period (typically five years). Our allowed rate of return on equity is fixed for the length of the regulatory period. That is, during a regulatory period, regulated businesses are allowed to receive a sequence of cash flows based on the fixed allowed return on equity. Then, the allowed return on equity is reset for the next regulatory cycle (typically, five years), and so on.*
>
> *In this regulatory framework, the appropriate term for equity should then match the length of the regulatory period. Otherwise, the NPV=0 condition would be violated."*

As outlined in Section 3.4, the second paragraph does not follow from the first. The AER's argument is *non sequitur*.

To be clear, the fact that the second paragraph does not follow logically from the first paragraph does not mean that Lally's proposition about matching the term for equity with the length of the regulatory period is necessarily wrong. The CRG is observing, however, that the AER has not provided any arguments or evidence supporting Lally's proposition. But then again, no definitive proof has been proffered in past rate of return reviews supporting the AER's long-standing approach of applying a long-term (ten-year) risk-free rate.[93] Until a proof or evidence can be found in support of one proposition or another, the preferred term for estimating the risk-free rate inescapably remains a matter of judgement.

So where to from here?

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[92]   AER, *Term of the rate of return & Rate of return and cashflows in a low interest rate environment. Final working paper*, September 2021, p. 50

[93]   AER, *Rate of return instrument. Explanatory statement*, December 2018, p. 88 and p. 129

3.5.1   CRG principles and AER assessment criteria

Soon after it was formed in June 2020, the CRG established a set of principles (as listed in Chapter 2) that have continued to guide our deliberations and advice.

Principles 2 and 3 identify changes to the regulatory framework must be tested for their impacts on consumers through prices and service levels. The AER has identified that the average difference between the five and ten-year CGS bond rates is around 25 basis points. This should be favourable for consumers, though that may depend on any other changes the AER makes to its CAPM and WACC methodologies during this RoRI review. In any event, the AER has not contemplated whether there would be any second order effects from altering the term of the risk-free rate. That is, would it have any ripple effects on other parts of the regulatory framework beyond the CAPM and WACC? The CRG has not had the time or resources to undertake a comprehensive stocktake of what these second-order effects might be, but that is the responsibility of the AER.[94]

Principle 5 holds the AER must apply a high bar for change. Over successive submissions and presentations, the CRG explained the 'high bar' involved: persuasive evidence, compelling reasoning and broad consensus. [95] It is not surprising, then, that the CRG warmly welcomed the AER adopting additional criteria of materiality and sustainability (or longevity) to which it would have regard when considering proposed changes to the RoRI. [96] Likewise, the CRG strongly supports the AER's earlier statement in support of compelling evidence, and clear improvement or benefit. [97]

> *"These additional criteria ensure that change is not to be adopted lightly in the absence of compelling evidence. Importantly, any case for change must demonstrate there to be a clear improvement or a benefit to be realised."*

Despite adopting these criteria in July 2021, the AER does not appear to have applied them in September 2021 when assessing and satisfying itself about the merits of adopting Lally's proposition.[98] Similarly, the criteria played no role in formulating the questions asked by the AER in its recent *Information paper*.[99]

Our estimate of the impact of switching to a five-year risk-free rate, would be to save a typical household around $3.50 off an annual electricity bill of $1,800 (or about 0.2% per annum).[100] We invite the AER to provide its own estimate.

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[94] For example, would an altered term for the rate of equity (and lower implied overall rate on return) affect the design (i.e., calibration) and/or effect of the AER's operating and capital expenditure incentive schemes?

[95] CRG, *Response to the AER's July 2021 Draft Working Papers: The Overall Rate of Return, Debt Omnibus and Equity Omnibus Papers*, *Volume 1: Technical*, September 2021, pp.7-8

[96] AER, *Overall rate of return, equity and debt omnibus. Final working paper*, December 2021, p. 11 and p. 144

[97] AER, *Rate of return. Overall rate of return. Draft working paper*, July 2021, p. 22

[98] AER, *Term of the rate of return & Rate of return and cashflows in a low interest rate environment. Final working paper*, September 2021

[99] AER, *Rate of return. Information paper and call for submissions*, December 2021

[100] Our estimate is based on: (i) the long-term average difference between five and ten-year CGS (see Section 3.4.4.2), (ii) beta = 0.6 and gearing = 0.6 as in the 2018 RoRI, (iii) return on investment represents 43 per cent of total network revenue allowance which is NEM-wide average published by the AER in its *State of The Energy Market 2021* report, p.

3.5.2   Consumer interests

We have consulted extensively with energy consumers and consumer representatives to help identify consumers' interests, concerns and priorities. Many of our findings were outlined in our response to the AER's omnibus working papers.[101] For this discussion, we identify three of the most relevant consumer priorities.

- *Stable approach* – consumers value stability in the regulatory framework. They are suspicious of change, believing it overwhelmingly favours networks and that the AER rarely fully explains or quantifies the consequences of changes to the framework.

- *Stable prices* – consumers generally value stable prices as this supports household and business budgeting, however, not at all costs. Consumers' preferences are mixed when it comes to stable prices versus lower average prices over the long-term.

- *Lower prices* – not surprisingly, consumers favour lower prices.

We note that these priorities are not necessarily internally consistent. This reflects the heterogeneity of interests, concerns and priorities among consumers. Nonetheless, when assessing the proposal to shorten the term of the risk-free rate against these criteria, we find:

- *Stable approach* – The proposal performs poorly. It represents a seemingly fundamental shift in the AER's thinking about how it achieves its regulatory task. The AER has not provided a consumer-focussed explanation about why its proposed change is worthwhile or how the change would benefit customers.

- *Stable prices* – This will depend on whether five-year CGS yields are generally more or less stable than ten-year CGS yields. The AER has not provided this analysis. It will also depend on other changes to the rate of return framework being considered by the AER (see discussion on MRP in Chapter 4 and beta in Chapter 5); as well as an evaluation of any second order effects as discussed above.

- *Lower prices* – the proposal would be expected to deliver lower prices, most of the time and would therefore be favourable for consumers.

Consumers deserve a better explanation than they have received to date about the reasons for the AER's preferred position on the risk-free rate and the impact it will have on users of electricity and gas.

134, (iv) network costs represent 0.46 per cent of the total electricity bill which is NEM-wide average published by the AER in its *State of The Energy Market 2021* report, p. 262

[101]   CRG, *CRG Response to the AER's July 2021 Draft Working Papers: The Overall Rate of Return, Debt Omnibus and Equity Omnibus*, *Volume 1 Technical* and *Volume 2: Engagement,* September 2021

3.5.3 The regulatory treatment of inflation

In 2020, the AER reviewed the term for estimating inflationary expectations for the purposes of determining the applicable real rate of return in its revenue model. At the time, the CRG cautioned the AER that it was inadvisable for the AER to consider the term for estimating inflationary expectations independently from the term of the risk-free rate.[102]

> *"The AER should postpone its final decision on how it estimates inflationary expectations so it can be considered as part of its review of the rate of return instrument."*

The CRG's advice reflected a mathematical proof showing that if the AER adopted two different estimation terms (for inflation and equity) then the AER would be holding logically inconsistent views about expected future inflation.[103] The AER's final decision on the regulatory treatment of inflation neither accepted nor refuted the CRG's proof.[104] The AER nonetheless determined to shorten the estimation period for inflationary expectations to 5 years.

The AER again acknowledged the CRG's concerns in a working paper published nine months later, but simply reiterated its earlier position.[105]

> *"We consider that the term of expected inflation does not necessarily need to be of the same value as the term for the rate of return (and by extension, the return on equity) … They should be independently assessed using the NPV=0 principle."*

It is rather ironic that in the same paper the AER flagged it supported a shorter term of for estimating the return on equity precisely <u>because</u> it had previously determined to shorten the term for estimating inflationary expectations.[106]

> *"While matching the equity term to the length of the regulatory period did not receive strong stakeholder support, we still consider there are merits to this approach. This is for the following reasons … **consistency** with the 2020 Inflation Review"* [emphasis added]

> *"Based on our thinking from the inflation review, our further review of previous material and the 2021 Lally report, we consider matching the term of return on equity to the length of the regulatory period would satisfy the NPV=0 principle each period… This is also consistent with the **precedent** we set in the inflation review."* [emphasis added]

The AER's recent *Information paper* also acknowledged a causal link may exist between the AER's earlier inflation decision and the terms used for estimating the returns on equity and debt in the regulatory model.[107]

> *"However, we decided to match our estimate of expected inflation to the length of the regulatory period (typically five years) in the 2020 Inflation Review. This **prompted** our review*

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[102] CRG, *Response to the draft position paper on the regulatory treatment of inflation*, November 2020, p. 13

[103] Ibid, Appendix A

[104] AER, *Final position. Regulatory treatment of inflation*, December 2020, p. 46

[105] AER, *Term of the rate of return & Rate of return and cashflows in a low interest rate environment. Final working paper*, September 2021, p. 71

[106] Ibid, p. 47 and p. 53

[107] AER, *Rate of return. Information paper and call for submissions*, December 2021, p. 16

of the term of the rate of return including whether we can assess the terms for inflation, debt and equity independently of one another." [emphasis added]

Unless the AER is prepared to revisit its earlier inflation decision – which clearly it is not – its belated recognition of the need for consistency suggests a decision on shortening the term of the risk-free rate is imminent.

3.5.4   The risk-free rate and other parameters

The CRG has demonstrated consistency is required between the term for estimating investors' internal discount rate (and the risk-free rate) and the term for estimating inflationary expectations.[108] The need for this consistency arises because both of these inputs to the AER's estimated cost of capital relate to unobservable expectations held by investors. Other inputs to the WACC can be observed using market data, though differences of opinion obviously exist about the appropriate data sets and methodologies for measuring those parameters.

This fundamental difference between the estimation of unobservable expectations and observable market parameters suggests the AER's decision on the preferred term of the risk-free rate has no obvious bearing on how other WACC inputs should be estimated.[109] Those other market-based inputs should be estimated based on the best available data and the most defensible methodologies – as discussed in Chapter 4 (MRP), Chapter 5 (Equity Beta), and Chapters 6 and 7 (Debt) of this advice.

3.6   Conclusion

In considering the appropriate term for the risk-free rate, the CRG has had regard to the matters outlined in this Section, including

- The mathematical model in Lally's report only demonstrates the importance of regulatory consistency in each regulatory period. It does not explain how the regulator should benchmark the cost of equity (and the term of the risk-free rate).

- The AER has accepted, seemingly without further testing, Lally's proposition that the term for estimating the cost of equity should match the length of the regulatory period; and therefore, its estimates should rely on a five-year risk-free rate.

- While investors' true discount rate is unobservable, the consequences of a persistent misalignment between the regulatory allowance on capital and the true discount rate should have observable consequences. The AER has not attempted to gather evidence of these consequences (no matter how qualified the evidence).

- The AER has not clearly laid out the reasons (and the supporting analysis) for its proposed decision to match the term of the risk-free rate to the length of the regulatory period.

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[108] CRG, *Response to the draft position paper on the regulatory treatment of inflation*, November 2020, Appendix A

[109] With the exception of the HER approach to estimating the MRP.

- Other than in exceptional circumstances, adopting a shorter term for the benchmark risk-free rate can be expected to favour consumers. The AER has not quantified the expected impact on consumers. The CRG estimates a saving of around $3.50 per year on a household electricity bill.

- The regulatory model would be internally inconsistent if the term of the risk-free rate differed from the estimation term for inflationary expectations. The AER has already adopted a shorter estimation term for inflationary expectations.

The appropriate term of the risk-free rate has not been settled. It remains wholly a matter of judgement. While previous reviews consistently found in favour of a ten-year term, the AER left few realistic options on the table when it decided in December 2020 to shorten the estimation term for inflationary expectations. On that basis alone, the CRG accepts the AER should now align the term of the risk-free rate with the estimation term for inflationary expectations.

Consumers deserve a better explanation than they have received to date about the reasons for the AER's preferred position and the impact it will have on users of electricity and gas. The draft decision provides the AER with this opportunity.

4   Market risk premium

4.1   Summary of CRG advice

The AER's challenge in estimating the MRP is significant, given that the true MRP is unknowable, and all estimation methods have their weaknesses. The CRG takes the reference point for the 2022 Instrument to be the approach used for the 2018 Instrument ("the prevailing approach"). No empirical evidence has been provided by the AER or stakeholders that the prevailing approach has had a detrimental impact on consumers, either directly, or indirectly through impacting networks' ability to invest at efficient levels. With these points in mind, the AER should maintain its prevailing approach.

The HER method produces stable, long-term estimates, which is appropriate for long-lived assets with long-term investors, and when the impact of the estimate endures for up to a decade due to the application of the binding RoRI. Accordingly, it is consistent with the AER's regulatory task. However, the arithmetic average may overstate the true MRP, and this should be considered by the AER when exercising its judgment.

DGMs are designed to provide estimates of the prevailing MRP, first by estimating expected total market returns, and then by deducting the prevailing risk-free rate. In practice they are subject to wide variability making them unsuitable for point estimates of MRP in the context of the AER's regulatory task

The other methods and indicators under consideration have significant flaws that could lead to misleading results and should not carry significant weight.

Overall, and based on the latest data, the CRG considers that the 2018 point-estimate represents the upper bound of a reasonable MRP estimate for the 2022 RoRI.

The following table summarises our responses to questions in the AER's *Information paper*, and includes cross references to the relevant Chapters.

Table 4-1: AER *Information paper* questions and CRG advice

AER question	CRG advice
5 Is the DGM likely to be a better estimator of a forward looking MRP than the historical excess returns approach and is it suited for application in our regulatory task?	As identified by the AER in previous reviews, there is no version of the DGM that is appropriate as the estimator of a forward looking MRP. Notwithstanding its theoretical attraction, the practical application of the DGM remains fraught with irresolvable issues, making it unfit for the AER's regulatory purpose. These include: • the limitations of current dividend pay-out ratios as a guide to the ongoing trend • the inability to correctly estimate the long-term growth rate

AER question	CRG advice
	• the potential optimism bias inherent in short-term dividend growth forecasts.
6 Is the use of both the historical excess returns and the DGM approaches likely to provide a better estimate of a forward looking MRP?	We infer that this question is implicitly asking if a combination approach is better than using either HER or a DGM. It is not possible to offer a definitive answer to this question; there is too much devil in the detail. A key issue is how the resultant estimate varies with the risk- free rate, whether explicitly or implicitly. As explained in Section 0, if the estimate does contain information regarding the relationship with the risk-free rate, then it is inappropriate to use this as a fixed estimate paired with a prevailing risk-free rate.
7 Can the use of Energy Networks Australia's proposed calibrated DGM and /or multiple DGMs address the concerns we have had in the past about using DGMs to estimate the MRP? If so, what is an appropriate method to weight the outputs from the different models?	In short, no. While we appreciate the efforts by the AER and ENA to address previous concerns, we do not consider that they have all been resolved sufficiently for DGMs to produce robust estimates suitable for the AER's regulatory task (see Section 4.4.2)
8 Is there a reliable way to estimate changes in the market risk premium through time?	Refer to our answer to question 5.
9 Is the practice by some market practitioners of modifying the risk-free rate and using that estimate with a long-term MRP suitable for our regulatory task?	It is key that the AER considers the implications of the combination of risk-free rate and the MRP it is using. The AER's current approach of combining the prevailing risk-free rate and a single point estimate of the MRP is only appropriate when the basis of the MRP estimate is largely invariant to changes in the risk-free rate. This was the case in 2018 when most weight was put on HER data over at least thirty years. However, that is precisely the objection raised by Network Service Providers (NSPs) with the way the MRP is estimated. If the AER accepts their argument and gives greater weight to MRP estimation methods that incorporate current market conditions including whatever the relationship is with the prevailing risk-free rate, then it needs to match this to the risk-

AER question	CRG advice
	free rate. Either it retains the current risk-free rate approach and updates the MRP at the same time it updates the risk-free rate for each new regulatory period, or it sets them both for the life of the instrument.
	Both carry significant issues. The former requires specifying the MRP estimate mechanically, which - even to the extent it can be done – is too fundamental a change to be introduced at the Draft Instrument stage. The latter entails abandoning a longstanding approach to using the prevailing risk-free rate. This has the merit of being one of the few variables that can be robustly estimated using a mechanistic approach and so something would be lost if the AER moved away from that approach. It would also be incompatible with the NPV=0 condition, regardless of the debate over whether a five- or ten-year term better satisfies the condition.
10 Which of the three proposed options listed in our final rate of return omnibus working paper would lead to the better estimate of the MRP for our regulatory task?	Option 1 - the continuation of the current approach - would lead to the better estimate of the MRP for the AER's regulatory task. Our reasons are detailed throughout this Chapter.

4.2   Introduction

The challenge of estimating the MRP variable of the CAPM is one of the most vexed issues faced by the AER in its rate of return instrument process. The true MRP is not strictly observable even ex post, as there are so many factors that can affect returns, it's not possible to be confident that observed returns are equal to the true MRP for that period. This issue is mitigated by the use of long-term data series, which will tend to minimise the error. For that reason, the AER's approach over several reviews put greatest weight on HER data. For example, in 2018, the AER's first reason for its final point estimate of 6.1 per cent was that it was equal to the HER arithmetic average for the period beginning 1988.[110]

Equally, the AER has consistently recognised the limitations of DGMs in providing a reliably unbiased point estimate of the MRP. This was especially clear in the 2018 review, where the AER commented that:[111]

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[110] AER, *Rate of return instrument. Explanatory statement*, December 2018, p. 220

[111] Ibid, p. 265

> *"there has been increasing evidence stating that the increasing MRP estimates are driven by factors not aligned to market risk".*

And, also commented:[112]

> *"We find the results produced by … the DGM raise concerns over which model is closest to the true MRP, and whether the model can be relied upon to produce precise and unbiased estimates consistently over time as required in a regulatory environment".*

No evidence has been provided during this review to suggest that DGMs have become better indicators. We note that the ENA has suggested that the Frontier Calibrated DGM may address concerns that DGMs produce estimates that are biased, and we consider this further in 4.4.2 below.

4.3   Long-term and short-term estimates of MRP

The AER typically defines its task as estimating a "forward-looking MRP". In one sense this is tautological – it is estimating an MRP to be applied to future periods, so that is "forward-looking". Beyond this, it doesn't offer any clarity as to whether the AER should preference an MRP that embodies short-term information over long-term information.

In the extreme case of preferencing long-term information, the AER could choose an unconditional estimate of the MRP. The best way to do this, as explained in by Sapere, is to take the arithmetic mean of the longest possible HER data set, providing this data has certain statistical characteristics. These include stationarity, ergodicity, and identical independent distribution. Notably, if it met those criteria, then that would not be consistent with the AER's view that there is a downward trend in the MRP.[113]

At the other extreme, the AER could preference short-term information and look for data that support estimates of the prevailing return on equity. This is what it does to estimate the risk-free rate (risk-free rate), and the interaction between the risk-free rate and the MRP is a critical part of the RoRI. There is no definitive data on how frequently the prevailing MRP changes, but it is plausible that it could change materially over the period of a year. So, under this extreme approach the AER *could* update its estimate of the MRP annually if it wanted to reflect the prevailing MRP.

To date the AER has taken a middle ground. In the 2018 review, it highlighted the HER estimate for 1988-2017 over longer period estimates (noting that the difference between the 1988 – latest date estimates and the longest period estimates only differ by ten to 40 basis points, depending on the end date). This reflected their view that this period was "more commensurate with current data than that from 1890-1920".[114] It also took account of a range of evidence incorporating more short-term information. Using its judgement, it selected a point estimate to be applied to the life of the instrument, meaning that it would be used over a period of more than nine years from the date of the estimate, and paired with a risk-free rate to be determined based on prevailing rates just before the start of each regulatory period.

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[112] Ibid, p. 266

[113] Ibid, p. 244

[114] AER, *Rate of return instrument. Explanatory statement*, December 2018, p. 243

Implicit in this approach is a view that the MRP can be assumed for the purposes of the RoRI to be relatively stable over time. This is indicated both by the weight given to a thirty-year average and to the application of a fixed estimate over the life of the instrument. The CRG considers this to be a reasonable and appropriate view that is consistent with observed behaviour by NSPs and their investors.

While finance theory may indicate that the best estimate should always be the prevailing estimate, the realities of energy networks and their investors tell a different story. This is not a point-in-time opportunity cost model of the required return on capital where owners are constantly comparing returns on different actual or potential investments. Following the buyouts of Spark Infrastructure and AusNet Services, almost all the networks regulated by the AER have departed the public markets. They are held by private owners, including several pension and super funds or other very large pools of capital, or by governments. In all cases these are explicitly long-term owners who have consciously foregone the ability to easily trade in and out of network ownership by having them listed on a stock exchange. The new owners of AusNet Services described it as a "forever" investment.[115] Transactions can and will continue to take place, but through the illiquid means of private sales.

Even while listed, these businesses were characterised by infrequent recourse to equity markets. Analysis presented in the Australian Energy Council (AEC)'s submission to the 2018 draft instrument,[116] showed that listed network owners typically only actively raised equity capital to support network capex (i.e., ignoring dividend reinvestment plans and equity raising to purchase a new asset) once every five-year regulatory period. This indicates that network owners have wide discretion over when to raise equity capital and can avoid temporary spikes in the prevailing cost of equity. As the AER's analysis of the EISCI shows, they appear able to do this even for the cost of debt, despite having to raise debt more frequently. This should diminish any concerns the AER may have about a short-term mismatch between the allowed rate of return and the prevailing cost of capital in instances where the prevailing cost of capital rises temporarily.

4.4   MRP estimation methods

The CRG has commissioned two reports to inform its response to this element of the RoRI, reflecting the importance of using an appropriate estimate for the MRP:

* *Estimation of the market risk premium and its relationship to the risk-free rate in the context of regulation of electricity and gas energy networks: A report to the CRG* (hereafter "Estimation of the MRP") prepared by Glenn Boyle and Kieran Murray of the Sapere Research Group

    As the title notes, this report considers MRP estimation methods in the context of the AER's regulatory task.

* *Dividend Growth Model Results: Market Risk Premium Estimate*, prepared by Alex Georgievski of Woollahra Partners.

    This report considers report considers a range of issues relating to the use of DGMs.

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[115]   AFR, *Inside Brookfield's decades-long bet on AusNet*, 1 November 2021

[116]   AEC, *Response to the draft rate of return guideline*, September 2018, p. 17

Both reports are attached to this submission.

The following Section reviews the main estimation methods under consideration. As noted in the Sapere report:[117]

> *"Although we attempt to make recommendations where it is possible to do so, our approach is not overly-prescriptive as, unfortunately, MRP theory and evidence have not evolved to the point where this is possible: the relevant theory is sometimes vague or based on unrealistic assumptions and the necessary data are often limited or unavailable or yield estimates that seem implausible".*

Accordingly, the CRG recognises the challenges the AER faces in arriving at the best estimate of the MRP. Given many of the issues are fundamentally irresolvable, it is reasonable for the AER to maintain its current approach in the absence of any evidence that it has produced detrimental outcomes for consumers, either directly or indirectly.

4.4.1 Historical excess returns

While the AER is not definitive about the weights it gives to different methods, it appears reasonable to interpret the prevailing approach as being primarily based on HER data. As discussed above, HER data is the best source of data for an unconditional estimate of the MRP, providing the data meets certain statistical conditions. Sapere caution that reliance on a short estimation period will produce an estimate with very wide confidence intervals.[118] In the case of a declining true MRP (which the AER considers is likely to be the case), over a short period such as twenty years, the resultant rise in stock prices will generate rising excess returns. Accordingly, longer sample periods typically produce more robust estimates. Counter to this may be structural changes due to factors such as the introduction of imputation credits or the introduction of inflation targeting, and the robustness of older data given the necessity to reconstruct it from paper records.

Sapere also identify additional issues with historical averaging approaches, such as:

- *The market portfolio isn't known*. In the CAPM, the market portfolio is the portfolio of all risky assets, including assets such as works of art, vintage cars and other durable goods, real estate, and human capital. But because the returns and weighting of this wider portfolio are unknown, estimates are typically based on a broad-based stock market index as a proxy. In principle, this proxy could under- or over-estimate the true market portfolio return.[119]

- *Interim dividend reinvestment.* Typical calculations assume that interim dividends are reinvested in the market portfolio and thus earn the market return. This is not in practice the case, (and in any case would require purchasing of new shares from other investors unless the company issues new shares under a dividend reinvestment plan). Analysis of US data indicates that this could result in a significant upward bias in the order of 1 to 3%.[120]

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[117] Sapere, *Estimation of the MRP*, February 2022, p. 1

[118] Ibid, p. 21

[119] Ibid, pp. 46-47

[120] Ibid p. 47

- *Survivorship bias.* Returns calculated for indexes or markets overstate true performance due to the exclusion of corporate failures. While actual corporate failures (ex post survivorship bias) may have only a modest impact, ex ante survivorship bias - or the disasters that didn't happen in the historical record, but which should have a non-zero probability weighting in future expectations - may be significant. While empirical data on this phenomenon is ambiguous, there are estimates in the order of 2%.[121]

Evaluation of these challenges imply "that any historical average should be considered an upper bound on the unconditional value of the MRP".[122]

A further question regarding the use of HER data is whether to use arithmetic or geometric averages, or a combination of the two. If the regulatory task is characterised as making an estimate of future returns, Sapere advise that the arithmetic average is favoured, while the geometric average is a better estimate of historical outcomes.[123] However, the superiority of arithmetic averages is predicated on the assumption that returns are serially uncorrelated. This is by no means a given, and if this assumption does not hold then the best estimate of future returns will lie between the arithmetic and the geometric average.

The AER's stated position is that it has regard to both arithmetic and geometric averages. In practice this has manifested as a point estimate that sits within the range of arithmetic estimates and well above geometric estimates. This implies a very low weight to geometric averages. The CRG considers that there is scope for future work on whether there is evidence for or against autocorrelation, and - assuming autocorrelation cannot be ruled out - how to weight the geometric and arithmetic averages. In the meantime, the geometric mean should continue to be given some weight, meaning that arithmetic averages should be considered at or above the upper bound of reasonable estimates.

The latest data, unsurprisingly, shows little variation in HER estimates from those used in 2018.[124] While very recent data is evidently higher than the long-term averages, resulting in HER estimates that are around ten basis points higher than in 2018, there is no guarantee that this will persist into the future. Given the known tendencies to upward bias of HER data, the CRG considers it would be reasonable either to continue with the 2018 figure, or to adjust modestly downwards.

4.4.2   Dividend growth models

The CRG remains of the view that DGMs provide little useful evidence for the AER's regulatory task. It's well understood that DGMs are theoretically attractive as they purport to represent current market expectations of future returns. In practice, they require the use of input assumptions that are inherently contestable and contentious, resulting in outcomes with a very wide confidence interval. The sensitivity of DGM estimates is predicated on their use of constant long run estimates of growth. Sapere quote Heaton as noting that: [125]

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[121] Ibid p. 49

[122] Ibid, p. 50

[123] Ibid, pp. 45-46

[124] AER, *Rate of Return Annual Update*, December 2021

[125] Heaton, J., *Unjust and unreasonable: misuse of the dividend growth model in public utility rate setting*, 2021, pp. 5-6

"the DGM's assumptions are too far from reality for any firm, even as an approximation. There is no known example of a firm whose dividends have grown at a constant rate over a very long time period and with a discount rate that has remained constant as well."

The AER's own models produce a wide range of estimates, with a midpoint consistently above other MRP estimates such as HER or surveys. Their latest data includes a range of 234 basis points for the two-stage model and 271 basis points for the three-stage model. These are not even confidence intervals, but simply the result of modest sensitivities in the input assumptions.

Sapere note one reason for this variation in estimates – that DGM estimates of market returns vary with dividend-price ratios on a greater than one-to-one basis.[126] This is a cause for concern in times of market volatility, where observed dividend-price ratios may change due to rapid changes in market value (representing a view that future earnings/dividends will be significantly different from past trends). This would be less of an issue in a perfect world where analysts' forecasts adjusted immediately to reflect the information contained in these updated market values. In practice there will be a lag in the update to analysts' forecasts, and so a DGM may combine "old" information based on historical dividends and sticky forecasts with "new" information based on current market prices. In this case, the output of the DGM would be unreliable.

Similarly, there is wide variation arising from the choice of growth rate (also typically greater than 1:1). Sapere note that US data indicates that DGM estimates have been consistently below long-run average returns.[127] The fact that AER DGM estimates are typically above the long-run average must cast severe doubt on their growth rate assumptions.

Further, the direction of change from 2018 is ambiguous. In their report, Woollahra Partners decomposed the sensitivities of the two- and three- stage models and find significant variation between them.[128] The combined effect is that the two-stage models produced higher results in 2021 than in 2018 while the three-stage models produced lower results. This outcome indicates the limited information value of the DGMs, even for informing the direction of change since 2018, as proposed by the AER in its Option 2.

We also note that all DGMs are based on the estimation of a total market return. In most cases the next step is to deduct the prevailing risk-free rate to arrive at an MRP. The DGM itself does not contain any specific assumption about the relationship between the MRP and risk-free rate. But it does mean that DGM estimates are - to the extent there is a relationship – influenced by the prevailing risk-free rate.

Woollahra Partners have also reviewed the Frontier calibrated DGM model prepared for the ENA. While they note that the calibrated DGM "decouples" the DGM result from the long-term growth rate, they also note that further work could be carried out on this model, including reviewing for omitted variable bias and carrying out sensitivity analysis.[129]

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126 Sapere, *Estimation of the MRP*, February 2022, p. 55

127 Ibid, p. 60

128 Woollahra Partners, *Dividend Growth Model Results: Market Risk Premium Estimate*, Report for the Consumer Reference Group, 8 March 2022

129 Ibid, pp. 13-14

In the context of the Binding RoRI and the AER's current approach of setting a fixed MRP estimate, this will result in a mismatch during the life of the RoRI as the risk-free rate is updated but the MRP is not. This issue is discussed further in Section 0. As Woollahra Partners note:

> *"If the dilemma surrounding a relationship between the risk-free rate and the estimated MRP cannot be resolved empirically, or on theoretical grounds, it may be best to avoid it altogether by exploring the potential for implementing variable growth DGMs with constant discount rates that delink expected dividend growth rates from k [the expected return on equity]."[130]*

Woollahra Partners' analysis suggests there is at least one independent variable short in the regression model: leading to potential for omitted variable bias.[131] Their advice is that this could be a useful area for future analysis and investigation.

To that end, Woollahra Partners also note the value of considering variable growth DGMs, as does the AER in its *Final omnibus paper*.[132] The challenge in this case is determining whether autocorrelation exists (or can be assumed to). While the proposal of incorporating a variable growth DGM estimate may appear to have the potential to improve the overall MRP estimate, much appears to rest on the choice of variable growth path. The AER's approach of using the risk-free rate as a proxy for growth rates was not supported by the experts in the concurrent expert sessions. As Sapere note, the corollary of this approach is a positive relationship between the risk-free rate and the MRP, which is not supported by the empirical evidence.[133]

Both these areas of further analysis appear unlikely to be satisfactorily resolved for the 2022 instrument. If the DGM is still under consideration for the 2026 review, there will be an opportunity to follow up on these areas then.

Finally, the CRG also notes that independent investors are clearly sceptical about a role for the DGM in the AER's regulatory task. For example:

> *"Investors believe in the value of DGM for valuing and considering investment opportunities, unsure if it is a good idea for a regulatory body to use it as an element of the CAPM building block approach. This is because there are different models, people will game the inputs. Not a problem for us as we try to buy at fair value and hold for the long-term." (CRG interview with independent investor, August 2021)*

> *"The use of the dividend growth model as a way of determining the market risk premium is not straightforward.'' (CRG interview with independent investor, August 2021)*

> *"The dividend growth model would require a much longer time frame than the regulatory period. Otherwise, it's hard to rationalise. The market is not priced around regulatory periods.'' (CRG interview with independent investor, August 2021)*

> *"I would not use the DGM to estimate market risk premium. My understanding of the dividend growth model is that it is quite a simplistic model. And that it would be pretty unwise to use*

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[130] Ibid, p. 14

[131] Ibid

[132] Ibid

[133] Sapere, *Estimation of the MRP*, February 2022, p. 58

that in this sort of regulatory exercise'' (CRG interview with independent investor, August 2021)

In conclusion, and notwithstanding the constructive advice from Woollahra Partners on potential improvements to the DGM (incorporating the ENA-frontier calibration to address concerns of systematic upward bias), the CRG supports Sapere's conclusion that DGM practice has yet to advance to the point at which it can deliver a robust standalone estimate of the MRP.

4.4.3   Other

In past decisions the AER has also had regard to survey data and a range of financial market indicators such as dividend yields, credit spreads and implied volatility.

Sapere note that "the survey approach has obvious attractions"[134] – it is a direct estimate of the conditional MRP, represents active investors' views of the market, and incorporates any correlation to the risk-free rate.

In practice, numerous issues emerge:

- the incentives faced by those participating in surveys are weak

- upward bias in forecast returns is well-documented

- the past appears to be given undue weight in forecasting the future, i.e., counter cyclicality is ignored

Sapere conclude that "survey-based estimates of MRP…are likely to contain considerable noise and possible [upward] bias"[135] but note that they may of some value when combined with other approaches. A similar conclusion can be drawn from the use of financial market indicators. As the time series graphs in the 2018 explanatory statement show, these indicators are asymmetric: there will occasionally be a spike well above the long-run average in periods of market turbulence. These high levels do not persist for long – less than a year. Given the economic dislocation of the last two years: encompassing a once in a century global pandemic, energy crises in multiple continents, an unexpected resurgence of inflation and now war in the Ukraine, such short-term indicators could provide a fundamentally misleading indicator of a forward looking MRP for the next decade. This would be less of a concern if the AER adopted a mechanistic time varying MRP, but for the reasons set out in the next Section we don't consider that to be a possible approach at this stage.

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[134] Sapere, *Estimation of the MRP*, February 2022, p. 51

[135] Ibid, p. 52

4.5   Combining methods and application in the context of a binding rate of return

The choice of MRP estimation method (or methods) is not an abstract exercise; context is important. Two elements are especially important: how the risk-free rate is estimated and the implications of the binding rate of return legislation.

The NEL requires the rate of return instrument to be applied as follows: [136]

> *"18V—Application of instrument*
>
> *(1) A rate of return instrument—*
>
>> *(a) applies for the purposes of an AER economic regulatory decision made after the commencement of the instrument; and*
>>
>> *(b) does not affect an AER economic regulatory decision made before the commencement of the instrument.*
>
> *(2) To remove any doubt, it is declared that the application of the instrument under this Law, including, for example, in making a distribution determination or transmission determination, is an AER economic regulatory function or power."*

The CRG's understanding of this clause is that the instrument can only be applied to a Network Service Provider (NSP) at the start of its new regulatory period. In other words, the AER is unable to apply the instrument in the manner suggested by one of the experts in the concurrent evidence sessions, i.e., to apply it to all NSPs immediately (or at least the start of the next financial year). This constraint is important as it creates a potential timing mismatch between the risk-free rate and approaches relying on estimates of the prevailing MRP.

The AER's current approach to the risk-free rate is to sample data on the relevant CGS over an averaging period as follows: [137]

- *"between 20 and 60 consecutive business days*
- *From a window running from 3 and 7 months before the commencement of the regulatory control period."*

Apart from shifting the window by a month for practical reasons, the AER appears inclined to continue this approach. Conversely, the AER in 2018 set a single point estimate for the MRP to apply to all regulatory decisions during the life of the instrument.

In a case, such as in 2018, where the estimate was largely invariant with the prevailing risk-free rate, then this timing mismatch is not an issue. Putting more weight on a long-term estimate is also consistent with choosing a single point estimate that is repeatedly applied over four years and only fully ends almost a decade after the choice has been made. For the avoidance of doubt, the CRG is supportive of continuing such an approach.

However, not all stakeholders support this approach. NSPs and their representatives have challenged the underlying logic of this approach that treats the MRP as entirely invariant with the

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[136] NEL, s18V

[137] Australian Energy Regulator, *Rate of return, 'Equity omnibus', Draft working paper*, July 2021, p. 51

risk-free rate.[138] The AER commissioned a report from CEPA last year that presented analysis supporting a negative relationship between the risk-free rate and the MRP over recent decades.[139] Several experts in the concurrent evidence sessions also supported this relationship. Notably, however, they generally agreed that it is not possible to specify the relationship or to confirm if the relationship is constant over time. [140]

Accordingly, it seems the AER remains open to setting the MRP in a manner that gives more weight to estimates that account for some relationship between the two variables. The fixed growth DGMs under consideration by the AER do this inherently, as they first estimate a total market return and then adjust for the prevailing risk-free rate. Accordingly, they do not require a specification of the relationship. Nonetheless this would create a conundrum.

Even assuming a good, unbiased estimate of the prevailing MRP was derived from some DGM-based method, it would only be a good estimate when paired with the prevailing risk-free rate **at the same time**. But the AER's approach means that the point estimate will be paired with future, different risk-free rates. If there is indeed a relationship between the risk-free rate and MRP, then the total equity allowance at that time will be wrong. For customers this risk is highly asymmetric. Risk-free rates are close to historical lows at present, but the resurgence of inflation makes it virtually certain that rates will rise over the next year or two. A higher risk-free rate combined with an MRP predicated on a low risk-free rate will result in a high return on equity. Accordingly, **the CRG is unequivocal that such an approach is not in customers' interests - in the short or long-term**.

In principle, there is a potential solution. The AER could specify a mechanistic formula for estimating the MRP that took account of a range of estimation methods. Then it could update the formula before the start of each regulatory period, resulting in an MRP that was consistent with the prevailing risk-free rate that is used for that reset.

However, there are challenges with this approach, including the requirement to appropriately specifying the models to be used in the formula and determining the weights to give them. Each model should be specified in a way to minimise bias. There was no consensus among the experts as to whether it would be preferable to take the mean, the median or some other approach.[141] The current approach makes use of ten HER estimates and 18 DGM estimates. This is before including the other DGMs cited in the AER's *Information paper*. Using all of these would result in an implicit weight of 9:5 in favour of DGM estimates. It's not clear that there is any justification for more heavily weighting DGMs. The formula would also need to address risks of datasets becoming unavailable. For example, if survey evidence was included, care would need to be taken that the formula was not rendered inoperable if one survey exercise ceased to be carried out. While the AER's Option 3 appears to contemplate using only HER and DGM estimates, the experts clearly favoured use of a wider range of evidence, even if they could not agree how to combine them.

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138   For example: ENA, *Rate of return and cashflows in a low interest rate environment – Response to AER draft working paper*, July 2021, p. 6

139   CEPA, *Relationship between RFR and MRP, Australian Energy Regulator, Final Report*, 16 June 2021, p. 44

140   AER, Transcript of Proceedings, Rate of return instruments concurrent evidence session 3 of 4, 17 February 2022, pp. 19-24

141   Ibid., pp. 89-101

Accordingly, there is a good deal of "devil in the detail" of specifying a formula for MRP, making it a likely source of disagreement among stakeholders, lobbying and ambit claims. However, we are very late in the process for the AER to introduce a formula. Given the AER must make the draft instrument a fully specified instrument with a high threshold for change between draft and final, it is not workable to introduce a formula at the draft instrument stage. As the AER has not formally ruled out a mechanical formula approach, we have included this as one of the key issues in our letter to the Independent Panel.[142]

> **Accordingly, while we accept it is not perfect, the CRG recommends the AER retain its current approach that puts most weight on long-run HER data.**

4.6   Inflation and the MRP

The AER may need to consider further the implications of a material risk of rising inflation on its MRP estimate. It's reasonable to suppose that if inflation increases, the risk-free rate will increase. Under the current approach, the MRP will not "respond" to that change in the risk-free rate. This is not unfair on consumers who have benefited from the fixed long-term MRP being combined with historically low risk-free rates. We observe however, that if the AER also moves to a five-year risk-free rate, that this parameter will be more sensitive to changes in inflation.

If an MRP estimation method is used that recognises a relationship with the risk-free rate, such as the DGM, then the MRP is likely to decline if it is re-calculated at the same time as a rising risk-free rate. Under an extreme scenario, it could even produce a negative MRP result, as has happened in the past. There may be second-order effects from rising inflation, depending on the specification of the DGM.

Accordingly, the impact of inflation outcomes on the MRP could be a fruitful use of scenario testing. If they are still open options, the scenarios should include five- and ten-year risk-free rates, and HER and DGM estimates of MRP.

4.7   Conclusion

The CRG supports the continuation of the current approach in which the AER has regard to a range of estimates and makes a judgment on the final point estimate.

Other things being equal (noting that if the term of the risk-free rate or the value of theta changes, this will have consequences for the MRP) the CRG considers the upper bound of the range of point estimates under consideration should be the 2018 estimate. This remains broadly consistent with the latest HER and survey data. The directional impact of DGM estimates is ambiguous and thus of little value. Given the potential for upward bias of HER arithmetic averages there may be scope to choose a lower estimate than in 2018.

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[142] Ref TBC

5 The estimation of beta

Beta is a key parameter in the AER's determination of the regulated rate of return. It is the only parameter in the Weighted Average Cost of Capital) WACC that seeks to reflect a unique market characteristic attributable to energy networks. There are two distinct challenges confronting the AER when it comes to determining the value of beta:

- How should beta be estimated for the 2022 RoRI? (Section 5.2)

- What happens beyond the 2022 RoRI? (Section 5.3)

The CRG sees these as separate regulatory challenges, as reflected in the structure of this Section.

5.1 Summary of CRG advice

The following table summarises our responses to questions in the AER's *Information paper*, and includes cross references to the relevant Chapters.

Table 5-1: AER information paper questions and CRG advice

AER question	CRG advice
11 Do you agree with our preliminary position to maintain our current approach to estimating the equity beta in the 2022 Instrument?	The AER should attach reduced weight to estimates of beta that derive from firms that have delisted or firms for whom regulated revenues are a small proportion of their overall revenues (see Section 5.2.3).
12 What are the pros and cons of using beta estimates of the longest period available and 10-year period? How much weight should we place on the most recent 5-year data given market volatilities in recent periods?	The AER should use the longest, reliable estimation period when estimating the value of beta. It should not use a mix of long- and short-term estimates (see Section 5.2.1).
13 Are there any transparent, robust, and practical approaches which would enable us to adjust data from international energy firms and domestic infrastructure firms to account for any differences between	The AER should not include non-energy infrastructure firms or international energy firms in the comparator set for estimating the value of beta in the 2022 RoRI (see Section 5.2.3).

AER question	CRG advice
those firms and the benchmark efficient firm in Australia?	
14 Is there any empirical evidence on the extent to which the regulated electricity and gas networks may have materially different systematic risks? Is there any robust evidence on the magnitude of stranding risks for the regulated gas networks, and in particular, the scope that part of stranding risk is systematic?	The AER should reject gas networks' claim for an upward adjustment to the value of beta to reflect stranding risk. Instead, the AER should urgently investigate the question from Consumer Challenge Panel, Sub Panel 28 (CCP28) about whether regulatory asset life shortening necessitates a downward adjustment to the value of beta (see Section 5.2.2).
Other matters, beyond the 2022 RoRI review	In finalising the 2022 RoRI review, the AER should do nothing that pre-empts or forecloses on future options for determining the rate of return. Soon after finalising the 2022 RoRI review, the AER should initiate a full-scale review of its approach to estimating the rate of return (with a particular emphasis on the return on equity) (see Section 5.3)

5.2 Estimating beta for the 2022 RoRI

For now, the methodology for estimating beta is well-established and no new information has come to light during this rate of return review to suggest a change in estimation methodology is warranted in the 2022 RoRI.

5.2.1 The estimation period for beta

To inform its response to the AER's *Final omnibus paper*, the CRG commissioned advice from Sapere about the nature of beta and the most appropriate approach to estimating its value.[143] Sapere very helpfully distinguished between the conditional and unconditional nature of beta, where the former reflects short-term influences while the latter looks at the value of beta not related to these shorter-term influences. On balance, Sapere concluded:[144]

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[143] Sapere Research Group, *Systematic risk and the role and measure of equity beta*, June 2021

[144] Ibid, paragraphs IV-V

> *"If data evidence suggests beta is a constant or fluctuates randomly around a constant, then the estimation period should be set as long as possible; if instead data evidence suggests beta is time-varying and mean-reverting, then the choice is more complicated and depends on the underlying cause of the reversion."*

> *"In the absence of clear evidence for rational variation in beta through time, then acting as if beta is constant may well be a reasonable working assumption for regulators."*

In its submission to the AER's earlier omnibus working papers, the CRG concluded:[145]

> *"The AER should rely on long-term estimates of beta."*

> *"The AER should continue to estimate beta using the longest reliable data even if it decides to curtail the estimation term for equity to 5 years."*

In its *Final omnibus paper* in December 2021, the AER identified its preferred approach.[146]

> *"Our preliminary view is that we should continue to place most weight on the longest-period estimates as this can lead to a more robust and statistically reliable equity beta estimate and better account for the cyclicality in factors affecting empirical equity beta estimates."*

The AER identified another important reason for its preferred approach.[147]

> *"We note that a key objective of ours, as in the previous reviews, is to promote stability and predictability of our regulatory approach, which are highly valued by stakeholders. We consider this would promote efficient investment in and operation and use of the regulated energy network infrastructure and, in turn, promote the NEO and NGO."*

The AER convened an expert session on 10 February 2022 to discuss the most appropriate approach to estimating beta. The experts broadly agreed on the following matters:[148]

- The value of beta is likely to move around, and its estimated value is likely to be sensitive to the chosen estimation period.

- Long data sets will capture market characteristics that are no longer relevant, while shorter data sets may reflect unique circumstances without any consideration of whether those circumstances will be repeated in the RoRI's outlook period,[149] and the 2022 RoRI will continue to determine the applicable rate of return in regulatory decisions lasting to 2031.

- There was disagreement on whether there were statistical methods that could identify the appropriate estimation period.

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[145] CRG, *Response to the AER's July 2021 Draft Working Papers: The Overall Rate of Return, Debt Omnibus and Equity Omnibus Papers, Volume 1: Technical*, September 2021, pp. 89-90

[146] AER, *Overall rate of return, equity and debt omnibus. Final working paper*, November 2021, p. 104

[147] Ibid, p. 102

[148] AER, *Evidence session*, n.d., https://www.aer.gov.au/node/79606

[149] For example, estimates in the past five years will capture the effects of a trade war between the US and China, a pandemic-induced global recession, world-wide supply chain disruptions, and a war in Europe.

- The term for estimating the cost of equity, and therefore whether the AER should use a risk-free rate of five or ten years, is not a relevant consideration when estimating beta.

The CRG considers no compelling evidence emerged during the expert sessions to suggest the AER overturn the preferred positions identified in its December 2021 *Information paper*. While the CRG supports the AER using long period estimates of beta, we remain concerned about the continued ambiguous reference by the AER to placing the "most weight" on these estimates.[150] The AER has not shared any information about what it means by "most weight" or what factors might influence its calculations.

While the CRG appreciates the role of regulatory judgement in determining the regulatory allowance, there are risks in exercising that judgement at multiple levels within the determination process – for example, when determining the value of beta, when determining the overall return on equity, and then again when determining the overall rate of return. Doing so suggests an unrealistic level of precision in the AER's capacity to determine such matters.

When it comes to beta, the AER should limit its estimate to those derived from the longest applicable period. It should not attempt to 'tinker' with its final estimate of beta based on an unspecified mix of long and short-term estimates. If the AER has reason to believe short-term estimates of beta differ from its long-term value, then it should take that observation into account when determining the overall rate of return.

For example, if its shorter-term estimates are below its longer-term estimates (as is currently the case), then the AER should recognise its estimated rate of return is potentially 'leaning' to the high side. This lean should be considered 'in the round' alongside all the other leanings in the estimation process. The AER should only revise its estimate of beta if it finds that 'in the round' its model is likely to be over- or under-estimating the overall rate of return. Any such adjustments should be made openly and transparently.

By only committing to placing the "most weight" on long-term estimates, the AER is introducing unnecessary uncertainty into the rate of return and making it less predictable for third parties.

> **The AER should use the longest, reliable estimation period when estimating the value of beta. It should not use a mix of long- and short-term estimates.**

5.2.2   Differentiated betas for electricity and gas

In response to proposals from a number of gas networks, the AER has sought stakeholder feedback on the claim that gas networks face different market conditions to those of electricity and so should have their betas separately estimated. Most notably, the gas networks have raised concerns about asset stranding risk as a result of government climate and decarbonisation policies. The networks contend these risks should be taken into account when estimating their regulated rate of return.

In its report for the AER in September 2020, Brattle observed:[151]

> *"In the jurisdictions we review in this report, we are not aware of any examples of the regulator deliberately setting a rate of return above the cost of capital to address the risk of stranding assets."*

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[150] AER, *Rate of return. Information paper and call for submissions*, December 2021, p. 12

[151] The Brattle Group, *International approaches to regulated rates of return, A review*, September 2021, p. 7

and importantly:[152]

> "the risk of stranding or disallowance in most instances is diversifiable"

In its *Equity omnibus draft working paper*, the AER stated:[153]

> "Our analysis found that equity beta for regulated gas and electricity firms was likely to be similar because they are regulated natural monopolies with similar regulatory frameworks which limit systematic risk exposure."

The CRG's submission in response to the *Draft omnibus working paper* supported the AER's proposed position.[154]

> "Until a compelling case is made suggesting otherwise, a single benchmark value for beta should be applied across electricity and gas businesses."

The AER reaffirmed its earlier position in its *Final omnibus paper*.[155]

> "Having considered the evidence in the submissions, our preliminary view is we should retain our existing approach of using a single beta value across the regulated electricity and gas networks given that:
>
> - There is no clear evidence that there is a material difference in overall systematic risks between electricity and gas networks.
>
> - There is no robust empirical evidence suggesting part of asset stranding risk facing the regulated Australian gas networks is systematic in nature and thus should be considered in the beta parameter."

The AER expressed the same view in its December 2021 *Information paper*:[156]

> "While we acknowledge that there may be some differences between gas and electricity networks, we do not consider that they are significant enough to warrant setting a different equity beta for gas networks. It is also unclear whether, and to what degree, the stranding risk may be systematic risk in nature. We have not received empirical evidence in the submissions suggesting stranding risk may be a systematic risk."

Despite reaffirming its position on multiple occasions, the AER's *Information paper* continued to invite submissions on the matter:[157]

> "We are open to considering further evidence on this matter."

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[152] Ibid, p. 10

[153] AER, *Rate of return: 'Equity omnibus' Draft working paper*, July 2021, p. 49

[154] CRG, *Response to the AER's July 2021 Draft Working Papers: The Overall Rate of Return, Debt Omnibus and Equity Omnibus Papers, Volume 1: Technical*, September 2021, p. 92

[155] AER, *Overall rate of return, equity and debt omnibus. Final working paper*, November 2021, p. 114

[156] AER, *Rate of return. Information paper and call for submissions,* December2021, p. 22

[157] Ibid, p. 13

However, the AER also made clear it considered there were more appropriate regulatory avenues for addressing stranding risk[158] and referred readers to its separate *Information paper*, also released in December 2021.[159]

> *"We note that the AER's recent Information paper on regulating gas pipelines under uncertainty identified a range of options for addressing gas stranding risk. Therefore, we are of the view that it may be appropriate to consider stranding risk under the broader regulatory framework (e.g. through cash flow and/or depreciation) rather than as part of the rate of return."*

The expert panel convened by the AER on 10 February 2021 gave short shrift to gas networks' claims – agreeing with the AER that stranding risk, if a concern, was better addressed elsewhere in the regulatory framework.[160]

Considering the above observations, the CRG has concluded:

- Stranding risk is not a systematic risk and therefore should not, and cannot, be compensated under the AER's approach to determining the regulated rate on equity (and beta).

- Despite being repeatedly invited to provide evidence in support of their claim, the gas networks have failed to do so.

- If the gas networks are now forthcoming with evidence, consumers will be denied the opportunity to respond until after the AER's draft decision – thereby circumventing the objective of the AER's working paper series.

In addition, the CRG suggests the AER urgently consider the question raised by CCP28 the in its submission responding to the regulatory proposal from the operator of the Victorian gas transmission network.[161]

Taking its lead from the AER's *Information paper* on regulating gas pipelines under uncertainty,[162] the gas transmission network operator submitted a proposal for the accelerated depreciation of its network, and any new assets added to the network. In response, CCP28's submission agreed with the AER that asset stranding is not a systematic risk and should not be compensated in the regulated return on equity. However, CCP28 also observed that because of a regulatory decision to shorten a network's asset life, the AER would be agreeing to limit the total future systematic risk faced by investors.

Throughout this RoRI review, the AER has repeatedly emphasised the CAPM is a "forward-looking framework" and the NPV=0 principle is a "forward-looking concept".[163]

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[158] Ibid, p. 22

[159] AER, *Regulating gas pipelines under uncertainty: Information Paper,* November 2021

[160] Australian Energy Regulator, *Transcript of Proceedings, Rate of return instruments concurrent evidence session 1 of 4*, February 2022

[161] CCP28, *APA: Victorian Gas Transmission System Access Arrangement 2023–27. CCP28 Advice to the AER*, February 2022, Section 9

[162] AER, *Regulating gas pipelines under uncertainty - Information paper*, November 2021

[163]   AER, *Overall rate of return, equity and debt omnibus. Final working paper*, December 2021, p.41 and p. 91

CCP28 has questioned whether, in a forward-looking regulatory framework, a regulatory decision to reduce the total future systematic risk faced by investors should be reflected in a <u>downward</u> adjustment to the value of beta.

While the CRG recognises estimating beta is an empirical matter, it also notes the AER can no longer rely on market data to measure the impact on beta of a decision to shorten the regulatory life of a network. This means any such adjustment to gas networks' beta must be made as a matter of regulatory judgement. As CCP28 notes:[164]

> *"In the absence of market data, the AER would have no other option but to exercise its judgement to give effect to the relationship between a decision to shorten a network's asset life and its approach to determining the value of beta."*

The 2022 RoRI will have effect during numerous gas network resets. The CRG therefore prevails upon the AER to urgently consider the question raised by CCP28. Failure to do so, risks handing networks a windfall gain due to an overestimation of the total future systematic risk they face.

> **The AER should reject gas networks' claim for an upward adjustment to the value of beta to reflect stranding risk. Instead, the AER should urgently investigate the question from CCP28 about whether regulatory asset life shortening necessitates a downward adjustment to the value of beta.**

5.2.3   Available data to estimate beta

The AER faces a future in which it has no firms in its comparator set for estimating the value of beta. That is a different concern from the one it confronts in this RoRI review. This Section reflects on the current RoRI review, while Section 5.3 discusses the future challenges facing the AER.

The local comparator set

At the time of the 2018 RoRI, the AER's comparator set used to estimate beta consisted of nine Australian energy firms. Of those nine firms, six had de-listed between 2006 and 2017.[165] More recently, two more firms Spark Infrastructure and AusNet have been subjected to take-over bids which has seen them de-listed – leaving only APA in the comparator set.

In 2018, the AER decided to include all nine firms in the comparator set on an equal basis. In its final determination, the AER reduced the value for beta from 0.70 in its previous determination to 0.60 in the 2018 RoRI.[166] The explanatory note to the 2018 RoRI included a particularly insightful figure, reproduced below in Figure 5-1.[167]

Figure 5-1 highlights that although the 2018 RoRI applied a beta of 0.6, of the three firms that remained listed at that time, Spark Infrastructure (SKI) had a beta of 0.44, AusNet Services (AST) had a beta of 0.39, and APA had a beta of 0.68. It is important to note the structural difference between

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[164] CCP28, *APA: Victorian Gas Transmission System Access Arrangement 2023–27. CCP28 Advice to the AER*, February 2022, p. 77

[165] AER, *Rate of return instrument. Explanatory statement*, December 2018, p. 155

[166] Ibid, p. 15

[167] Ibid, Figure 14, p. 174

the former two firms and APA. SKI and AST were heavily reliant on regulated revenue while APA derived less than 10% of its revenue from its regulated assets.

Despite the two obviously relevant firms for estimating beta having values of 0.44 and 0.39, the AER relied on either defunct or questionably relevant observations to arrive at a considerably higher final estimate of 0.6 for beta in the 2018 RoRI.

Figure 5-1: Regulated revenue percentage and beta estimates
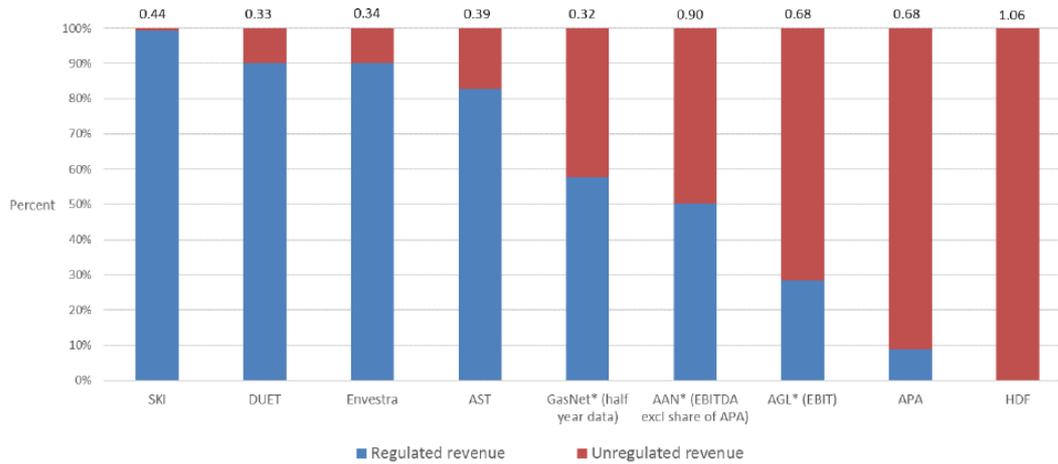
The AER has recently formed the preliminary view that it should apply the same approach in the 2022 RoRI.[168]

> *"[O]ur preliminary view is that it remains appropriate to use the existing comparator set for the 2022 review. We acknowledge that it is possible that the number of the live firms may decline further in future, and it may be useful to lay the foundation by considering how we address this issue in the context of future reviews."*

This preliminary view raises very substantial concerns for the CRG. Our concerns were foreshadowed in our response to the AER's *Draft equity omnibus paper*.[169]

> *"[I]t does seem a little ungainly to continue including firms that will have been delisted for 15 years by the time the 2022 RoRI is made and 25 years by the time the 2022 RoRI ceases to have effect."*

The CRG also acknowledged that discarding defunct firms from the comparator set could cause some disruption to the AER's estimate of beta, so we proposed the AER consider a model which attaches less weight to estimates as they age. Clearly, the CRG's idea won no favour with the AER as its *Final omnibus paper* ignored the suggestion.

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[168] AER, *Overall rate of return, equity and debt omnibus. Final working paper*, November2021, p. 108

[169] CRG, *Response to the AER's July 2021 Draft Working Papers: The Overall Rate of Return, Debt Omnibus and Equity Omnibus Papers*, Volume 1: Technical, September 2021, p. 90

Findings reported in Tables 4 and 5 in the AER's most recent Rate of Return Annual Update reinforce the CRG concerns.[170] These tables provide up-to-date estimates of beta using different averaging periods, weighting measures and comparator sets. The two tables are reproduced as Tables 5-1 and 5-2, respectively. Some noteworthy observations:

- When using the longest available measurement period, beta estimates only exceed 0.6 on one occasion, namely, when the AER applies a value weighted average to a comparator set consisting of four defunct firms plus APA (see Table 5-1). All other long-term estimates lie between 0.4 and 0.56.

- Estimates of beta based on the two most relevant firms (i.e., SKI and AST) are substantially lower (0.37 to 0.47) than estimates using any other comparator set (see P8 in Table 5-1)

- Adding APA to SKI and AST in the data set (despite the limitations noted above about APA) substantially increases the estimates of beta by between 0.1 and 0.22 (i.e., comparing columns P7 and P8 in Table 5-1)

- Not surprisingly, long period estimates are far more stable than shorter estimates for all comparator sets (see Table 5-2)

- Short-term estimates can be highly volatile within and between the different comparator sets (see Recent 5 years in Table 5-2)

Table 5-2: Re-levered weekly equity beta estimates from AER update (OLS, weekly)
June 2000 to August 2021

Firms		P1	P2	P3	P4	P5	P6	P7	P8
Firms	Avg of firm estimates	APA, ENV	AAN, AGL, APA, ENV, GAS	APA, DUE, ENV, HDF, AST	APA, DUE, ENV, HDF, SKI, AST	APA, DUE, ENV, SKI, AST	APA, DUE, SKI, AST	APA, SKI, AST	SKI, AST
Start		23 Jun 2000	28 Dec 2001	23 Dec 2005	09 Mar 2007	09 Mar 2007	09 Mar 2007	09 Mar 2007	09 Mar 2007
End		12 Sep 2014	06 Oct 2006	23 Nov 2012	23 Nov 2012	12 Sep 2014	28 Apr 2017	27 Aug 2021	27 Aug 2021
Equal weighted									
Longest available period	0.56	0.49	0.50	0.54	0.52	0.43	0.46	0.51	0.41
Post tech boom & excl. GFC	0.59	0.53	0.51	0.59	0.58	0.50	0.54	0.59	0.47
Recent 5 years	0.59						0.62	0.53	0.38
Value weighted									
Longest available period	n/a	0.53	0.68	0.47	0.47	0.44	0.49	0.55	0.40
Post tech boom & excl. GFC	n/a	0.58	0.69	0.56	0.55	0.53	0.58	0.62	0.47
Recent 5 years	n/a						0.70	0.59	0.37

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[170] AER, *Rate of Return Annual Update*, December 2021, pp. 11-12

Table 5-3: Whole comparator set compared to listed comparators (OLS, weekly)

June 2000 to August 2021

Equal and value weighted portfolio estimates	Whole comparator set [P1 to P8]	Still listed firms (APA, SKI, AST) [P7]	Still listed majority regulated firms (SKI, AST) [P8]
Longest period			
2018 review	0.42 - 0.67	0.52 - 0.55	0.42 - 0.43
2019 update	0.42 - 0.68	0.53 - 0.56	0.42 - 0.43
2020 update	0.40 - 0.68	0.51 - 0.54	0.40 - 0.41
2021 update	0.40 - 0.68	0.51 - 0.55	0.40 - 0.41
Post tech boom and excl. GFC			
2018 review	0.50 - 0.67	0.64 - 0.67	0.52 - 0.53
2019 update	0.50 - 0.69	0.64 - 0.68	0.54 - 0.55
2020 update	0.47 - 0.69	0.60 - 0.62	0.47 - 0.47
2021 update	0.47 - 0.69	0.59 - 0.62	0.47 - 0.47
Recent 5 years			
2018 review	0.49 - 0.88	0.81 - 0.88	0.70 - 0.72
2019 update	0.69 - 0.89	0.83 - 0.89	0.73 - 0.74
2020 update	0.44 - 0.69	0.59 - 0.68	0.44 - 0.44
2021 update	0.37 - 0.70	0.53 - 0.59	0.37 - 0.38

There can be no doubt that the two firms that most closely resemble the AER's notional benchmark efficient network – insofar as they are closest to a regulated pure-play network operating in Australia and (until very recently) raising funds in Australia via listing on the local exchange – imply a beta significantly lower than the one adopted in the 2018 RoRI (i.e., around 0.4). The AER should significantly reduce its reliance on defunct and questionably relevant firms when determining the value of beta in the 2022 RoRI.

The CRG is also troubled by the AER's reference to "laying the foundation" in the 2022 RoRI for how the problem of disappearing market data (due to delisting) might be addressed "in the context of future reviews". We elaborate on this concern in Section5.3.

The CRG recognises there are many reasons for owners to delist firms, but there are also consequences – one of which involves delisted firms forfeiting their opportunity to inform the regulated return on equity via the regulator's estimate of beta. The AER has not provided an adequate explanation for why long-defunct firms should continue to **upwardly bias** its estimate of beta for up to 25 years. The inclusion of defunct firms when estimating beta for the 2022 RoRI appears to contradict previous statements from the AER about its overarching approach to estimating an unbiased rate of return – see Box 5-1.

> **The AER should attach reduced weight to estimates of beta that derive from firms that have delisted or firms for whom regulated revenues are a small proportion of their overall revenues.**

Box 5-1: The AER's regulatory task when setting the rate of return

The AER is bound by the NEO and NGO when determining the rate of return it expects "to promote efficient investment in, and use of" network infrastructure. In its position paper on assessing the long-term interests of consumers in May 2021, the AER described this challenge in the following terms:[171]

> *"In our view, for the 2022 Instrument to advance the NEO and NGO to the greatest degree, the expected rate of return should be an unbiased estimate of the expected efficient return, consistent with the relevant risks involved in providing regulated network services."*

It reiterated this formulation of its regulatory task in September 2021 in one of its final working papers[172] but adopted an alternative formulation in two papers published in December 2021.[173] [174]

> *"In our view, the best possible estimate of the expected rate of return—neither upwardly biased nor downwardly biased—will promote efficient investment in, and efficient operation and use of, energy network services."*

While the AER did not explain why it adopted an alternative formulation, the CRG expects the respective references to "unbiased estimate" and "neither upwardly biased nor downwardly biased" to have the same meaning for the AER.

Including infrastructure firms and international energy utilities in the comparator set

The AER has considered the merits of including other infrastructure firms in its comparator set for estimating the value of beta. In its *Final omnibus paper*, the AER found:[175]

> *"A challenge of using domestic infrastructure firms is that they inherently face different risks when compared with Australian regulated energy network firms."*

The CRG supports this conclusion, as well as the AER's preliminary view not to include non-energy network firms in the comparator set for the 2022 RoRI.[176]

> *"[O]ur preliminary view is that we should not include domestic infrastructure firms as comparators for the purpose of the 2022 Instrument review."*

The AER's working paper series gave considerably greater coverage to the opportunity to use of data about energy utilities operating in international markets to estimate the value of beta in the RoRI.

In a paper commissioned by the AER, Economic Insights observed:[177]

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[171] AER, *Rate of return. Assessing the long-term interests of consumers. Position paper, May 2021,* p. 12

[172] AER, *Term of the rate of return & Rate of return and cashflows in a low interest rate environment. Final working paper,* September 2021, p.65

[173] AER, *Overall rate of return, equity and debt omnibus. Final working paper*, December 2021, p. 8

[174] AER, *Rate of return. Information paper and call for submissions,* December 2021, p. 8

[175] AER, *Overall rate of return, equity and debt omnibus. Final working paper*, December 2021, p. 112

[176] Ibid

[177] Economic Insights, *Methodological issues in estimating the equity beta for Australian network energy businesses, Report prepared for Australian Competition and Consumer Commission and Australian Energy Regulator*, June 2021, p. xi

> *"[T]here are no simple adjustments to take account of different business and regulatory characteristics [faced by utilities operating in international markets]"*

In a separate report independently commissioned by the CRG, Sapere, having reviewed the matter, concluded:[178]

> *"Overall, the problems created by the use of foreign comparators in estimating beta suggest it would be preferable, wherever possible, to rely primarily, if not solely, on data from local firms."*

The AER has had similar concerns and noted that none of the submissions it had received advocating for the inclusion of international data had offered a robust solution for overcoming these limitations.[179]

> *"Our concern about using international firm included:*
>
> - *International firms do not operate within Australia, and differences in regulatory framework, the domestic economy, geography, business cycles and other factors are likely to drive different equity beta estimates.*
>
> - *Further they may not have the same structure as an efficient firm supplying Australian regulated energy network services. For example, some US businesses identified as potential comparators are vertically integrated and engage in other areas of energy industry with some even operating in other industry sectors (e.g., telecommunications). It is therefore difficult to quantify the impact of these factors on beta estimates.*
>
> - *We consider that these conceptual and practical issues associated with using international data remain a significant challenge. Further, the submissions we received which supported use of international data did not propose a practical, transparent, and consistent methodology which would enable beta estimates from international firms to be compared with the benchmark Australian network service provider on a 'like for like' basis."*

The expert sessions convened on 10 February 2022 by the AER considered the use of international data to estimate beta.[180] The experts were broadly divided between those that were generally uncomfortable with the use of international data and those who were generally amenable to its use in estimating the local value of beta. In any event, even members of the latter group were unable to identify, to reiterate the AER, a "practical, transparent, and consistent methodology" for incorporating international estimates of beta into the AER's comparator set.[181]

There are obviously enormous methodological hurdles to overcome before international estimates can even be considered for inclusion in the AER's comparator set for estimating a local beta. No matter what potential approaches might eventually be identified for overcoming those hurdles, they

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[178] Sapere, *Systematic risk and the role and measurement of equity beta: A report to the AER Consumer Reference Group*, June 2021, paragraph 97

[179] AER, *Overall rate of return, equity and debt omnibus. Final working paper*, December 2021, p. 108

[180] Australian Energy Regulator, *Transcript of Proceedings, Rate of return instruments concurrent evidence session 1 of 4*, February 2022

[181] AER, *Overall rate of return, equity and debt omnibus. Final working paper*, December 2021, p. 109

will be heavily contested and contentious – demanding extensive testing and consultation with stakeholders. Regardless of whether the AER should even attempt to overcome those hurdles, reality dictates it does not have sufficient time to do so ahead of the release of its draft decision.

> **The AER should not include non-energy infrastructure firms or international energy firms in the comparator set for estimating the value of beta in the 2022 RoRI.**

Consumer and independent investor insights

Over the past year, the CRG has interviewed consumer representatives and independent investors about many of the matters raised in the AER's working papers. While the estimation methodology for beta may not have been the most engaging of issues, consumer representatives were generally sceptical about the degree to which risk was compensated in the regulatory framework. For example:

> *"Electricity networks must be just about the safest businesses in the country." (Consumer representative interview, September 2021)*

> *"Very hard to find firms like networks. What other firms have guaranteed revenue stream?" (Consumer representative interview, September 2021)*

Another consumer representative noted the conclusions of the 2018 RoRI review indicated, even at that time, that the AER's final beta estimate was overly generous:

> *"In 2018, the equity beta was too high [and] therefore should be lower now." (Consumer representative interview, September 2021)*

Independent investors provided specific comments about the relationship between risk and volatility, estimation terms.[182]

> *"In contemplating efficient returns on equity in a business, from an investor's point of view, you're looking for efficiency in terms of low risk relative to expected return, so you're basically looking for a lower beta and lower volatility'' (Independent investor interview, August 2021)*

Some also independent investors even suggested that gas and electricity networks might have different betas, for example:

> *"In relation to plans to assess equity beta over five years instead of the longer term, with the longer term you tend to have a better feel for what's happening within a particular market'' (Independent investor interview, August 2021)*

> *"It would surprise me if there was any significant difference in equity beta between gas and electricity assets, and given the order of approximations, I think they're open to engineering [the beta estimate].'' (Independent investor interview, August 2021)*

While our engagement with consumer representatives and independent investors did not probe more deeply, even this limited feedback highlights some significant challenges for the AER if it were to adopt an approach that produced the same value for beta as in 2018.

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[182] CRG, *CRG Response to the AER's July 2021 Draft Working Papers: The Overall rate of return, Debt omnibus and Equity omnibus papers Volume 2: Engagement*, September 2021, p.30

While the CRG and consumer representatives are generally supportive of stable approaches to estimating WACC inputs, that support is qualified. An approach that clearly produced an upwardly favourable beta estimate for networks in 2018, should not be repeated in 2022.

5.3   Beyond the 2022 RoRI review

In its more recent publications, the AER has begun referring to "laying the foundations" for how beta might be estimated in the future, in its *Final omnibus paper acknowledging*: [183]

> *"We acknowledge that it is possible that the number of the live firms may decline further in future, and it may be useful to lay the foundation by considering how we address this issue in the context of future reviews."*

And in in its December 2021 *Information paper:*[184]

> *"There are significant challenges associated with using estimates from international energy firms or domestic infrastructure firms to inform our estimate range due to their different characteristics, and regulatory and market environment. We acknowledge that we need to lay the foundation for future reviews to consider ways in which other information may be used."*

The AER has provided no explanation of what these statements mean, other than one cryptic statement in its *Final omnibus paper*.[185]

> *"[W]e would be open to considering alternative approaches for estimating beta for future reviews, which may include being informed by domestic infrastructure firms. We have commenced work to explore ways in which domestic firms may be used to inform our future decisions on beta."*

These statements started appearing once it became apparent that two of the three remaining firms (SKI and AST) would soon be delisted, leaving only APA which, as noted above, has less than 10% of its revenue regulated by the AER.

The CRG is deeply concerned by the recent appearance of these statements, without any explanation of their meaning or what work the AER has "commenced". We fully understand the significance of delisting and the disappearance of market data. The AER has constructed its entire regulatory methodology on being able to estimate the value of the key parameter, beta, using market data. Delisting and the disappearance of this market data throws the AER's regulatory methodology under the proverbial bus. The above statements from the AER suggest it is preparing to 'dive under the bus' to try to preserve its methodology.

Beta is the one and only parameter in the AER's regulatory rate of return model that attempts to reflect a unique market characteristic of the energy networks being regulated by the AER. While there are ongoing debates about the appropriate time period over which beta should be estimated and which data should be used, there are no conceptual arguments about the role beta plays in the model – as opposed to the other variables in the CAPM (see Chapters 3 and 4).

Alternatively stated, one of the justifications for using the CAPM to estimate the regulated return on equity rests on the premise that the regulated sector's unique market characteristic is estimable via

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[183]   AER, *Overall rate of return, equity and debt omnibus. Final working paper*, December 2021, p. 108

[184]   AER, *Rate of return. Information paper and call for submissions*, December 2021, p. 22

[185]   AER, *Overall rate of return, equity and debt omnibus. Final working paper*, December 2021, p. 112

beta. When that premise is invalidated by the disappearance of market data, then so too are any conclusions that rest upon that premise.

It is true, by definition, that other infrastructure firms or international energy utilities do not embody the unique market characteristics that arise by virtue of the AER regulating energy networks in the national energy market. These alternative data sources can only serve as proxies whose accuracy can never be verified – leading to endless disputation, lobbying and tinkering with the estimation methodology.

So where does this leave the AER's regulatory framework?

We do not know what the AER means by "laying the foundations for future reviews". The AER has not explained itself.

The course for the 2022 RoRI review was set almost two years ago and there is little that can, or should, be done to alter that course at this late stage of the current review process. The same cannot be said about the 2026 RoRI review. The CRG asserts in the strongest terms that *nothing* should be done in the current review that pre-empts or forecloses on future options for responding to the disappearance of market data to estimate beta.

The CRG considers that the delisting of the last two holding companies that were primarily composed of regulated network holdings (SKI and AST) should be the catalyst for a broader review of its approach to estimating the rate of return (with a particular emphasis on the return on equity). The AER should not wait to mid-2024 and then initiate another, much narrower review of the instrument. An early review would enable the AER and stakeholders to be as prepared as possible for the development of the 2026 instrument.

> **In finalising the 2022 RoRI review, the AER should do nothing that pre-empts or forecloses on future options for determining the rate of return.**
>
> **Soon after finalising the 2022 RoRI review, the AER should initiate a full-scale review of its approach to estimating the rate of return (with a particular emphasis on the return on equity).**

6   Use of industry debt index

6.1   Summary of CRG advice

Our perspective on the use of the EISCI is as follows:

- We accept the AER's findings that EICSI provides evidence of 18 basis points of outperformance versus the trailing average benchmark.

  o   This decomposes to 14 basis points for term and 4 basis points for other factors.

- There is some cost and risk to adjusting for term, but volatility concerns are outweighed by price benefits for customers. Transition may not be warranted.

- The CRG is comfortable with the principle of direct adjustment to the benchmark, especially for non-term outperformance.

- However, given the relatively low level of outperformance, and the AER's apparent belief that transition is necessary when adjusting for term, we accept that adjustment to the benchmark is unlikely for this Instrument.

- But if low materiality is a criterion for not changing the benchmark, the AER must apply this consistently across all parameters of the RoRI.

- The AER should also consider the fact that it has identified and is allowing continued outperformance when considering the overall rate of return and relevant cross-checks such as financeability.

- The AER should continue with the EICSI exercise, given that outperformance may increase in the future.

The following table summarises our responses to questions in the AER's *Information paper* and includes cross references to the relevant Chapters.

Table 6-1: AER information paper questions and CRG advice

AER question		CRG advice
3	Should the EISCI (and resulting WATMI) be used to inform the term for the return on debt? And if so how?	Yes, if the WATMI departs too far from the current approach then there is a case for changing the term. The considerations for this are discussed in Chapter 6. Current evidence provides limited support for a change.
4	If we do change the term for the return on debt how should this be implemented?	Our current position is not to change, but if the AER decides to do so, the change should be implemented immediately. See Chapter 6.
15	Do you agree with our preliminary position to further consider whether to make an adjustment for the residual outperformance of	Yes, where there is evidence of outperformance, the AER should always be prepared to consider ways to capture that outperformance for consumers. This is

	the EICSI compared to our benchmarks?	consistent with the incentive-based regulatory framework that the AER operates.
16	Do the results of our analysis justify an adjustment to remove any residual outperformance that is material and persistent? And how do we define 'material and persistent'?	If the AER finds the adjustment to be material and persistent, then that would justify an adjustment. The definition of materiality is a matter of judgment for the AER. What is critical is that materiality is applied consistently across the different parameters of the RoRI, (see Section 6.4).
17	If we were to make an adjustment, how would we do this? For example, is a cap or other constraint applied on the debt risk premium or credit spread an appropriate way to remove the residual outperformance identified?	Ideally, the adjustment would be applied in a simple manner. Attempting to only constrain specific periods of excess allowance through a cap mechanism is likely to be complex and may create unanticipated consequences, particularly in the context of the RoRI framework. If the AER were to make an adjustment, we would be comfortable with direct adjustment to the benchmark allowance for outperformance, especially when the outperformance has been adjusted for term and potentially credit rating (Section 6.2)
18	Should we further consider making an adjustment for the residual outperformance of the EICSI compared to our benchmarks. Or should we adjust the benchmark term directly? If we were to make an adjustment for term how would this best be done?	There are challenges related to adjusting for term, as set out in Section 6.3. However, this should not preclude an adjustment for material outperformance. In such a case it is not clear that transition is warranted, which mitigates some of the challenges of making the adjustment.

6.2 The AER's analysis to date

The AER has been collecting the industry debt index (EICSI) data since 2018, and the data series goes back to 2014 NSPs have been afforded every opportunity to query the selection of instruments included and excluded from the index. The AER has also considered issues around index weighting and has decomposed the components of outperformance. Given the confidentiality of the underlying data there is limited opportunity for other stakeholders to directly evaluate the index. Accordingly, the CRG considers it is reasonable to take the AER's analysis and its outcomes as being robust for the purposes of the RoRI. Their analysis of the data over the period 2014-2021 can be summarised as follows:

The average gap (i.e., outperformance) between the AER's benchmark approach to setting the return on debt and the EICSI is 18 basis points.[186]

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[186] AER, *Overall rate of return, equity and debt omnibus. Final working paper*, December 2021, p. 75

Much of this can be attributed to differences in the average term (at issuance) of debt, which has fallen from ten years in April 2018 to 7.5 years in mid-2021.[187] This accounts for 14 basis points of outperformance, leaving only 4 basis points attributable to other factors.

The average credit rating of instruments in the index has slowly increased since 2016 and is currently slightly higher than the benchmark credit rating of BBB+.[188] This is consistent with the AER's observation that NSPs' issuer credit ratings have also increased in recent years and now stand at A-on average.[189]

Outperformance is highest at periods of higher credit spreads in the secondary bond market (from which the data for the AER's benchmark is taken). The AER notes that this suggests that:

"The debt raised by privately-owned regulated service providers on the primary debt market may be somewhat insulated from the high average risk premiums when these are evident in the secondary market data used for our estimation".[190]

The CRG's interpretation of this is that the benchmark is a relatively close match for the actual debt-raising practices of NSPs. On the face of it, this is a positive sign. Compared to the inherent unknowability of the true cost of equity, the AER appears to have done a good job of estimating the true cost of debt. However, the AER should always be open to considering whether this is because they have identified a benchmark that represents efficient practice (and will continue to do so) or whether NSPs have aligned their practices to the benchmark for risk management purposes.

Efficient financing practices may change over time. For example, qt present, hybrids appear to only be used by a few of the businesses, and so the AER is correct to disregard them. If the use of hybrid instruments became more prevalent, it might increase debt costs (due to the nature of hybrids) or reduce them (if the hybrids supported lower cost senior debt). In the case of the former, the AER should seek evidence for why this had become an efficient financing practice despite being higher cost. If the use of hybrids appeared to deliver outperformance against the benchmark, then it would be reasonable for the AER to adjust its benchmark to include hybrid instruments.

6.3   Options for adjusting the benchmark

The options outlined by the AER for adjusting the benchmark all appear to involve significant challenge. Logically, if outperformance is due to a shorter term, then the best way to account for this would be to change the benchmark term of debt. However, the AER appears to share the view of the NSPs that any change to term would entail a transition from the old term to the new term. This would add further complexity to the benchmark, especially if this involved layering transitions on transitions. The AER cites the zero net present value (NPV) principle for its position:

"We consider that any change to term is likely to require a transition to ensure that the zero NPV condition continues to hold, and for firms to remain able to match the benchmark strategy."[191]

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[187] Ibid, p. 78

[188] Ibid, p. 80

[189] AER, *Rate of Return Annual Update*, December 2021, p. 22

[190] AER, *Overall rate of return, equity and debt omnibus. Final working paper*, December 2021, p. 83

[191] AER, *Overall rate of return, equity and debt omnibus. Final working paper*, December 2021, p. 85

This position contains an inherent contradiction. Consider a situation where the impact of term was more material, for example, if NSPs raised debt with an average term of five years, and accordingly, gained from material outperformance. The NPV=0 principle would clearly be violated already, in a manner that favoured NSPs. A change in the benchmark to match the term being used by the NSPs would be the most effective way to return to the equilibrium of NPV=0, and so it would be in consumers' interests that this was implemented as soon as possible rather than delayed by way of a transition. In any case, the need for transition would be moot – since it would be clear that most NSPs were not following the existing benchmark, there would be no obvious need to allow NSPs to transition to a benchmark that better reflects what they were already doing. To the extent a minority of NSPs were not already aligned to the new benchmark, this would be an indication that they were failing to adopt what had been revealed by the other NSPs to be a more efficient financing practice. There is no long-term consumer interest in protecting such NSPs from the consequences of their inefficient choices.

Another concern cited by the AER is that a change to a shorter term would introduce more volatility into the allowed rate of return. This is to some extent true, and we commend the AER for considering such impacts on consumers. Our research indicates that consumers do value stability.[192] They also value lower prices.[193] Consumer advocates' trust in the AER is impacted by whether they believe that the regulatory framework favours NSPs, for example through allowing them to consistently out-earn their allowed rate of return.[194] Arbitrating between these preferences is a challenge for the AER, but we also note the AER has other tools to mitigate volatility, such as revenue smoothing. In any case, a move from ten to - say - eight-year debt in a trailing average remains considerably less volatile than the previous on-the-day approach. On balance we consider that the benefit of lower prices would outweigh volatility concerns in this instance.

A further potential issue would be if the market for debt of the new benchmark term was relatively illiquid, such that the data provided a less robust estimate of the cost of debt. The CRG has not reviewed bond data to ascertain the likelihood of this risk but would expect the AER to carry out such analysis before making a change to the benchmark term.

An alternative is to make a direct adjustment, either for the total outperformance, or for the element of outperformance not represented by term. NSPs have argued against the use of direct adjustments, especially for outperformance that appears to be due to term differentials. They argue that such adjustments result in a benchmark allowance that is not directly replicable. As we set out in our submission to the AER's draft debt omnibus paper[195], we do not agree that replicability is a threshold issue for the return on debt, providing the AER can be confident that the benchmark provides sufficient funds for an efficient NSP to finance itself.

The AER also cites advice from Lally that adjustments should not be made for outperformance due to credit rating. We do not agree. If it is clear NSPs have achieved a higher credit rating primarily due to adopting a materially lower gearing level than the AER's benchmark, then the AER should consider

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[192] CRG, *CRG Response to the AER's July 2021 Draft Working Papers: The Overall rate of return, Debt omnibus and Equity omnibus papers Volume 1: Technical*, September 2021, p. 118

[193] Ibid, p. 117

[194] Ibid, p. 122

[195] Ibid, p. 113

changing both the gearing and the credit rating, providing that such changes result in a lower overall rate of return (i.e., it represents an efficient choice). But if there is a modest credit rating benefit that is not linked to gearing and is not significant enough to warrant the adoption of a different benchmark credit rating, there is no in reason (other than potentially materiality) why it should not be captured for consumers' benefit. After all, the benchmark is only a proxy for the actual cost of BBB+ debt for a benchmark NSP, it is not a direct measurement. Various factors could result in a difference, including several cited in our submission to the to the AER's draft debt omnibus paper[196], and the AER's observation that there may be differences in credit spreads between the primary market and the secondary market. The AER does not need to specifically identify these "halo effects" to legitimately make an adjustment to the benchmark.

6.4   CRG position and implications of retaining the current benchmark

On balance we accept the likelihood that AER will maintain the current benchmark. The primary reason for this acceptance is that we recognise the low levels of non-term outperformance and the challenges in adjusting for term. There are costs and risks involved in such a change and the benefit even of adjusting for term remains relatively small. The CRG supports the AER's addition of materiality to its guiding principles.

It's critical that materiality is applied consistently and in an unbiased way. In this case materiality appears likely to be used by the AER to screen out potential adjustments in the order of 18 basis points on the return on debt. At 60 per cent gearing this is 10.8bp at the overall rate of return level. The AER should consider how this compares to the materiality of potential adjustments to other parameters of the rate of return, and how they can be treated in a consistent and unbiased manner.

If the AER decides not to adjust the benchmark and allows the NSPs to continue to benefit from outperformance (prima facie, this opportunity is likely to continue), then it should qualitatively recognise this when applying its judgment to the overall RoR. It should also be considered in any use of relevant cross-checks, such as financeability. Conventional financeability assessments of regulatory allowances typically assume the debt allowance exactly covers the actual costs. In this case, the AER should consider the implications for financeability of an average outperformance of 18 basis points.

6.5   Future use of the EICSI

The analysis carried out by the AER is very valuable. Even if it determines that any outperformance is too immaterial to adjust the benchmark for in this instrument, that is only a contingent fact. Outperformance may grow in the future, and so in future instruments there may be a stronger case for changing the benchmark. Accordingly, the AER should continue to collect and analyse the underlying data and publish as much of this as it can in the annual updates and in future reviews of the instrument.

Non-network stakeholders may also appreciate greater publication of individual network debt data. We recognise this is unlikely to be at the granularity of individual instruments, however, a rough analogue may be the disclosures in the accounting notes of publicly listed entities. There may also be a case for data collection and analysis of state-owned networks' cost of debt. While their debt costs

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[196] Ibid, p. 105

may not be market-tested, there is likely to be some rationale for debt premia charged by state treasuries, and this may represent relevant information. It's beyond the scope of this submission to further explore these issues, but the CRG considers that the delisting of the last two holding companies that were primarily composed of regulated network holdings (SKI and AST) should be the catalyst for a broader review of data collection and publication relating to network financing – both debt and equity. As discussed in Chapter 1 of this advice, this review should be carried out as soon as possible.

7 Weighted trailing average return on debt

7.1 Summary of CRG advice

The following summarises our position on the weighted trailing average return on debt:

- The AER should signal in the strongest terms available to it that the trailing average should continue to be applied through the interest rate cycle. This is the best way to defend against pressure to abandon it when interest rates begin to rise.

- The AER should not put significant weight on the risk of policy intervention. Second-guessing governments' policy actions has no place under the energy laws or rules and risks distorting the AER's decision making. In any case interventions such as public financing of capex driven by decarbonisation or other policy objectives (including ISP projects) may be the best response from a consumer perspective.

- Accordingly, we do not consider the case has been made for introducing a capex weighted trailing average.

- If the AER decides that the ISP capex program requires the introduction of a capex-weighted trailing average, it should be targeted at those Transmission Network Service Providers (TNSPs) specifically affected by this, rather than applied across the board to all NSPs. The AER should ensure this does not lead to consumers over-compensating sunk investments by the affected TNSPs.

The following table summarises our responses to questions in the AER's *Information paper* and includes cross references to the relevant Chapters.

Table 7-1: AER information paper questions and CRG advice

AER question	CRG advice
19 What are the relative merits of Options 1–4?	The CRG remains to be convinced that the merits of capex-weighting outweigh the status quo of equal-weighting for the following reasons:
	• Accordingly, our recommendation is Option 1 (no change). The logic of the AER's rationale for introducing the capex-weighing rests heavily on the impact of large ISP projects. So, if it is introduced it should be targeted at the relevant NSPs – i.e., TNSPs and even then, not all TNSPs in every period.
	• This means Option 3 is the next best option (threshold-based application of capex-weighting).
	• Option 4 (capex weighting only for TNSPs) is a fallback only if Option 3 proves incapable of implementation.
	• Option 2 (capex weighting for all NSPs) is our least preferred option.

20	Is there a better option to address our concerns?	At this stage in the development of the Instrument it is probably too late to introduce a new option that requires detailed development. However, we note that an option proposed during the concurrent evidence session was to create a separate asset base for new investment (see Section 7.7).
21	Is there a case for taking a more tailored approach to determining the return on debt for regulated firms with temporarily large capex (for example, such as in Options 3 and 4)?	Yes, there is a case. While the CRG remains to be convinced that the merits of capex-weighting outweigh the status quo of equal-weighting, if the AER decides to apply capex-weighting, it should only do so for NSPs for whom it will make a material difference.
22	How would such an approach work under the current law and given the mechanistic nature of the Rate of return instrument?	Option 4 appears straightforward enough to apply, since the Instrument need only specify that the approach is applicable to TNSPs. This may be a suitable fallback if Option 3 appears incapable of implementation. However, the principle of Option 3 is also straightforward enough. Section 7.6 sets out a potential approach.
23	In particular, if we were to set up a threshold of capex 'lumpiness', what would such a threshold look like? Would setting up a threshold present some gaming opportunities for businesses with capex programs that take them close to this trigger?	Section 7.6 sets out a potential approach and discusses the risks of gaming opportunities.

7.2   Introduction

In the previous Section we reviewed the options for adjusting the Return on Debt (RoD) benchmark for observed outperformance by NSPs. We assumed that other elements of the benchmark would remain consistent, for example the AER applying the same weighting to each year of the trailing average.

Separately, however, the AER has been considering applying different weightings to the trailing average to reflect differences in annual capital expenditure (capex)-weighting. This Section considers the merits of such a proposal.

7.3   Rationale for weighting the trailing average

The logic is that if there are material differences in capex year to year then the level of new debt raised will also vary. Weighting the average in a way that better reflects the levels of debt raised to finance capex (and including refinancing) will better match Network Service Providers' (NSPs) actual debt costs.

In principle this has always been the case, however, the equal-weighted trailing average has been the AER's preferred approach to setting the return on RoD for around a decade. Capex-weighting was an option considered at the time but rejected.[197] So, whether implicitly or explicitly, the annual variation in capex has been considered insufficiently material to justify the additional complication of varying the annual weights.

What has changed is the advent of the ISP and its consequences for one type of NSP: electricity transmission networks. The ISP envisages a significant buildout of transmission infrastructure over the next two decades. Some - though not necessarily all – TNSPs are forecasting a significant increase in their RAB over their current and subsequent regulatory periods.

Interest rates are currently at or near historic lows and so future trends are likely to be upwards. This raises the prospect of the weighted average RoD falling below the prevailing cost of debt in the market, whereas it has typically been higher since the trailing average has been introduced.[198] This trend will not come as a surprise to the NSPs.

Submissions to the various consultations during the 2022 RoRI process from networks and their representatives remain supportive of the trailing average. ENA confirmed it agreed with the 2018 approach in its submission to the overall rate of return.[199] The Network Shareholders Group (NSG) stated that the "the AER's current benchmark approach is simple, enduring and leaves financing risk with investors".[200]

Regardless of whether it adopts any of the capex weighting options set out in its *Final omnibus paper*, the AER should send the strongest signal it can that the trailing average approach should persist through the interest rate cycle. It cannot formally "pre-commit" future instruments, but it can make clear that this is an inherent assumption in the application of the trailing average.

In our response to the AER's draft debt omnibus paper[201], we stated that "if the capex-weighting approach does assist in maintaining the trailing average approach into the future, then that would be a positive outcome for consumers".[202] We would like to emphasise the conditional nature of this statement. It is not clear to us that a capex-weighting approach is necessary to maintain the trailing average, especially not one applied to all NSPs.

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[197] Ibid, p. 87

[198] Ibid, Figure 11, p. 88

[199] ENA, *Overall Rate of Return*, September 2021, p. 52

[200] NSG, *Response to AER RoRI omnibus papers*, September 2021, p. 2

[201] AER, *Rate of return: 'Debt omnibus' Draft working paper*, July 2021

[202] CRG, *Submission – Overall rate of return, equity and debt – Volume 1*, September 2021, p. 111

7.4   The risks of policy intervention

The AER cites an additional rationale for capex-weighting in its *Information paper*[203]:

> *"We are concerned that if we do not make adjustments to mitigate these material mismatches [between the cost of debt and the allowance], we could see pressure for policy changes to address these mismatches from either consumers or networks. Any such policy intervention would upset the balance of the trailing average and undermine NPV neutrality".*

We interpret the phrase "policy intervention" as an action outside the existing regulatory framework, such as government intervention. Such risks should not be given weight by the AER. There is always some risk that a stakeholder who is unhappy with the regulatory framework or the AER's application of it could successfully lobby a jurisdictional government to work around the framework. The AER reacting to such risks (which may never manifest) risks it making sub-optimal decisions on the basis that unspecified government intervention could be even worse.

In any case this ship may already have sailed. Some state governments have recently implemented policies that give them new discretion to approve transmission projects outside of the conventional regulatory investment test. For example, regulations under Section 41 of the *Electricity Infrastructure Investment Act 2020 (NSW)* may modify the application of, or disapply, a provision of the NEL or the National Electricity Rules to the extent reasonably necessary to achieve the objects of the Act and to enable a network operator to carry out a Renewable Energy Zone (REZ) network infrastructure project.[204] Victoria has similar enabling legislation,[205] whereas Queensland and Tasmania do not need to pass legislation as they continue to own their local electricity networks.

TransGrid successfully secured financing from the Clean Energy Finance Corporation as part of its financing package for Project Energy Connect. TransGrid's share of this project represents the largest single transmission investment project since the creation of the NEM. Its attempt to change the energy rules to improve its depreciation profile and thus make it easier to finance was rejected on the basis the case had not been made that it needed such assistance. Noting the range of potential and actual interventions set out above, the AER is not justified in making the blanket statement that:[206]

> *"any such policy intervention would upset the balance of the trailing average".*

We raised this issue with consumer advocates who told us that as a principle, expenditure to meet government policy objectives not captured in the national energy objectives, such as decarbonisation, should be financed by general government expenditure, rather than through energy bills:

> *"It is a public policy question and government is saying, 'we are needing to invest more in networks…' and that investment is at a cost greater than what the prevailing market is going to be, then it is the role of government to make that investment." (Consumer representative interview, February 2022)*

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[203] AER, *Rate of return. Information paper and call for submissions*, December 2021, p. 27

[204] Gilbert and Tobin, Knowledge: Shifting the focus of economic regulation in Australia's energy networks, February 2022

[205] Parliament of Victoria, *National Electricity (Victoria) Amendment Bill 2020*

[206] AER, *Overall rate of return, equity and debt omnibus. Final working paper*, December 2021, p. 18

> *"If the money can't be forthcoming from a private market because they're not prepared to bear that risk, then the government has to bear it." (Consumer representative interview, February 2022)*

This is because taxation is typically more progressive than energy costs, given low-income households spend a greater proportion of their income on energy:

> *"in terms of economic theory…[to] basically push public policy effectively onto energy customers is…both poor public policy but it is also regressive and energy costs are regressive because lower income people pay proportionately a lot more. A small increase in energy costs is a much bigger increase for lower income customers." (Consumer representative interview, February 2022)*

In other words, consumer representatives preferred policy intervention - at least in the form of public financing – to the AER attempting to make compensating adjustments to the rate of return.

7.5   Overreach of the NPV=0 principle

The AER argues, citing advice from Lally, that capex-weighting better meets the NPV=0 principle.[207] Strictly, the NPV=0 principle, as set out by Lally, only holds when the allowance *exactly* matches the actual financing practices and costs of an efficiently financed NSP. In practice this is not feasible. As discussed earlier, there are some cost differences between the NSPs' actual costs and the allowance. Reasons for this include the AER's proxy benchmark of a blend of BBB and A rated bonds not precisely matching the costs to NSPs of issuing primary debt. Other factors, not canvassed in that Section but relevant to this discussion, include lumpiness of debt issuance and timing. We expand further on these below.

The AER assumes that precisely 60% of each year's capex is debt-financed. In practice, NSPs' debt management is not that granular. TransGrid stated that "it raised debt on its aggregated balance sheet, and it did not issue discrete tranches to finance particular components of capital expenditure"[208] and also that "the fixed costs associated with the issuance of significant debt tranches meant that it was not viable for firms to issue a new tranche of debt to match the annual capital expenditure for a particular year".[209]

The allowance also assumes that debt is raised evenly over the course of a year. In practice, debt will be raised periodically. The NSG observed that the capex-weighted proposal "ignores the dominant financing practices of issuing debt as it comes due and the timing of matched hedging".[210]

The AER runs the risk of chasing a spurious level of precision in the construction of the benchmark allowance and is seeking to complicate the benchmark for one source of variation while ignoring others. Notably, the comments from networks and shareholders quoted above indicate little support for a proposal that is ostensibly designed to help them finance lumpy capex.

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[207]   Lally, M. *The appropriate term for the allowed cost of capital,* April 2021, p. 26

[208]   TransGrid, *Response to AER Rate of Return Omnibus papers*, September 2021, p. 6

[209]   Ibid

[210]   NSG, *Submission, overall rate of return*, September 2021, p. 3

In any case, not all experts agree that a trailing average perfectly correlated to actual efficient debt costs satisfies the NPV=0 condition. During the concurrent evidence sessions, Professor Graham Partington observed that, since market values vary with interest rates, an "on-the-day" cost of debt could better meet NPV=0 than a trailing average.[211]

7.6 Tailored options

The AER has responded to stakeholder concerns about whether capex-weighting need be applied to all NSPs by outlining two tailored options alongside its Option 1 (no change) and Option 2 (apply capex-weighting to all NSPs).

Under Option 3 the weighted trailing average only starts to apply when a large increase in the RAB (and therefore debt issuances) is forecast. The AER would need to set a threshold for the shift to a weighted trailing average and is seeking views on how this could work. Given the CRG was amongst those suggesting a tailored approach may be more appropriate than an approach that applies to all NSPs we have considered how a threshold could work. Nonetheless, our preferred option is Option 1. An indicative Option 3 approach is as follows:

The RoRI needs to specify a set of *ex ante* conditions under which the capex-weighting applies. This could be based on the metrics set out in the AER's *Information paper*,[212] which sets out annual changes in PTRM debt balances and the average change over a five-year regulatory period. This would need to be applied to forecast capex, given the need to identify the threshold ex ante. Threshold options include a high annual percentage change (for example, 10% to 15%), a high change for two or more consecutive years (for example, 10%) or a high annual average over the period (for example, 7 to 8%). The numerical thresholds suggested are indicative only but are based on the premise that only the two Transmission Network Service Providers (TNSPs) currently facing a major ISP project in their current regulatory period (TransGrid and ElectraNet) would be likely to qualify.

In principle there may be some gaming opportunities. This presupposes that NSPs can determine in advance whether they are better off over or under the threshold, noting that they do not know the applicable debt rates for each year of the next period at the time they are preparing their capex forecasts. A threshold applied across multiple years or as an annual average would be less gameable than one based on a single year. AER could mitigate the risks that the threshold was gamed by applying extra scrutiny to NSPs whose capex forecasts fall just either side of the threshold.

Option 4 is a weighted trailing average that applies to all TNSPs. It has merit as it is simpler to define in the RoRI, and since the ISP is the apparent driver of the proposed change, it excludes NSPs who will not have ISP projects, namely electricity and gas distribution networks. However, several TNSPs are unlikely to face ISP projects. Direct Link and Murray Link are interconnectors rather than regional TNSPs and so are not expected to build ISP projects. Ausgrid has a TNSP arm by virtue of having some high voltage assets, but it is primarily a distribution network. It's possible that if ISP projects are tendered for under a contestable framework that some of these businesses could win a project. But since their participation in the tender is voluntary, they can choose not to bid for projects if they

[211] AER, *Transcript of Proceedings, rate of return instruments concurrent evidence session 2 of 4 Transcript of proceedings*, February 2022, p. 57

[212] AER, *Rate of return. Information paper and call for submissions*, December 2021, Table 12, p. 12

believe they will have difficulties financing them. Accordingly, the CRG regards this option as only a fallback if Option 3 appears incapable of implementation.

7.7   Another option

At this stage in the development of the RoRI it is probably too late to introduce an option that requires detailed development. However, an option proposed during the concurrent evidence session was to "create a separate asset base for new investment[213]" (implicitly new major investment). One merit of this approach is that "breaking it up into the two parts is transparent"[214]. Some experts considered that the best approach would be to start that separate RAB off with "on-the-day" debt and transition to the ten-year average. This was described as "a relatively simple Excel spreadsheet task"[215]. If the AER is minded to introduce a capex-weighted approach, it should consider whether the experts' suggestion has merit and is capable of simple implementation.

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[213]   AER, *Transcript of Proceedings, rate of return instruments concurrent evidence session 2 of 4 Transcript of proceedings,* February 2022, p. 51

[214]   Ibid, p. 60

[215]   Ibid, p. 71

8   Cross-checks of the rate of return

8.1   Summary of CRG advice

The CRG agrees with the AER that cross-checks should not have a determinative role and should be used with caution. We do not agree, however, with all of the AER's preliminary conclusions on the relevant cross-checks. We also consider that stakeholders would benefit from more clarity about the purpose of each cross-check and how the AER is using it.

We do not consider ex ante financeability testing, of the sort carried out by regulators such as IPART and Ofgem, to be applicable to a standalone rate of return. We note the AER's ex post financeability test of extant rate of return decisions and agree that this constitutes some evidence that those decisions have provided NSPs with at least an adequate rate of return[216].

We consider RAB multiples capable of supplying similar evidence and urge the AER to carry out this cross-check using plausible indicative ranges for the factors that could result in RAB multiples greater than one.

We recognise the challenges in constructing an appropriate analytical framework for using historical profitability as a rate of return cross-check. Given its to customers in evaluating the overall regulatory framework, we recommend that, at a minimum, it constitutes a qualitative "conditioning variable" that the AER takes into account when applying its judgment.

We agree that scenario testing can be a useful cross-check of the robustness of the AER's rate of return decision, but we caution that great care must be taken in the process of selecting the relevant forecasts to ensure scenario testing is applied symmetrically. The AER should also clarify how it seeks to interpret the output of scenario testing.

The CRG supports the AER's conclusion to exclude investment trends and other regulators' decisions as cross-checks.

Importantly, we highlight that even when individual cross-checks may have limited direct use for the AER, we urge the AER to look at cross-checks 'in the round'. That is, the AER considers:

- a particular cross-check demonstrates a consistent trend over time relative to the modelled estimation of the rate of return and/or return on equity

- the different cross–checks all point to a similar conclusion, taken in the round

- the majority of network companies, representing a range of fuels, location, size and ownership structures, all point to a similar conclusion

- the extent and materiality of any under or over recovery.

The CRG also recommends that the AER develop a suite of 'consumer based' cross-checks that go beyond simple 'average price' outcomes.

Our summary advice in response to the questions in the AER's *Information paper* is below and the remainder of this Chapter constitutes a more detailed response.

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[216] AER, *Rate of return, Overall Rate of Return, equity and debt omnibus, Final working paper*, December 2021, pp. 127-128

Table 8-1: AER information paper questions and CRG advice

AER question		CRG advice
24	Do you agree with our preliminary positions in the final working paper?	In terms of the "headline" preliminary positions set out in Table 8-2 below, we agree with them, except for: Financeability tests: we do not agree that these are useful in the context of the RoRI. Historical profitability: we do not agree that this should play no role. This is a key area of concern for consumers.
25	Do the cross-checks that we have selected provide a balanced assessment that promote the NEO and NGO?	It is not possible to definitively answer this question as it is the detail of how cross-checks are applied that will determine whether they provide a balanced assessment as well as the overall picture arising from the cross-checks.
26	Which financeability tests should be undertaken to inform our decision on the rate of return?	The CRG does not see how *ex ante* financeability tests can usefully inform the AER's decision on the rate of return. Our reasoning is set out in Section 8.4.
27	How can RAB multiples be appropriately adjusted to identify and disaggregate the impact of the rate of return from other contributing factors?	It depends on the intended role of RAB multiples, as discussed further in Section 8.5.
28	Should we prioritise information from transaction RAB multiples or trading multiples?	Both represent potentially useful sources of information.
29	Which scenarios should we consider to provide a balanced assessment of possible outcomes from our rate of return decision?	The AER should consider scenarios that model potential outcomes from different options for each parameter.

AER question	CRG advice
30 The ENA has provided some additional detail on how scenario testing can be used to inform the rate of return such as prioritising certain scenario(s) and not needing to assign probabilities to scenarios. We appreciate your comments on the ENA's proposal.	It is essential that the AER takes control of any scenario analysis for the purposes of cross-checking its decisions. The CRG agrees that assigning probabilities is not necessary.

8.2   Background

The AER's *Final omnibus paper* sets out its current view on the use of cross-checks in the RoRI determination as follows:[217]

> *"Cross-checks involve comparing estimates of the rate of return against other relevant information sources. They may provide a sense check on whether the calculated estimates appear reasonable and consistent with other sources of information. They can also provide additional information in situations where regulatory judgement may be required."*

The AER's use of cross-checks has been considered as part of the AER's rate of return decision making since the initial 2013 Rate of Return Guideline. The focus on cross-checks arises largely because there is no widely accepted approach to estimating the efficient rate of return, even between regulators. The AER summed up this dilemma in its 2018 discussion paper on risk and regulatory judgement:[218]

> *"There is not always consensus on the correct methods to estimate parameters used for informing or determining the allowed rate of return. In our role as a regulator, we must exercise our regulatory judgement about the use of different models, data, methods and other evidence that may be available to us when making our decision. We recognise that there are potential strengths and weaknesses in the current models and estimation methods"*

In this context of uncertainty and need for judgement, networks, investors and consumers have encouraged the AER to develop a suite of cross-checks on the allowed overall rate of return and the allowed return on equity.

The difficulty facing the AER is to identify what cross-checks might provide relevant information, and how it should use such information when making its decision(s). Each potential cross-check has

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[217] AER, *Rate of return, Overall Rate of Return, equity and debt omnibus, Final working paper,* December 2021, p. 119

[218] AER, *Discussion paper, the allowed rate of return, compensation for risk and the use of data when judgement is required*, February 2018, p. 10

limitations as the AER has discussed in its various RoRI 2022 Working Papers, in the 2018 RoRI and in its 2013 Better Regulation review.

Not surprisingly given the known limitations of individual cross-checks, the AER has changed its position over time on which cross-checks might be useful and what role such cross-checks could play in its decision making.

In its 2013 *Rate of Return Guideline*, the AER only considered RAB acquisition and trading multiples as cross-checks on the overall rate of return. The AER concluded that it will only monitor these two multiples over time to help identify any areas for future inquiry and research.[219]

In its *Final 2018 Rate of Return Instrument* decision, the AER reviewed four cross- checks for the total rate of return: 'historical profitability'; 'RAB trading and acquisition multiples'; 'investment trends' and 'financeability assessments'.[220]

The AER concluded that trends in both historical profitability and RAB multiples may provide useful 'contextual information'. The AER then explains its conclusions as follows:[221]

> *"we consider that the size of recent RAB multiples and historical profitability measures, together with a continued ability of service providers to raise capital, suggest the realised returns have at least been sufficient."*

The AER saw no role for investment trends or financeability assessments in the 2018 RoRI review.

The use of cross-checks in the 2022 RoRI became a prominent issue in 2020 following the AER's draft working paper on CAPM and alternative return on equity models.[222] While the AER made limited reference to cross-checks in this draft working paper,[223] many submissions highlighted the importance of cross-checks, particularly on the return on equity given the perceived limitations of the SL-CAPM model.

In subsequent working papers, the AER appeared to confirm its 2018 position on cross-checks. However, the AER modified its position in its December 2021 *Final omnibus paper* and its December 2021 *Information paper*.

The AER's preliminary position in its *Final omnibus paper* identified three cross-checks (RAB multiples; financeability testing and scenario testing), which may provide some relevant 'contextual information' and act as a 'sense check' of its final rate of return decision.

At the same time, the AER explicitly rejected the use of other cross-checks, including the use of historical profitability cross-checks that it had accepted as having some relevance in 2018 RoRI.

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[219] AER, *Better Regulation, Explanatory Statement, Rate of Return Guideline*, December 2013, p. 48

[220] AER, *Explanatory Statement, Rate of Return Instrument*, December 2018, p. 382

[221] Ibid, p. 387

[222] AER, *Rate of Return, CAPM and alternative return on equity models – Draft working paper*, August 2020

[223] The Brattle Group, *A Review of International Approaches to the Regulated Rates of Return*, June 2020, pp. 35, 59-60. The AER referred to cross-checks only in the context of its summary of the advice from the Brattle Group who suggested using cross-check based on alternative models to the SL-CAPM.

The AER's December 2021 preliminary position is reproduced from its *Final Working Paper* in the table below.[224]

Table 8-2 Summary of preliminary positions on overall cross-checks

Overall cross check	Preliminary position
Financeability tests	Open to using financeability tests in a contextual role
RAB multiples	May be useful as a sense check and trigger for further investigation into the regulatory framework
Historical profitability	No role in informing the overall rate of return
Investment trends	No role in informing the overall rate of return
Other regulators' rate of return	No role in informing the overall rate of return
Scenario testing	Open to using scenario tests in a contextual role

Source: AER

8.3   Overview of the CRG's position

The CRG agrees with the AER that cross-checks should not have a determinative role and should be used with caution. Generally, the value of any cross-check will be considerably enhanced if:

- a particular cross-check demonstrates a consistent trend over time relative to the modelled estimation of the rate of return and/or return on equity

- the different cross–checks all point to a similar conclusion, taken in the round

- the majority of network companies, representing a range of fuels, location, size and ownership structures all point to an under or over recovery of the rate of return

- the extent of any under or over recovery is material

During the AER's February 2022 Concurrent Evidence Sessions, some experts concluded that none of the proposed cross-checks could provide relevant information for the AER, largely because of the influence of factors other than the rate of return on the outcomes.

We see this as a dangerous, almost nihilist conclusion, which if adopted by the AER would leave no hope of the AER being able to evaluate its conclusions on the efficient rate of return. This in turn could adversely affect investor and consumer confidence on the 'fairness' or reasonableness of the AER's rate of return decision.

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[224]   AER, *Rate of return, Overall rate of return, equity and debt omnibus, Final Working Paper*, December 2021, Table 16, p. 124

However, we do not agree with all of the AER's preliminary conclusions on the relevant cross-checks. We also consider stakeholders would benefit from more clarity about the purpose of each cross-check and how the AER is using it.

We do not consider *ex ante* financeability testing, of the sort carried out by regulators such as IPART[225] and Ofgem[226], to be applicable to a standalone rate of return. We note the *ex post* financeability test of extant rate of return decisions, and agree that this constitutes some evidence that those decisions have provided NSPs with at least an adequate rate of return. Nonetheless we caution against over-reliance on a single financeability metric.

We consider RAB multiples capable of supplying similar evidence, i.e., that past rate of return decisions have provided NSPs with at least an adequate rate of return. This is a far lower bar than using them to reverse engineer the correct rate of return, which is our understanding of the basis of NSP critiques of this cross-check. We urge the AER to carry out this cross-check using plausible indicative ranges for the factors that could result in RAB multiples greater than one.

We are disappointed in the exclusion of historical profitability. However, we recognise the challenges in constructing an appropriate analytical framework for using this evidence as a rate of return cross-check. Given its importance to customers in evaluating the overall framework, we recommend that, at a minimum, it constitutes a qualitative "conditioning variable" that the AER takes into account when applying its judgment.

We agree that scenario testing can be a useful cross-check, particularly in the context of both the current market volatility and the structure of the RoRI with impacts on some networks' revenues out to 2031. We consider that there are two key types of inputs: options and forecasts:

- The options used in the scenarios should reflect open options for parameter estimates.

- The forecasts should reflect a range of potential future states with respect to relevant macroeconomic variables.

However, care must be taken in selecting the relevant forecasts to ensure scenario testing is applied symmetrically. The AER should also clarify how it seeks to interpret the output of scenario testing.

The CRG supports the AER's conclusion to exclude investment trends and other regulators' decisions as cross-checks and the AER's reasoning on these conclusions.

The CRG also recommends that the AER develop a suite of 'consumer based' cross-checks.

We expand on these points in Sections 8.4 and 8.5 with reference to expert advice prepared by Professors Grahame Partington and Stephen Satchell for the CRG on the potential use of cross-checks in determining the allowed rate of return.[227] Their report is included as an attachment to our advice.

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[225] IPART, *Review of our financeability test, Final report*, November 2018

[226] Ofgem, *Decision*, 'RIIO-2 Final determinations – Finance annex (Revised)', February 2021

[227] Partington, G., & Satchell, S., *Report to the CRG: AER Cross checks*, March 2022

8.4 Financeability tests are not fit for purpose and require further consultation

The CRG contends the AER's preliminary position on the value of 'financeability tests' is difficult to interpret.

While the AER posits that financeability tests can provide some relevant information on a hypothetical NSP's ability to raise debt at a benchmark credit rating. Alternatively, it reinforces its 2018 decision and provides a convincing list of reasons on why financeability tests should not be used as a cross-check to the allowed total rate of return.

The AER's discussion also alludes to two uses of financeability tests without properly distinguishing between them. The first use is as an *ex ante* assessment of whether a proposed regulatory decision is "financeable". This is how financeability testing is carried out by other regulators, such as IPART, Ofgem and Ofwat. The second use is as an *ex post* test of outcomes arising from previous decisions, such as the FFO/debt exercise carried out by AER and reported on in its *Final omnibus paper*. These are different propositions, especially in the context of the binding rate of return. Accordingly, we consider them separately.

8.4.1 CRG's position

The CRG's position on *ex post* financeability tests reflects general concern with the use of these tests in the 2022 RoRI. They are:

- The intrinsic limitations of the tests, most particularly in the context of a binding rate of return.

- The practical difficulties of developing and implementing a set of financeability tests at this point in time, including the lack of opportunity for sufficient consultation. The devil is in the detail in terms of which tests to apply, to which businesses and how they might be used.

- The purpose of the tests, and the regulatory duties or goals that drive them.

In 2018, the AER defined financeability as follows:[228]

> *"a service provider's ability to meet its financing requirements and to efficiently raise new capital".*

We are not clear how this could be tested with reference to a proposed RoRI rather than to a regulatory settlement as a whole. The AER's further analysis to date, including its participation in the Transgrid rule change proposal,[229] largely bear out its 2018 conclusion that financeability was first and foremost a matter for the individual businesses and their investors. With this in mind, it is surprising that the AER still has an open position on this matter.

In the next Sections we review a range of approaches to financeability testing, including IPART, NERA proposals on behalf of NSPs and UK regulators, Ofgem and Ofwat. These illustrate the challenges in using financeability in the context of the AER's current regulatory task. Section 8.4.6 sets out the views of Partington and Satchell.

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[228] AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 392

[229] *AER submission – Draft Rule Determination (Participant derogation – Financeability of ISP Projects (TransGrid and ElectraNet) Rule 2021,* March 2021

8.4.2   IPART's approach to financeability testing

IPART introduced financeability tests in 2013, calculating three financial ratios. These were interest coverage ratio, debt-gearing and Funds from Operations (FFO) divided by debt ratio.[230] IPART conducted a detailed review of these tests and their implementation in 2018.

IPART's 2018 review highlights the complexity of selecting the target businesses and the associated measurement and implementation issues. For example, IPART's 2018 review suggests that:

- The financeability tests should be conducted on both the benchmark efficient entity (the 'notional' business) and the actual businesses' financial positions.[231] The three tests identified in the 2013 review were applied to the notional benchmark business, and separately for each of the actual business it specified. [232]

- The assessment should be limited to quantitative measures and exclude the qualitative factors, albeit these are a significant component of the credit rating agencies assessments.[233]

- Some of the revenue-regulated businesses are **not** included. The criteria for selecting businesses to apply the financeability test includes:[234]

    o   The prices IPART regulates determines the revenues of the service provider

    o   The provider is established as, or part of, an entity with a distinct capital structure.

- If a financeability concern is identified, then the source of the issue must be identified before a remedy can be applied, which may involve a review of the return on equity but could also involve an NPV neutral adjustment of the allowed revenues (if the concern is a temporary cash flow issue).[235]

The CRG notes some significant differences between IPART and the AER:

- IPART is applying multiple tests, reducing the reliance on a single metric

- IPART is applying them to an overall network, whether using modelled or actual inputs, while the AER is only developing a rate of return instrument in this review

- IPART also includes clear criteria for assessing which of the regulated businesses it would apply the test to; the application of the test to both the notional network (the BEE) and the actual businesses; and how it would respond to the outcomes of the test.

IPART's approach also highlights the limitations of the exercise. The purpose of financeability tests is ultimately to reconcile the regulatory settlement to the benchmark credit rating. But the credit rating is arrived at through a combination of quantitative and qualitative factors. By ignoring the

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[230] IPART, *Review of our financeability test, Final report*, November 2018, p. 37

[231] Ibid, p. 16

[232] Ibid, p. 36

[233] Ibid, p. 20

[234] Ibid, p. 18

[235] Ibid, pp. 60-68

qualitative factors, IPART is only carrying out a partial financeability assessment, and making it harder to reconcile its results to the way ratings are actually determined.

IPART's 2018 review of the financeability tests illustrates the complexity of the process of implementing a balanced set of tests and defining ex-ante the appropriate response to the results of the tests.

Importantly, IPART has developed the financeability tests after **extensive consultation** with stakeholders on the details of the tests and their application in 2013 and again in 2018.

The AER has not conducted such consultations, nor does it appear the AER plans to do so. It is therefore inappropriate for the AER to introduce such tests at this stage in the 2022 RoRI process.

8.4.3   The NERA report

The AER also refers to an ENA commissioned NERA Economic Consulting report from December 2020 which also recommends the AER implement 'financeabilty tests. NERA for instance, states as follows:[236]

> *"Regulated entities are judged not financeable if they are unable to achieve a credit-rating consistent with the benchmark cost of debt in the allowed RoR*
>
> *…*
>
> *It is difficult to identify a reason not to conduct a financeability testing as part of the regulatory toolkit"*

Although NERA claims financeability tests are relatively simple to implement, other sections of its report suggest that much work has to be done before a regulator could consider implementing appropriate financeability tests. NERA states the financeability testing framework would need to include:[237]

- definition of the target entity for the test (the BEE, or the actual financial position of the NSPs)

- methods for assessing financeability, including a reliance on purely quantitative ratios or inclusion of qualitative factors

- frequency and timing of the test, including whether it would take place during the reset process and/or when designing the RoRI

- approach to take when and if regulated entities fail a financeability test.

While the CRG disagrees with NERA's conclusions on the value of financeability testing, we also support the need for a transparent implementation framework covering the matters identified by NERA (above). The AER has not investigated these issues and in our view, it is inappropriate to include financeability tests in the 2022 RoRI without further consultation on each of these matters.

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[236] NERA, *Role of financeability in promoting the long-term interests of energy consumers,* December 2020, pp. 1-2

[237] Ibid, p. 2

8.4.4   Ofgem's use of financeability testing

The proponents of financeability testing also highlight their use in the UK in the regulatory revenue determinations made by Ofgem and Ofwat.

However, the requirement for financeability testing arises in a different context from the AER – the tests were designed primarily to protect consumers by requiring the businesses to:

• Ensure their proposed business plans were financeable

• To demonstrate what actions they would take in the event that there was an issue

• To first look at lower cost actions to achieve financeability before promoting a change in Ofgem's notional rate of return.

In Ofgem's recent RIIO-2 process, stakeholders were critical of many of the energy networks' business plans. One criticism was that these businesses claimed their plans were <u>not</u> financeable and the only remedy was a higher return on equity than the regulators' proposed range (4.3% to 4.55%).

For example, the RIIO-2 Challenge Panel responded to the networks' draft business plans in 2020 as follows:[238]

> *"Financeability is largely interpreted –correctly in our view – as a need to satisfy debt rating agencies (and lenders) requirements. However, as drafts [network business plans] have been refined we have noticed an increasing emphasis on 'equity financeability' i.e. stipulations in relation to returns to shareholders. The universally proposed solution to both problems is an increase in the Cost of Equity allowance with some companies setting out a requirement for a Cost of Equity allowance very substantially in excess of 4.3/4.8% despite it being clear from their own analysis that their Plans can achieve target ratings for both their Notional and Actual companies with a Cost of Equity allowance at that level."*

8.4.5   The AER's preliminary position on financeability is unclear

Following the continued strong advocacy by the networks and investor groups for a financeability test to be included as a cross-check on the overall rate of return, the AER's suggested that such tests 'can help'.[239]

However, the AER's position remains equivocal. For example, the AER highlights the disadvantages of such a test and appears to confirm its position set out in the 2018 RoRI given the absence of substantive new material. The AER summarises these disadvantages of financeability testing as follows:[240]

• It is not clear whether a regulator has an active role to play in addressing financeability issues for example, by changing benchmark gearing

• The regulatory allowance is fairly insensitive to the level of gearing

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[238]   RIIO-2 Challenge Group, *Independent Report for Ofgem on RIIO-2 Business Plans,* January 2020, p. 49

[239]   AER, *Rate of return, Overall Rate of Return, equity and debt omnibus, Final working paper*, December 2021, p. 124

[240]   AER, *Rate of return, Overall Rate of Return, equity and debt omnibus, Final working paper*, December 2021, pp. 125-126

- Regulated businesses tend to be part of larger groups and may potentially have financeability issues for many reasons

- Rating agencies assess firms' actual (and not regulated) cash flows against firms' actual debt, making the notional financeability assessment removed from the actual assessment performed by rating agencies.

- The cash flows from the allowed rate of return is also just one component of the regulated cashflow

- It is not appropriate to undertake financeability assessment using the actual costs of a service provider, which may be inefficient

- There is no universally agreed publicly available methodology for financeability assessment.

- Available methodologies are complex and look at many metrics and qualitative factors that are subjective. Financial metrics, including FFO/net debt are only one part of the assessment.

We identified similar concerns in our advice[241] on the AER's Draft overall omnibus[242], particularly with the networks' proposal to use a single measure (FFO/Net debt).

In 2018 the AER considered these were sufficient reasons to reject the use of financeability tests. Given these multiple significant disadvantages, the CRG does not understand why the AER indicated – late in 2021 – that unspecified financeability tests may 'help' by providing contextual information. Nor is the AER clear about what this 'contextual information' would mean in practice or how it would influence its decision.

8.4.6   Partington and Satchell's expert advice

The CRG has also sought advice from Partington and Satchell on cross-checks.[243]

With respect to financeability tests, and particularly the FFO/Net debt tests, Partington and Satchell conclude that the financeability tests fail the 'fit for purpose' criterion.[244] More specifically, they advise the CRG as follows:

- Use of a single FFO/debt test for financeability is not appropriate; it does not capture all the relevant criteria, and for example, FFO/net debt carries only a 12.5% weighting in Moody's credit rating schema.

- If financeability tests are used, there should be reference to other factors that affect financeability such as depreciation allowances, and the policy decisions that networks, including the benchmark efficient entity (BEE), might use to deal with financeability issues.

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[241] CRG, *Advice to the Australian Energy Regulator CRG Response to the AER's July 2021 Draft Working Papers: The Overall Rate of Return, Debt Omnibus and Equity Omnibus Papers Volume 1: Technical*, September 2021

[242] AER, *Rate of return, 'Overall rate of return'. Draft working paper*, July 2021

[243] Partington G., and Satchell S., *Report to the CRG: AER Cross Checks*, March 2022

[244] Ibid

- Financeability tests cannot be used for assessing the financeability of the hypothetical BEE as the specification of the financial policies of the BEE is 'substantially incomplete'. Partington and Satchell state:[245]

    "We argue that a hypothetical analysis of credit rating effects based on the hypothetical efficient leverage ratio of a hypothetical efficient benchmark entity does not have fully specified polices, has little or no value. To begin with, we argue that no one knows what the true optimal leverage ratio for the benchmark efficient entity is, and that furthermore the assumed leverage ratio is not critically important to the WACC."

- If financeability testing was used as a basis to adjust allowed returns, then it should adjust allowed returns in a symmetric way, i.e., upwards (if credit metrics deteriorate) and also downwards (as credit metrics improve). However, Partington and Satchell regard this as a moot point given their overall opposition to the relevance of the tests in the context of the AER's rate of return decision.

8.4.7 *Ex post* financeability testing

The AER applied a single financeability metric: FFO/net debt in the 2018 Instrument process. They concluded that: "*no change in the benchmark gearing was necessary and our rate of return estimate was sufficiently high*".[246]

The AER has now repeated this exercise and published the results as an overall average and for individual NSPs.[247] The results are instructive. Firstly, FFO/net debt has on average dropped by 12bp from 2018-2021. Over this period, the average return on equity has fallen by around 120bp as the 2018 Instrument has been progressively applied. The current average of FFO/net debt 8.32% is well above the AER's indicative threshold of 7%. So, this exercise indicates both that: the NSPs' preferred financeability measure (FFO/net debt) is relatively insensitive to changes in the rate of return; and the AER's proposed threshold for the ratio is comfortably met.

The individual results are also interesting: there is a large range of individual ratios, and some NSPs have a higher ratio in 2021 than 2018 even when their allowed rate of return has dropped markedly. This further indicates that this metric is driven by factors other than the allowed rate of return. Accordingly, this reinforces the paucity of relevant information such metrics contain for evaluating a RoRI.

This exercise is closer to the kinds of financeability tests carried out by other regulators because it utilises the post-tax revenue models (PTRMs) of the NSPs as the Instrument is applied to them. This is not possible for ex ante tests on a binding rate of return, because the AER has not yet developed the PTRMs for the future regulatory periods to which the rate of return can be applied. It also has some relevance to the current instrument. Since it is notionally testing the previous Instrument, and since that Instrument is a starting point for the current review, it gives the AER and stakeholders some comfort,

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[245] Ibid, p. 17

[246] AER, *Rate of return, Overall Rate of Return, equity and debt omnibus, Final working paper*, December 2021, p. 126

[247] Ibid., Appendix B

However, it still has limited value. It is only a single metric and the criticism of reliance on a single metric outlined in the previous Section still applies. Moreover, it is not clear what the AER could or would do if the metric had fallen below its threshold, although the implication of reviewing existing regulatory settlements is that it would do nothing.

Finally, and importantly from a consumer perspective, it is asymmetric, as there is only a lower threshold, not an upper one. As such, we caution the AER against undue reliance on this exercise.

> **The problems with the financeability tests identified by the AER and confirmed by Partington and Satchell are so significant that the tests are not fit for purpose.**
>
> **Equally important, the proper implementation of financeability tests goes well beyond such simple measures as FFO/Net debt, however appealing that simplicity.**
>
> **If the AER were to introduce this test, it must be only after a thorough and separate review that addresses all the matters investigated by IPART in its 2018 review, and those summarised by NERA in their 2020 report to the AER**

8.5   RAB multiples are important for assessing investor expectations

Like independent investors and consumer representatives, the CRG believes that RAB multiples can also provide additional and relevant information.

The main reason for discounting the role of observed RAB multiples appears to be based on the NSG view that RAB multiples reflect other factors, not just the expected rate of return – but this is true of all the cross-checks, including financeability assessments:[248]

> *"Transaction multiples (RAB, EV/ EBITDA) are of no value in testing the overall rate of return. These multiples include revenue from unregulated services and unregulated businesses and do not recognise the costs and value that might be particular to the firm, corporate structure or tax status that is unrelated to the regulated NSP or provision of regulated services. We note that transaction multiples are commercially sensitive and, in our experience, not publicly disclosed by an acquiror or its target. Therefore, when reported publicly, these multiples are inherently unreliable as they can be influenced intentionally by the interests of the usually undisclosed source and be based on a range of varying methods, assumptions and opinions."*

It is sufficient here to refer to Darryl Biggar's 2018 report to the AER, which examines many of the factors that may contribute to high RAB multiples.[249] Biggar provides a detailed analysis of RAB multiples. Having accepted that a high RAB multiple is not immediately cause for concern, Biggar comes to an important conclusion:[250]

> *"However, this does not mean that RAB multiples have no role in regulatory processes. A high RAB multiple is a reasonable trigger for further investigation, to rule out potential flaws of defects in the regulatory regime. If, after accounting for other possible factors, the RAB multiple is materially and persistently above one, the analysis in this note suggests that **this***

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[248] NSG, *Response to AER RORI Omnibus papers*, 3 September 2021, p. 5

[249] Biggar D, *Understanding the Role of RAB Multiples in Regulatory Processes*, February 2018

[250] Ibid, Section 1, pp. 1-2

> *RAAB multiple information can be used in regulatory proceedings to adjust the regulatory–allowed cost of capital downwards." [Emphasis added]*

The AER's analysis of RAB multiples meets these criteria of being 'material' and 'persistent'. Figure 8-1 below, reproduced from the AER's, September 2021 *Electricity network performance report* illustrates this point.[251] The CRG suggests this data on RAB multiples cannot be ignored or assigned to simply a role as a 'sense-check'.

Figure 8-1: AER regulated networks – transaction and trading multiples

Source: Morgan Stanley Research, AER analysis.
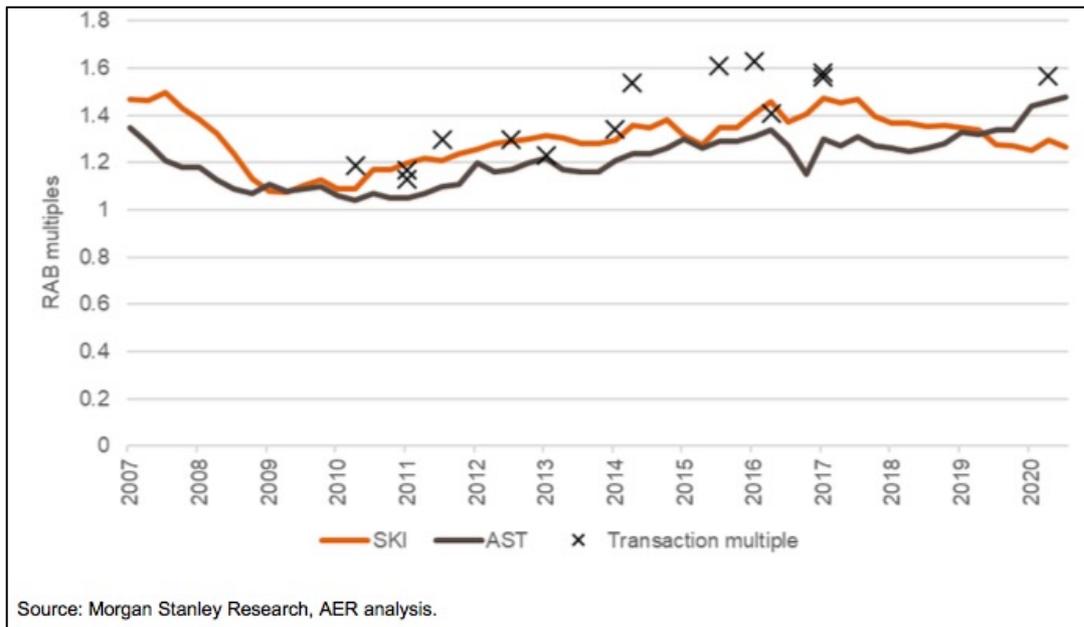
In addition, it is important that the cross-checks are considered collectively. The RAB multiples provide information on forward-looking investor expectations, while the historical profitability metrics provide information of past and current profit outcomes.

Together, they tell a powerful story of material and persistent outperformance by the networks.

With the rate of return contributing to some 50% of the regulated revenue allowance, it is far too simplistic for a regulator to say … "oh well, it could be this or that causing this result and therefore we can't take it into account in any substantive ways." [252]

The CRG considers that the decomposition of a RAB multiple is possible, and that the onus is on the AER, rather than consumers or other stakeholders to carry out such analysis. The AER is better resourced and has information-gathering powers not available to other parties.

There are relatively few factors that would materially affect RAB multiples, and the AER should be able to estimate plausible ranges for each of them. We note for instance, that the most recent sales of STI and AST. The revenue and profits of these businesses (data which is readily available to the AER) are very largely (around 90%) made up of revenue and profits generated from their regulated

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[251] AER, *Electricity network performance report*, September 2021, Figure 3-14, p. 29

[252] For the avoidance of doubt, the CRG is not suggesting that the AER adopts this approach. We are simply noting a more general view that because the measures are not individually perfect, they should be dismissed collectively.

networks. For this reason, explanations/excuses that refer to the problem of non-regulated revenues are largely irrelevant.

This disaggregation should provide a residual multiple range. If this is centred around one or above, then this is some evidence that expected rates of return are at least adequate. Absent a strong signal from the AER of material change in its approach, the rational expectation of a purchaser of NSP assets is that the current approach will continue into the future. Accordingly, RAB multiples also serve as a cross-check on current rates of return.

8.5.1   Consumer perspectives

In our engagement with consumer representatives, the value of looking at outcomes such as RAB multiples was consistently raised as the kind of cross-check they expect the AER to be carrying out:

> *"There is some evidence that the current settings are working because networks are still investing, they're still looking to get significant amounts of capital in each of their resets. And when assets are being sold we see that there's quite a significant premium over the asset base in the purchase. So they obviously consider that the cash flow is going to be positive. So I think there is evidence that says that what we're doing at the moment is good enough and you don't have to change." (Consumer representative interview, January 2022)*

> *"I think that there is evidence that there is no problem because we're still seeing the investment going on and the purchase of assets." (Consumer representative interview, January 2022)*

Independent investors we interviewed have similarly indicated that such data is important, and that cross-checks such as RAB multiples should also be relevant to the AER:

> *"In considering the value of an equity investment in regulated assets, I think that it is reasonable for the regulator to take into account RAB multiples in past sales.'' (Independent Investor Interview, August 2021)*

> *"Should the AER take account of transactions with high RAB ratios? The answer is yes in a sellers' market the CRG should be strongly pursuing your side of the argument. I would even say under the current rate of return if transactions are being done at 1.5 times RAB, you are obviously paying enough.''*

8.5.2   Advice to the CRG from Partington and Satchell

Partington and Satchell conclude:

> *"using RAB multiples as a cross-check meets all eight of the AER criteria, with the qualification that robust modelling will be challenging. Additionally, the analysis of RAB multiples will help meet the CRG criterion of engendering consumer confidence in the regulatory framework, and this is important."[253]*

> *"The substantial RAB multiples suggest that either the allowed rate of return is at least adequate, or overly generous, or that investors are buying something else that more than compensates for any shortfall in the AER's allowed return. If the latter is the case, it would be*

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[253] Partington G., and Satchell S., *Report to the CRG: AER Cross Checks*, March 2022, p. 9

> *of interest to consumers and presumably the AER to know exactly what that something else is."*

They consider a range of recent transactions and point out that many of the usual reasons advanced for RAB multiples greater than one do not appear persuasive.

> *"In the case of Ausgrid and AusNet it hardly seems that the something else can be the unregulated segment of the business. Our understanding is that for these businesses, unregulated activities are a small component of the total business. Unregulated revenue for Ausgrid has been about 5% of total revenue and for AusNet about 15% of total revenue."*

> *"It is interesting that very substantial premiums are being paid in these bids because the usual reason for a control premium, gains from synergy/restructuring, seems unlikely to apply in the case of portfolio investors like pension funds".*

If the AER is to be sure it has made an unbiased decision, and will do so in the future, it must consider this real-world data on historical profitability and RAB multiples together. Together, the current data provided by the AER indicates:

- **the businesses are receiving a rate of return that is at least sufficient for a benchmark efficient entity (BEE) to deliver the regulated services; and**

- **it is more likely than not that the networks continue to over-recover their expected revenue of which the allowed rate of return is an important contributing factor**

8.6   Historical profitability has a role to inform the AER's 2022 RoRI

In its *Final omnibus paper*, the AER argues that historical profitability cross-checks do not provide any additional useful information for the AER's rate of return determination.[254]

However, for example, the AER's recent December 2021 *Gas Network Performance Report*,[255] includes assessments of metrics such as the historical return on assets and return on equity. The Report includes a table setting out how these two metrics were advancing regulatory objectives such as: 'improve transparency'; 'improve accountability' and 'inform consideration of the effectiveness of the regulatory regime'. The AER explains:[256]

> *"Our analysis in this report is intended to support consideration of how the regulatory regime contributes to network performance and outcomes. We aim to explore where actual outcomes depart from forecasts or trends, whether this is widespread and what implications that has for our regulatory approaches."*

This points to the need for the AER to focus on continuing to refine these measures of historical profitability by identifying relevant drivers (including the rate of return) of over (or under) returns, rather than dismissing the value of such measures.

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254 AER, *Rate of return, Overall Rate of Return, equity and debt omnibus, Final working paper*, December 2021, p. 133

255 AER: *Gas Network Performance Report*, December 2021

256 Ibid, Table A-1, p. 73.

Therefore, despite the limitations of historical financial performance cross-checks, the AER's continued development and monitoring of financial performance measures provides a body of relevant evidence to guide the AER's rate of return decision in 2022.

In addition, the value of this information has been enhanced by the AER's efforts since 2018 to enhance the quality and consistency of the financial data, disaggregate the drivers of over and under recovery and identify trends in the financial results going back to 2014. The CRG applauds the AER's efforts in this area.

Such information must be pertinent to the AER conducting an open-minded review of its current decisions on the rate of return and how it has exercised its judgement.

We also emphasise the forceful and consistent case put forward by consumer representatives on the importance of the AER conducting cross-checks of 'real world' outcomes. For example:

> *"Surely one of the only ways your thinking can evolve is if you've done some sort of ex-post analysis … We do an awful lot of work, like we're doing at the moment, in an a priori sense; yet, at the end of the day, nobody sits down and says does an ex-post evaluation of all those decisions and finds out 'well did we get it right; if so, why and if not, how can we improve?".*
> *(Consumer representative interview, January 2022)*

We recognise the challenges in constructing an appropriate analytical framework for using historical profitability as a rate of return cross-check.

This was also Partington and Satchell's conclusion. However, they note that "*the network performance documents suggest a contrary review".[257]* This indicates that the AER should provide an indication of what it <u>can</u> do with the information contained in the network performance reports, in order to reassure consumers and their representatives who are dismayed by what they see as material and persistent over-recovery by NSPs.

Some of the AER's response may take place outside the RoRI framework given that the outperformance may come from factors other than the way the rate of return itself is set. Within the rate of return framework, it can be used as a qualitative "conditioning variable" when the AER is making its overall decision, as it indicates a diminished risk of adverse outcomes if the AER's decision is inadvertently lower than the true rate of return. Conversely, if the AER's decision is inadvertently higher than the true rate of return, then this only exacerbates the tendency of the framework to deliver excess returns.

> **We recognise the challenges in constructing an appropriate analytical framework for using historical profitability as a rate of return cross-check. Given its to customers in evaluating the overall regulatory framework, we recommend that, at a minimum, it constitutes a qualitative "conditioning variable" that the AER takes into account when applying its judgment.**

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257 Partington G., and Satchell S., *Report to the CRG: AER Cross Checks*, March 2022

8.7   Scenario testing is relevant but must be carefully designed

As noted above, the CRG in principle supports scenario testing, particularly in the context of uncertain future developments and the structure of the RoRI where decisions in 2022 will have impacts on the revenues of some networks (and their customers) until 2031.

To this extent, we support the ENA's assessment of scenario testing. The ENA's submission states the purpose of scenario testing as follows:[258]

> *"The key role of scenario testing is to provide the AER and stakeholders with a degree of confidence that its RoRI is expected to produce reasonable allowances in a range of scenarios that might reasonably be contemplated. This is particularly important in the setting of a binding instrument.'*

We also appreciate the ENA providing an Excel based example of its proposed scenario testing framework. While the model is relatively simple for stakeholders to use, it is not appropriate for the AER to co-opt a particular stakeholders' scenario analysis.

The AER should design its own scenario testing. The primary purpose of this should be to illustrate the relative impacts of the different options for parameter estimation that remain open to the AER. For example, these might include:

• Five-year versus ten-year risk-free rate

• Application of the capex -weighted trailing average versus equal weighting

• Options 1-3 for estimating the MRP

• Short-term versus long-term estimates of beta

• Any proposed alternative benchmark gearing level versus the current level.

In some cases, there may be further sensitivities, for example Option 3 for the MRP could be based on a wide range of different DGMs. This would illustrate the range of outcomes that could be expected across the different options. In each case the full impact on the rate of return should be considered, including any second-order effects.

This exercise would assist the AER in satisfying the CRG's Principle 3: testing for any detrimental outcome on prices (whether the AER should go as far as converting the differences in rate of return into bill impacts is an open question, but this would likely assist customers in evaluating the impact of different options on them).

To evaluate the quantitative impact of some parameters, the AER may also need to select a range of forecast macroeconomic variables, such as inflation, interest rates etc. The selection of these aspects of the scenarios should be done with great care, in order to present an unbiased picture of the potential range of outcomes.

 As with financeability there is a risk of scenario testing being a one-way street, that it only highlights problems with the rate of return, and so the only possible outcomes are no change or an increase in the allowed rate of return. The AER needs to consider how it can conduct scenario testing in an

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[258] ENA, *Overall rate of return, Response to AER's Pathway to 2022 Rate of Return Instrument: Draft Overall Rate of Return Omnibus Working Paper*, 3 September 2021, p. 41

unbiased and symmetrical way, so that if it is possible for the outcomes of the tests to result in an increased rate of return, it is equally possible that it could result in a decreased rate of return.

We conclude that while scenario testing is in principle unobjectionable, there are many practical difficulties in its application. These include the task of defining a reasonable range of scenarios and determining the actions that would follow the outcomes of different scenarios. We note the AER has yet to articulate how it would carry out these tasks.

> **If the AER is to include scenario testing as a cross-check, the CRG requests that the AER conduct a separate consultation process on the details of the tests and how it will use them within the RoRI framework.**

8.8   Consumer-based cross-checks

The CRG also recommends that the AER develop a suite of 'consumer based' cross-checks. As we have highlighted in previous advice to the AER,[259] the national energy objectives have two legs. They require the AER to consider both efficient investment in, and efficient use of, the energy network services.

We remain concerned that the current discussion on cross-checks is focussed exclusively on purported future investment outcomes without considering the impact on consumers and their 'efficient' utilisation of the energy networks.

There are a number of potential cross-checks the AER might consider and the CRG would welcome further discussions with the AER on these.

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[259]   CRG, *Advice to the Australian Energy Regulator CRG Response to the AER's July 2021 Draft Working Papers: The Overall Rate of Return, Debt Omnibus and Equity Omnibus Papers Volume 1: Technical*, September 2021

9   Other issues

9.1   Summary of CRG advice

The benchmark gearing does not require adjustment.

Absent further evidence and analysis, the AER should retain its assumptions regarding the utilisation of imputation credits.

The CRG has no recommendations for additional debt data providers.

The CRG has no suggestions for improvements to the return on equity cross-checks, given their limited role, but advises that comparisons to other regulators and market practitioners must be on a like-for-like basis in order to be meaningful.

Our summary advice in response to the questions in the AER's *Information paper* is below and the remainder of this Chapter constitutes a more detailed response.

AER question	CRG advice
31 Should hybrid securities be included in our analysis of benchmark gearing?	Not for this instrument.
32 Should we adjust benchmark gearing to more closely align with market data?	No. See Section 9.2 below.
33 Should we continue to assume that non-resident investors assign no value to imputation credits?	Yes. See Section 9.3 below.
34 Are there additional debt data providers that we should consider in setting the return on debt estimate?	No
35 Are there any improvements or changes that can be made to the application of the return on equity cross-checks at the point of making our 2022 Instrument?	No. See Section 9.5 below.

9.2   Gearing

The AER has maintained a benchmark gearing ratio of 60 per cent for some time (at least since 2013). This is a stable parameter that should not need to change unless there is evidence of a significant shift in efficient financing practice. In the overall rate of return draft working paper, the AER set out the changes in market and book gearing since its 2018 instrument.[260] Market gearing has been slowly declining since 2018, and for the sample of firms tracked, sits at 54% on a ten-year average.[261] Given the AER's preliminary position is to adjust benchmark gearing to more closely align with market data, this implies that the draft instrument may incorporate a gearing ratio of 55% (assuming some rounding). The CRG considers such a change is not necessary or desirable for the following reasons:

- The data is very thin. For recent years, it constitutes three listed entities, including APA. APA has consistently had lower gearing than the other two (SKI, AUS), but is the least like a standalone regulated network. The majority of its business is gas transmission pipelines, and it also has some ownership of electricity generation assets. If APA is excluded, the average gearing over ten years is 57%.

- While market gearing is the AER's preferred gearing ratio, it has some limitations. Market gearing can fall simply because the equity value of the business rises, for example because investors expect greater outperformance against the regulatory settlement. Book gearing has been very stable over the period. The ten-year average is 71% versus 70% at the time of the 2018 review.

- The impact of a 5% change has not been formally tested by the AER but is unlikely to be material. A report for the AER found that small changes in the cost of capital "plus or minus five percent, are likely to have little appreciable effect on the cost of capital for regulated networks".[262]

- This would create a challenging precedent given that by 2026, the AER may no longer have any meaningful market gearing data to align its benchmark gearing to. For 2026 it will have to develop a different basis for choosing a gearing ratio.

No further arguments or evidence for a change was presented in the AER's *Final omnibus paper*. With these points in mind the CRG does not see a sufficient case for change.

The above analysis does not account for the inclusion of hybrid instruments. However, there is also no further supporting analysis for their inclusion and so our position remains as stated in our submission to the draft omnibus paper that they should not be included.[263] A different approach may be appropriate in 2026 if their use becomes more widespread.

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[260] AER, *Rate of return, Overall Rate of Return, equity and debt omnibus, Final working paper*, December 2021, p. 37

[261] AER, *Rate of return annual update*, December 2021, p. 7

[262] Partington and Satchell, *Report to the AER: WACC and leverage*, May 2021, p. 27

[263] CRG, S*ubmission to the overall rate of return, equity and debt, vol. 1*, September 2021, p. 47

9.3   Imputation credits

The AER is proposing to maintain its 2018 position of assuming that non-resident investors assign no value to imputation credits. The CRG is not aware of any subsequent evidence or analysis that would support a different assumption. The ENA expressed a preference for a different method that placed more reliance on ATO data.[264] However, the published ATO response appears to offer to further insights than its earlier note, but simply incorporates two extra years of franking distribution data.[265] This data indicates stable ratios of franking distribution, but it does not constitute new evidence that would support a change in approach.

No further arguments or evidence for a change was presented in the *Final omnibus paper*.

Accordingly, the CRG agrees with the AER's proposed position. We further note that Dr Martin Lally has updated his analysis of ASX 50 distribution rates.[266] The results have not materially changed from 2018, and so we also consider that the AER should maintain the same value for gamma for the 2022 instrument.

We note that one of the reasons the AER has given for its approach to imputation credits is:

> *"We continue to expect a regulated firm will typically be a listed firm or owned by a listed firm and this firm will seek to distribute a large proportion of its credits to its shareholders in a manner consistent with the estimated aggregate distribution rate of listed firms".[267]*

Unfortunately, this is no longer the case for the firms the AER regulates, as a high proportion of private owners are now private equity firms or Australian or overseas superannuation/pension funds. This does not invalidate the AER's approach, but for the 2026 review, the AER will need to reconsider its expectations about network ownership.

9.4   Additional data providers

The CRG has no recommendations for additional debt data providers.

9.5   Improvements to RoE cross-checks

In the 2018 review, the AER utilised a series of cross-checks, including:

- Takeover/valuation reports
- Broker's return on equity estimates
- Other regulators' return on equity
- Comparison with the return on debt (on the basis that ERP > DRP)

Their role was to "inform the overall return on equity".[268] Given this very limited use, it is hard to specifically critique the review of these information sources. The CRG notes that for other cost of

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[264] ENA, *Response to draft overall rate of return omnibus working paper*, September 2021, p. 30

[265] ATO, Note: *Franking account reconciliation*, October 2021

[266] Lally, M., Estimating the distribution rate for imputation credits for the top 50 ASX companies, June 2021

[267] AER, *Overall rate of return draft working paper,* July 2021, p. 49

[268] AER, *Equity omnibus - draft working paper*, July 2021, p. 47

equity reference points to be meaningful, the AER should be confident that they are comparable, i.e., they have been produced under similar assumptions as the AER has applied in its RoE estimates. For example, if another regulator adopted the Wright approach, they would likely arrive at a higher RoE during periods of low-risk free rate and vice versa when the risk-free rate is high. In neither case does this indicate that the AER is wrong, simply that it has adopted a different basis for the RoE. A similar point could be made about drawing comparisons with market practitioners who use a long-run or blended risk-free rate rather than the AER's current approach of the prevailing risk-free rate.

No further arguments or evidence for a change was presented in the AER's *Final omnibus paper*. Accordingly, the CRG recommends the AER maintain the same approach, noting the limitations of such cross-checks as outlined above. In making the 2022 RoRI, the AER should endeavour to explain how it has considered these cross-checks, the cross-checks' role (or not) in influencing its estimates, and the reasons.

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Appendix A: Legislative framework

Table A0-1: NEL[269] provisions related to consumer engagement

Section	Provision	Relevance to consumer engagement
18I (3)	AER RoRI Obligation	Achievement of the national electricity objective to the greatest degree
18I5 (a)	AER must have regard to:	Revenue and pricing principles
18I5 (b)	AER must have regard to:	Other information the AER regards as relevant
18L (a)	AER must have regard to	advice, recommendations or submissions given by a consumer reference group;
18M (1)	Before making RoRI AER must	Establish CRG to help AER implement an effective consumer consultation process for making the proposed instrument

18N	Consumer Reference Group	(1) A consumer reference group for making a rate of return instrument--
		   (a) is to consist of the members appointed by the AER; and
		   (b) may carry out its activities, including giving advice or recommendations to the AER about the instrument, in the way it considers appropriate.
		 (2) Without limiting subsection (1)(b), the consumer reference group may--
		   (a) consult with consumers of electricity; and
		   (b) facilitate consumer engagement in the process for making the instrument; and
		   (c) make written submissions to the AER about the content of the instrument and the process for making it.
		 (3) The AER must publish on its website any written advice, recommendations or submissions given to it by the consumer reference group.

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[269] *National Electricity (South Australia) (New National Electricity Law) Amendment Act 2005*, 2005, South Australia

Table A-2: NEO/NGO consumer consultation elements, revenue and pricing principles and stakeholders identified by the Independent Panel[270]

Section	Provision	Consequence	Consultation
7	NEO/NGO promote efficient investment and operation and use of networks	In determining investment efficiency, the AER also needs to enquire into consumption efficiency	The firms and individuals who comprise the regulated industries: • Debt investors, equity investors • Managers and employees of regulated firms • Consumers large and small, and the practitioners who represent their interests before regulatory tribunals
7A(6)	Regard for costs and risks of under and over investment	Overinvestment or underinvestment could cause the allowed rate of return to deviate from the market cost of capital and the rate of return may not achieve the legislative objectives	The firms and individuals who comprise the regulated industries: • Debt investors, equity investors • Managers and employees of regulated firms Consumers large and small, and the practitioners who represent their interests before regulatory tribunals
7A(7)	Regard for costs and risks of under and over utilisation	Overutilisation or underutilisation could cause the allowed rate of return to deviate from the market cost of capital and the rate of return may not achieve the legislative objectives	The firms and individuals who comprise the regulated industries: • Debt investors, equity investors • Managers and employees of regulated firms Consumers large and small, and the practitioners who represent their interests before regulatory tribunals

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[270] *New South Wales Consolidated Acts, National Electricity (NSW) Law – Sect 18F Definitions, n.d.,*

Appendix B: Overlap between CRG principles and AER assessment criteria

The following table is reproduced from the AER's *Final omnibus paper.*[271]

Consumer Principles	AER assessment criteria & regulatory framework	AER considerations
Promote behaviours that engender consumer confidence in the regulatory framework	Reflective of economic and finance principles and market information: • this will also contribute to achieving our guiding principle on the long-term interest of consumers — an unbiased estimate of the expected efficient return, consistent with the relevant risks involved in providing regulated network services. Fit for purpose Implemented in accordance with good practice Models are based on quantitative modelling that is sufficiently robust and avoids arbitrary filtering Market data is credible, verifiable, comparable, timely and clearly sourced Flexible to allow changing market conditions and new information	• We believe that our regulatory framework including the application of our criteria and the long-term interest of consumers guiding principle will create consumer confidence because: • we are looking for a rate that is high enough to get the investment consumers want, but not so high as to cause prices higher than necessary and promoting efficient investment behind the meter • we adopt a principles based approach to assess (new) evidence in front of us through our assessment criteria which provides transparency to all stakeholders • assessing evidence in terms of theoretical foundation, good practice, and appropriate data contributes to making an estimate that is commensurate with efficient financing costs • takes a holistic view of our return on equity estimate and overall rate of return before settling on the overall rate of return, to 'sense check' whether our Instrument contributes to the achievement of the long-term interests of consumers • scenario testing and sensitivity modelling will assess the impacts on price levels.
• There should be a high bar to change	Materiality Longevity or sustainability of new arrangements	Hight [sic] bar for change will be met by us: • achieving the legislative requirements • applying our criteria of materiality, longevity, or sustainability. Applying all of our criteria will also lead to an approach that is stable and robust to changing circumstance

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[271] AER, *Overall rate of return, equity and debt omnibus. Final working paper*, December 2021, pp. 12-13

Consumer Principles	AER assessment criteria & regulatory framework	AER considerations
Test against consumer impacts on prices AND Test against impacts on service standards	Fit for purpose Materiality Longevity or sustainability of new arrangements	As noted above, the rate return, or cost of capital, is one component of a network's overall cost. Our approach allows for scenario testing and sensitivity modelling by which we will assess impacts on price levels.
Risks are borne by those best placed to manage them	Reflective of economic and finance principles and market information	We aim to set an efficient rate of return that contributes to the achieving of the NEO/NGO and have regard to the RPPs. Regulated businesses bear any cost (or benefit) of exceeding (or beating) this value. This is consistent with the CRG's principle.

Appendix C: Overview of CRG engagement activities

Engagement activities to date

Informing

To date the CRG has informed consumer representatives about its role and activities by:

- Preparing and publishing information sheets and bulletins on the AER website

- Presenting information to consumer representatives to RoRI matters

- Inviting and encouraging consumer representatives to attend AER public forums

- Providing basic information to consumers in its consumer surveys, including links to published information on the AER website

- Preparing background information for independent investment advisors

Consulting

- Undertaking surveys of residential and SME commercial energy consumers to gather evidence of their perspectives and support for the CRG's principles

- Initiating a presence on the Choice Community platform

- Meeting with ENA and AER Investor Reference Group representatives on several occasions to discuss aspects of the RoRI and consider areas of divergence and convergence

- Having "conversations" (semi-structured interviews) with independent investor advisors[272] to establish broader investor perspectives

- Undertaking semi structured interviews with major energy users

Involving

- Meeting with consumer representatives, individually and in group settings, to explore and understand their support for the CRG's principles and establish their perspectives on technical aspects of the RoRI and incorporated relevant aspects into its submissions.

- Initiated several "Ambassadorial meetings"[273] as part of an ongoing outreach program to representatives of business consumers, vulnerable customers and others, such as:

    ⊖ South Australian Council of Social Service (SACOSS)

    o Business SA

    o Chamber of Commerce and Industry Queensland

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[272] See Note 1

[273] These are CRG meetings with stakeholder groups unrelated to the AER's process. Our engagement aim is to broaden stakeholder awareness of the AER's RoRI process and the relevance to consumers of decisions, and also seek their feedback.

- Undertaking a workshop with consumer representatives to help inform the CRG's submission on the AER's three omnibus papers

- Consumer representative masterclass which:

    o Introduced participants who are new to rate of return issues to the types of discussions that surround the rate of return

    o Equipped participants with the skills to be able to contribute to rate of return consultations

    o Started to uncover possible consultation inputs on rate of return consultations among a broader group of consumer representatives

- CRG presentation on the RoRI to the Consumer Roundtable, through South Australian Council of Social Service

Ongoing engagement activities

The following engagement activities are ongoing, subject to CRG resources and priorities

- Additional interviews with independent investors to establish broader investor perspectives in relation to specific elements of the RoRI

- Additional interviews with major energy users to strengthen our evidence of their interests

Possible future engagement and research activities

The CRG continues to explore ways to consider aspects of consumption efficiency which to date, have not been addressed in detail by the AER or other stakeholders. This engagement and research may include investigating the impact of the AER's decisions on consumer-based outcomes such as trends in:

- Energy demand by different consumer segments and the drivers of any trend

- Over- or under-investment in and utilisation of the network and the drivers of any trend

- Residential, commercial and industrial energy consumers investment in distributed energy resources, energy efficiency equipment, grid disconnection.

- Overall social welfare and economic efficiency outcomes.

- NSPs access to debt and equity capital, and investment of this capital in network service levels

The CRG notes that the AER acknowledges in its *Rate of Return 2018 Explanatory Statement* that the legislation requires it to consider the 'twin" objectives of investment and consumption efficiency and goes to some length to respond to this.[274] In addition, the AER's May 2021 position paper on the long-term interests of consumers[275] acknowledges this is an area requiring further research. The CRG welcomes the opportunity for further engagement and research with the AER to pursue this outcome.

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[274] AER, *Rate of return instrument, 2018 Explanatory Statement,* December 2018, pp. 37-40

[275] AER, *Rate of return, 'Assessing the long-term interests of consumers', Position paper*, May 2021, pp. 5-6

Appendix D: Details of CRG's consumer research

Choice Community

The Choice Community is an online form where individuals and groups can post questions and topics for discussion. Choice has assisted the CRG in establishing its presence. The CRG is a learning phase with this form of engagement in terms of the content and tone of posts that will encourage meaningful engagement using this platform.

To date the CRG has posted the following:

1. *Post 1: Do you think energy prices are too high, about right or too low? (19 August 2021)*

    a. *Poll question: Do you think electricity and gas prices are too high, about right or too low?*

    b. *The Australian Energy Regulator (AER) is a government organisation that determines the amount of money energy networks can charge to efficiently build and maintain the networks.*

        i. *What do you know about the AER and how it works?*

        ii. *Do you think the AER is doing a good job in deciding network costs?*

2. *Post 2: What do you think the long-term interests of consumers are in relation to electricity and gas "poles and wires" network services? (23 August 2021)*

    The law and rules that sets out how much electricity and gas networks can charge for their "poles and wires" services says the objective is to meet the long-term interest of consumers.

    Questions

    - *Do you think the regulator is meeting the long-term interests of consumers in the way it works?*

    - *What do you think the long-term interests of consumers are in relation to electricity and gas "poles and wires" network services?*

    - *How would you know if the regulator is doing a good job?*

3. *Post 3: What do you think the long-term interests of consumers are in relation to electricity and gas "poles and wires" network services? (26 August 2021)*

    The AER in deciding how much to allow electricity and gas network service businesses to charge for their services, needs to take many things into account.

    When deciding on how much the network services can charge to provide their services, how important are the following consumer interests to you? Let us know your thoughts on the comments below.

    - *Affordable energy for all*

    - *Keeping prices as low as possible*

    - *Having a reliable energy supply*

    - *Fair prices*

- *Ensuring energy companies look after customers*

- *Ensuring energy companies operate as efficiently as possible*

- *Encouraging energy companies to invest in renewable energy*

Given only a small number of consumers posted replies to these questions, and their feedback is broadly consistent with survey findings, the CRG has not analysed or further reported on this feedback.

Consumer surveys

The CRG was responsible for preparing the questionnaires for Consumer Survey 1 and Consumer Survey 2. For both surveys, ECA, on behalf of the CRG, engaged Indeana to set up the online survey and facilitate the data collection. Indeana managed the age and gender quotas within State. Indeana sourced survey participants from the Researchify[276] online panel. The CRG has analysed the survey data and has produced a report on the findings from Consumer Survey 1.

In June 2021, the CRG conducted an *initial* online survey (Consumer Survey 1) of a representative sample of 1,000 residential energy consumers[277] and 200 commercial consumers[278] to establish:

- baseline data related to energy consumers' awareness and perceptions of regulatory processes and decisions

- expectations related to regulatory processes and decisions the AER makes on consumers' behalf.

The CRG believes this survey is the first of its kind,[279] and as such it provides valuable evidence to inform the perspectives of energy consumers' needs, interests and expectations. This survey also provides the CRG with a sound basis to identify areas where further research with consumers is appropriate, as well as framing its deeper engagement with consumer representatives who have a greater understanding of regulatory processes and decisions.

The CRG identified a series of high-level issues to test with energy consumers and developed the questionnaire. ECA, on behalf of the CRG, engaged Indeana to set up the online survey and facilitate

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[276] For details see https://www.researchify.com.au/wdyt-research-panel.

[277] Approximate residential quotas based on the proportions of households by State, according to the Australian Bureau of Statistics, *2016 Census of Population and Housing, Table Builder*, while Indeana established the age and gender quotas within each State

[278] In line with the ECA's small business definition applied to its *Consumer Sentiment Survey*

[279] We acknowledge the ECA regularly surveys residential and commercial energy consumers for its Consumer Survey. However, its focus is on "three key areas of [energy consumer] satisfaction, confidence, and activity", rather than the topics covered in this survey (https://energyconsumersaustralia.com.au/publications/energy-consumer-sentiment-survey-findings-december-2020)

We also acknowledge AER periodically undertakes a survey to monitor its performance from the perspective of those individual stakeholders and stakeholder organisations with whom it engages. However, this survey does not include the general population of energy users (https://www.aer.gov.au/publications/corporate-documents/aer-stakeholder-survey-2018)

the data collection. Indeana managed the age and gender quotas within State. Indeana sourced survey participants from the Researchify[280] online panel.

The CRG has produced a detailed survey report which it intends to share with the AER and other stakeholders when it has also finalised the results of Consumer Survey 2.

In August 2021, the CRG conducted a *follow-up* online survey (Consumer Survey 2) involving a sample of 1,500 energy consumers comprising 1,257 residential energy consumers and 240 SME commercial energy consumers. Three-hundred individuals who participated in Consumer Survey 2 had also participated in Consumer Survey 1.

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[280] For details see https://www.researchify.com.au/wdyt-research-panel

Appendix E: Details of consumer representative engagement

The following covers the main engagement activities with consumer representatives. In addition, individual CRG members have met with various other consumer and business representatives.

Consumer representative interviews, July 2020

Participants

Name	Organisation	About
Gavin Dufty	St Vincent de Paul (Vinnies) https://www.vinnies.org.au	Vinnies in Australia has more than 60,000 members and volunteers, who assist people in need and target social injustice across Australia.
Miyuru Ediriweera	Public Interest Advocacy Centre (PIAC) https://piac.asn.au	PIAC conducts test cases and strategic litigation in the public interest, and provides legal assistance, policy advice and training focused on the disadvantaged and marginalised.
Mark Grenning	Energy Users Association of Australia (EUAA) https://euaa.com.au	The EUAA is the peak national body representing Australian commercial and industrial electricity and gas users. EUAA membership covers a cross-section of the Australian economy including retail, manufacturing, mining, materials, and food processing industries.
David Headberry	Major Energy Users (MEU) http://meu.asn.au/about.html	Representing the interests of large consumers of energy with many regionally based members. The MEU seeks to also represent the interests of smaller power and gas users, including residential consumers in the regions.
Mark Henley	Uniting Communities https://www.unitingcommunities.org	Uniting Communities works alongside South Australians, supporting them to overcome adversity and disadvantage. It offers a wide variety of services including to families and children, Aboriginal people, people living with mental health issues and people living with disability.
Robyn Robinson	Council of the Ageing (COTA) https://www.cota.org.au	COTA's role is to promote, improve and protect the wellbeing of older people in Australia as citizens and consumers. It operates at national, state, and local level to represent, advocate for, and serve older Australians.

Interview questions

1. If a change in methodology leads to higher prices, should this impact be smoothed out and if so, how? For example, could the new methodology factor in a gradual transition?
2. If a change in models resulted in price shocks, are there transitional arrangements that could be put in place to protect consumers?
3. Do consumers prefer stability in prices so that they can predict the proportion of their bill relative to income – or do consumers prefer stability in terms of predictable bills from year to year?
4. How important is stability for consumers relative to higher or lower prices?

Consumer representative interviews, August 2020

Participants

Name	Organisation	About
Kellie Caught	Australian Council of Social Service (ACOSS) https://www.acoss.org.au/about-us/	ACOSS is a national advocate supporting people affected by poverty, disadvantage and inequality, and the peak council for community services nationally.
Miyuru Ediriweera	Public Interest Advocacy Centre (PIAC) https://piac.asn.au	PIAC conducts test cases and strategic litigation in the public interest, and provides legal assistance, policy advice and training focused on the disadvantaged and marginalised.
David Headberry	Major Energy Users (MEU) http://meu.asn.au/about.html	Representing the interests of large consumers of energy with many regionally based members. The MEU seeks to also represent the interests of smaller power and gas users, including residential consumers in the regions.
Georgina Morris	South Australian Council of Social Service (SACOSS) https://www.sacoss.org. au/	SACOSS is the peak body for the non- government health and community services sector in South Australia.

Interview questions

1. What do you expect from the regulatory framework in order to have confidence in it?

2. Is price an important priority for the consumers you represent? What else is important/ are these more important than price/about the same or less important?

3. Do you have views about the price - service quality/reliability trade-off and particularly what this means over a long-term horizon?

4. Are consumers placed to be able to manage financial risks if it means lower prices? For example, currently, the networks take some of the risk on inflation, would you accept that consumers be exposed to all of this risk if you had lower prices?

5. The AER used a modelled efficient benchmark cost of debt estimate - as a background, the estimates the AER is using now, are all calculated estimates and not real market observations. The AER is considering using an efficient benchmark estimate based on observations of actual market data. Would you have more confidence in this type of approach?

6. The movement towards enhanced market data by the AER may mean less transparency. Do consumers have concerns about data sets being confidential?

7. Do you have any other views on the technical issues the AER is raising in the debt paper?

Consumer representative interviews, September-October 2020

Participants

Individuals' names are intentionally not reported for this research as some individuals did not want to be named.

Organisation	About
Ai Group https://www.aigroup.com.au	The Australian Industry Group (Ai Group) is a peak national employer organisation representing traditional, innovative and emerging industry sectors. They have been acting on behalf of businesses across Australia for nearly 150 years.
Australian Energy Council https://www.energycouncil.com.au	The AEC represents 22 major electricity and downstream natural gas businesses operating in competitive wholesale and retail energy markets. These businesses collectively generate the overwhelming majority of electricity in Australia and sell gas and electricity to over 10 million homes and businesses.
Business SA https://www.business-sa.com	Business SA is South Australia's peak Chamber of Commerce and Industry and peak employer body.
Canegrowers Queensland https://www.canegrowers.com.au	Canegrowers is the peak body for the members of 13 local sugarcane grower companies in Queensland
Energy and Water Ombudsman of NSW (EWON) https://www.ewon.com.au	EWON is the NSW government approved dispute resolution scheme for New South Wales electricity and gas customers, and some water customers.
Energy and Water Ombudsman of Victoria (EWOV) https://www.ewov.com.au	EWOV resolves disputes between Victorians and their energy and water companies.
Energy Users Association of Australia (EUAA) https://euaa.com.au	The EUAA is the peak national body representing Australian commercial and industrial electricity and gas users. EUAA membership covers a cross-section of the Australian economy including retail, manufacturing, mining, materials, and food processing industries.
Major Energy Users (MEU) http://meu.asn.au/about.html	Representing the interests of large consumers of energy with many regionally based members. The MEU seeks to also represent the interests of smaller power and gas users, including residential consumers in the regions.
Total Environment Centre https://www.tec.org.au	TEC is an environment advocacy organisation based in NSW

Interview questions

1. What information do you use to inform your views about consumer perspectives?

2. What level of confidence and trust do you have in the networks on rate of return issues?

    a. If the networks make a claim, how reasonable do you think their claim is?

3. Do you believe the AER's decisions on rate of return are balanced or not?

    a. How much influence do you think networks have on the AER's decision making with respect to rate of return, compared to the consumers?

    b. Do you think there is an asymmetry of resources which impacts on overall influence?

4. Assuming your usage were to remain the same, how important are energy prices to:

    a. Households?

    b. Businesses?

5. Assume all the other components of the energy bill stayed the same, if network prices were to [increase][decrease], how do you think

    a. Residential consumers might respond in terms of behaviours, noting that network prices make up between 30-40% of bills?

        i. Why do you say that?

    b. Businesses might respond in terms of behaviours, noting that network prices make up between 30-40% of bills?

        i. Why do you say that?

6. [Technical question] The AER is considering if the approach to calculating the return on equity should be changed for the 2022 RoRI. In 2013, the AER relied on the Sharpe Lintner CAPM with input from the Black Capital Asset Pricing Model and Dividend Growth Model (DGM). In 2018, the AER relied solely on the Sharpe Lintner CAPM model. Now the AER is considering including the DGM again as they say it may enhance their forward-looking ability.

    a. How does this change of approaches impact on consumer confidence, noting that a change to incorporate the DGM is likely to lead to an increase in prices?

7. [Technical question] The AER is considering if the approach to calculating the return on equity should be changed for the 2022 RoRI. Changes to the rate of return may have impacts on consumer prices and to a lesser extent the level and quality of services provided.

    a. How do you feel about the following proposed change?

    b. The AER could look at the equity beta (the extent to which returns to equity for network businesses vary with market conditions in general), which may involve finding comparable firms that are publicly traded and use these as a proxy for regulated networks. While this in itself is not a change from the AER's current methodology, the equity beta could be lower or higher in the 2020 RoRI.
    Do you prefer keeping things as they are or would you be willing to accept a review of the equity beta, knowing that the outturn of such a review could result in a lower or higher equity beta and consequently lower or higher prices? [technical]

8. [Technical question] The AER could also look at how the market risk premium (the returns to the broader market) is calculated. In particular, the AER is looking at methodologies which are said to capture current market conditions better than the methodology they are currently using.

    a. Do you prefer these costs to be based more on current market conditions rather than being more stable and predictable based on historical experience, knowing that there may be times where the current cost (prices) may be significantly higher than long-term averages and at times be lower?

9. [Technical question] The AER framework is based on investor returns on long life assets, and therefore the basic parameters in the rate of return are based on ten-year projections. For example, the average equity returns over the period 2023 to 2033.

    a. Do you think that is the best approach?

10. One of the proposals on the table is annual updating of the risk-free rate. One hypothesis is that this would lower the risk for networks. If that were to be the case, should consumers get compensated for the risk of having to face additional changes to price levels year on year (over and above the existing annual changes)?

11. Do you think there is a fair sharing of risk between consumers and networks?

    a. If consumers are asked to bear more risk, should they be compensated?

12. Just thinking about the overall share market in Australia, how risky do you believe investing in regulated energy network companies would be compared to investing in other sorts of businesses.

    a. Why do you say that?

Consumer representative interviews, October 2020

Participants

Name	Organisation	About
Miyuru Ediriweera	Public Interest Advocacy Centre (PIAC) https://piac.asn.au	PIAC conducts test cases and strategic litigation in the public interest, and provides legal assistance, policy advice and training focused on the disadvantaged and marginalised.
David Headberry	Major Energy Users (MEU) http://meu.asn.au/about.html	Representing the interests of large consumers of energy with many regionally based members. The MEU seeks to also represent the interests of smaller power and gas users, including residential consumers in the regions.
Mark Grenning	Energy Users Association of Australia (EUAA) https://euaa.com.au	The EUAA is the peak national body representing Australian commercial and industrial electricity and gas users. EUAA membership covers a cross-section of the Australian economy including retail, manufacturing, mining, materials, and food processing industries.
Robyn Robinson	Council of the Ageing (COTA) https://www.cota.org.au	COTA's role is to promote, improve and protect the wellbeing of older people in Australia as citizens and consumers. It operates at national, state, and local level to represent, advocate for, and serve older Australians.
Gavin Dufty	St Vincent de Paul (Vinnies) https://www.vinnies.org.au	Vinnies in Australia has more than 60,000 members and volunteers, who assist people in need and target social injustice across Australia.
Mark Henley	Uniting Communities https://www.unitingcommunities.org	Uniting Communities works alongside South Australians, supporting them to overcome adversity and disadvantage. It offers a wide variety of services including to families and children, Aboriginal people, people living with mental health issues and people living with disability.

Interview questions

In its Draft Inflation decision, the AER is proposing a different way of estimating expected inflation.

The AER proposes to introduce a 'glide-path' towards the mid-point of the RBA inflation target of 2.5%, which would apply whether actual inflation is above or below the RBA target.

The AER also proposes to adopt a five-year estimate of expected inflation rather than the current ten-year estimate. The AER's Draft Position paper also discusses how a five-year estimate might be implemented.

If the AER immediately introduced a five-year estimation period with a glide path, this will significantly increase revenue to networks.

For example, a -five-year period with a glide path would increase Victorian distributors revenue by some $300 million (In real $ terms) over 5 years for the period 2021 to 2025. This is estimated to cost Victorian consumers $8/year on average (relative to the AER's existing approach).

On the other hand, if the AER introduced only a glide-path and kept everything else the same, the revenue to these Victorian distributors would increase by $75 million (NB: to be confirmed)

However, if expected inflation was higher than estimated by the AER using its current approach, consumers would benefit. Overall, we might expect wins and losses for consumers and networks to even out when taken over a longer period (2-3 regulatory periods).

Question 1: Overall question about change

- The AER's proposal will sometimes favour networks and sometimes favour consumers. On the swings and roundabouts, it should all even out. Implementing it now would favour the networks. Does that cause you any particular concerns?

- Why do you say that?

Question 2: Glide-path

- Thinking just about the AER's draft proposal to adopt a glide-path (which could be applied over five years or ten years); Do you think this would improve the AER's estimate of expected inflation in line with regulatory objectives.

- How do you think this glide-path should apply – under all circumstances or just for the current period?

- What should be the features of an effective glide-path?

Question 3: five versus ten-year estimation of expected inflation

- The AER has proposed to estimate expected inflation over 5 years with a glide path to the mid-point of the RBA's inflation target range.

Part A:

- Do you agree in principle with the AER on its proposal to adopt a five-year term for estimating average expected inflation in line with the regulatory period?

- Why do you say that?

Part B:

- The AER's proposal also includes a glide-path.

- Do you think a glide path would be necessary if the AER used a five-year term for its estimation?

Question 4: Implementation of a five-year approach

- The AER has suggested a number of ways that the five-year term for estimating expected inflation might be implemented. The AER has suggested four options We are interested in knowing your preferences. The four options are:

    1. Introduce the five-year term at the start of 2021 (along with a five-year glide-path).

    2. Introduce the five-year term at the start of 2021 but include a transition period say over 5 years to smooth the impact on consumers.

    3. Introduce the five-year term at a later date when consumers may be less exposed to network price increases.

    4. Introduce the five-year term in parallel with the AER's review of the Rate of Return Instrument, to be completed in late 2021.

- Which is your preferred approach? Why do you say that?

- Are there any other of the four options that would be reasonable? Why do you say that?

- If you preferred 2, 3, or 4, should the AER still introduce a glide-path from the start of 2021 to achieve a better estimate of expected inflation in its next regulatory decisions?

Consumer representative workshop, 9 June 2021

Participants

Name	Organisation	About
Jennifer Brownie and Phil Pollard	Queensland Electricity Users Network https://www.qeun.com.au	QEUN represents regional Queensland electricity users including local government, Chambers of Commerce, economic development organisations, retirees, tourism operators, irrigation farmers, dairy farmers, the mining industry and urban developers.
Gavin Dufty	St Vincent de Paul (Vinnies) https://www.vinnies.org.au	Vinnies in Australia has more than 60,000 members and volunteers, who assist people in need and target social injustice across Australia.
Mark Grenning	Energy Users Association of Australia (EUAA) https://euaa.com.au	The EUAA is the peak national body representing Australian commercial and industrial electricity and gas users. EUAA membership covers a cross-section of the Australian economy including retail, manufacturing, mining, materials, and food processing industries.
David Headberry	Major Energy Users (MEU) http://meu.asn.au/about.html	Representing the interests of large consumers of energy with many regionally based members. The MEU seeks to also represent the interests of smaller power and gas users, including residential consumers in the regions.
Chris Joseph	Independent	
Warren Males	Canegrowers Queensland https://www.canegrowers.com.au	Canegrowers is the peak body for the members of 13 local sugarcane grower companies in Queensland
Ian McAuley	Independent	
John Pauley	Council of the Ageing	COTA's role is to promote, improve and protect the wellbeing of older people in Australia as citizens and consumers. It operates at national, state, and local level to represent, advocate for, and serve older Australians.
Robyn Robinson	Council of the Ageing (COTA) https://www.cota.org.au	COTA's role is to promote, improve and protect the wellbeing of older people in Australia as citizens and consumers. It operates at national, state, and local level to represent, advocate for, and serve older Australians.

Agenda (1 hour session)

1. Welcome and introduction

2. Workshop aims and protocols

3. Context of these working papers

4. High level overview of working papers

5. Participant queries and reactions to the papers

6. CRG preliminary views

7. Question for participants: What would participants want to see to be satisfied the AER has acted in consumers' long-term interests?

8. Conclusion and next steps

Consumer representative workshop, 12 August 2021

Participants

Name	Organisation	Representing perspectives of …
Emma Chessell	Brotherhood of St Laurence https://www.bsl.org.au	Social justice organisation representing people experiencing disadvantage throughout Australia
David Havyatt	Independent	Independent consumer advocate
David Headberry	Major Energy Users (MEU) http://meu.asn.au/about.html	Representing the interests of large consumers of energy with many regionally based members. The MEU seeks to also represent the interests of smaller power and gas users, including residential consumers in the regions
Chris Joseph	Graingrowers https://www.graingrowers.com.au	Representative body for more than 17,500 Australian grain farmers
Andrew Nance	The Energy Project https://www.energyproject.com.au	Representative of specialist energy consulting firm providing advice to businesses about their energy needs
Pete Newman	Council of the Ageing NSW https://www.cotansw.com.au/about/about-cota-nsw/	COTA NSW is the peak organisation for people over 50 in NSW
David Prins	Etrog Consulting https://www.etrogconsulting.com.au	Specialist energy consultant - regulation and competition
Mike Swanston	CCP 2017	Independent consumer advocate
Robyn Robinson	Council of the Ageing (COTA) https://www.cota.org.au	COTA's role is to promote, improve and protect the wellbeing of older people in Australia as citizens and consumers. It operates at national, state, and local level to represent, advocate for, and serve older Australians.

CRG Omnibus workshop methodology

A CRG member facilitated the CRG Omnibus workshop held on 12 August 2021. Throughout the workshop, participants were encouraged to provide comments and ask questions using the chat function in MSTeams, as well as in facilitated questions and answers.

The first half of the workshop involved two high level questions from the facilitator to establish the range of participant perspectives present. The questions focussed on price impacts and attitudes towards the AER's decision making.

The second half of the workshop began with a PowerPoint presentation to provide participants with a summary of the five significant elements that the AER identified in its Overall RoR working paper, including a brief outline of the AER's current positions on those elements. Participants were given an opportunity to provide comments and ask questions before the CRG provided its perspective on the elements.

Agenda

1. Welcome and introduction

2. Workshop aims and protocols

3. Questions for participants

    a. Thinking about your or your members'/clients' bills, how sensitive are you to price movements?

    b. If prices go higher or if prices go lower, does that matter to you, or do you prefer things to stay as they are?

    Thinking about the AER's decisions which impact on prices, do you prefer the AER to keep things as they are or are you comfortable with the AER changing its decisions every four years?

4. Outline of AER priority positions and time for response from participants

5. Opportunity for participants to present their other concerns

Consumer representative interviews, January 2022

Participants

Name	Organisation	About
Jennifer Brown	Cotton Australia https://cottonaustralia.com.au/	Cotton Australia is the peak body for Australia's cotton growers, representing up to 1,500 cotton farms mainly in New South Wales and Queensland, but also in northern Victoria.
Kevin Cox	Evoenergy Community Reference Council https://www.evoenergy.com.au/consumer-engagement-program/energy-consumer-reference-council	The Energy Consumer Reference Council (ECRC) is an independent forum providing representatives of the community with an opportunity to provide considered input into operations and long-term planning of Evoenergy.
Gavin Dufty	St Vincent de Paul (Vinnies) https://www.vinnies.org.au	Vinnies in Australia has more than 60,000 members and volunteers, who assist people in need and target social injustice across Australia.
David Havyatt	Network of Illawarra Consumers of Energy	A network advocating for the energy transition to a net-zero carbon future to be managed with the interests of consumers at the heart.
Mark Henley	Uniting Communities https://www.unitingcommunities.org	Uniting Communities works alongside South Australians, supporting them to overcome adversity and disadvantage. It offers a wide variety of services including to families and children, Aboriginal people, people living with mental health issues and people living with disability.
Warren Males	Canegrowers https://www.canegrowers.com.au	CANEGROWERS is a not-for-profit public company providing a voice for the members of 13 local grower companies, located in all of the sugarcane regions of Queensland.
Robyn Robinson (plus written responses from 5 COTA members)	Council of the Ageing (COTA) https://www.cota.org.au	COTA's role is to promote, improve and protect the wellbeing of older people in Australia as citizens and consumers. It operates at national, state and local level to represent, advocate for and serve older Australians.
Jordan Smith	Business SA https://www.business-sa.com/	South Australia's peak Chamber of Commerce and Industry and peak employer body.

Interview questions

The AER is interested in consumers' and consumer advocates' views on trade-offs involved in setting the rate of return for regulated energy networks

1. Stability versus "accuracy"

    -   The AER can set the rate of return based on evidence of the <u>current </u>cost of capital in the Australian financial markets. It considers this to be more accurate, but it could result in more volatile prices for energy consumers.

    -   Alternatively, it can set the rate of return based on evidence of the <u>long-run average</u> cost of capital. This would mean that the allowed return would be sometimes above, and sometimes below the current cost of capital, but consumers would - other things being equal – pay more stable energy prices.

    -   Assuming that consumers pay the same in the long run under either of these options, do you have a preference for one over the other? If so, why?

2. Stability of price versus stability of process

    -   The CRG's research suggests that consumers value stability in energy prices and also a stable regulatory framework for setting energy prices. The return on equity is one of the two main components of the rate of return, the other being the return on debt.

    -   The AER can maintain its current framework, under which the allowed return on equity varies with the interest rate on Australian government bonds. As noted in question 1 above, changes in the rate of return can result in more volatile prices for consumers.

    -   Alternatively, it could move to a different framework where it targets a consistent overall return on equity. Consumers would - other things being equal – pay more stable energy prices.

    -   Assuming that consumers pay the same in the long run under either of these options, do you have a preference for one over the other? If so, why?

Consumer representative interviews, February 2022

Participants

Name	Organisation	About
Jennifer Brown	Cotton Australia https://cottonaustralia.com.au/	Cotton Australia is the peak body for Australia's cotton growers, representing up to 1,500 cotton farms mainly in New South Wales and Queensland, but also in northern Victoria.
Geoff Buchanan	ACT Council of Social Service https://www.actcoss.org.au/	The peak body for the non-government health and community services sector in the ACT.
Emma Chessell	Brotherhood of St Lawrence https://www.bsl.org.au/	The Brotherhood of St. Laurence (BSL) is a social justice organisation working to prevent and alleviate poverty across Australia.
Gavin Dufty	St Vincent de Paul (Vinnies) https://www.vinnies.org.au	Vinnies in Australia has more than 60,000 members and volunteers, who assist people in need and target social injustice across Australia.
Mark Grenning	Energy Users Association of Australia (EUAA) https://euaa.com.au	The EUAA is the peak national body representing Australian commercial and industrial electricity and gas users. EUAA membership covers a cross-section of the Australian economy including retail, manufacturing, mining, materials and food processing industries.
David Havyatt	Network of Illawarra Consumers of Energy	A network advocating for the energy transition to a net-zero carbon future to be managed with the interests of consumers at the heart.
Mark Henley	Uniting Communities https://www.unitingcommunities.org	Uniting Communities works alongside South Australians, supporting them to overcome adversity and disadvantage. It offers a wide variety of services including to families and children, Aboriginal people, people living with mental health issues and people living with disability.
Georgina Morris	SA Council of Social Service https://www.sacoss.org.au/	The peak body for the non-government health and community services sector in South Australia.
Robyn Robinson	Council of the Ageing (COTA) https://www.cota.org.au	COTA's role is to promote, improve and protect the wellbeing of older people in Australia as citizens and consumers. It operates at national, state and local level to represent, advocate for and serve older Australians.

Interview questions

There are significant differences in views by experts generally around the appropriate modelling of the WACC and in particular, modelling the CAPM parameters, and interrelationships between these parameters and the 'term' of these parameters.

This means that determining the Rate of Return can be "imprecise" and call for the AER to exercise its "judgement" or "discretion".

There are a few questions about how the AER should exercise its judgement and what factors it should consider when doing so. For example, one of these is the risk of over or under investment for future significant electricity transmission programs for decarbonization.

The Australian governments have set targets for decarbonisation of the Australian economy with a focus on moving from coal/gas to renewable energy sources. It is agreed that this change will require significant investment in transmission infrastructure across the NEM over the next ten years or more. Without that investment in transmission, consumers will not get the cost benefit of greater access to large-scale renewable energy projects.

However, there is also significant level of uncertainty about the pace of change to renewable energy, and the future demand for, and sources, of electricity.

The AER will need to consider these risks as it sets the rate of return for networks. In summary, when setting the rate of return, the AER has to weigh up:

- The risk of overinvestment in the transmission network if the AER over-estimates the required rate of return, leading to higher prices in the future than are necessary to safely and reliably deliver electricity to consumers

- There is a risk of underinvestment in the transmission network if the AER under-estimates the required rate of return, and this may lead to less reliable supply and reduced ability to benefit from renewable energy and lower generation costs

Question 1

- How do consumers approach the trade-off between the lowest possible price now and ensuring the investment they need, where the investment is for decarbonisation purposes committed to by governments and has the possibility (but not the certainty) of lower total energy prices in the long-term?

Question 2

- What is the consumer appetite for risk - do consumers feel that they can take on the risk of inadequate investment?

  - If lower investment now leads to lower prices now, but higher reliability risks/costs in the future – does that change your view

  - If higher investment now, leads to higher prices now, but savings in the future- would that change your view.

Question 3

- Bearing in mind that the AER needs to consider the long-term interests of consumers, what position on the spectrum should the AER take in regard to consumer risk:

- confident that consumers are prepared to risk not having sufficient investment for the future, or

- be risk averse on behalf of consumers by ensuring there is more than adequate capacity in the new transmission networks for most eventualities (even if this increases current costs),

- Somewhere in between, and if somewhere in between, closer to which end?

Appendix F: Details of CRG's investor interviews

Participants

Interview	Participant characteristics
Interview 1 (2020)	Equity research analyst, utilities expertise
Interview 2 (August 2021)	CEO/CIO of industry superannuation fund with relevant professional interests in funds administration, risk management, wealth management and portfolio management
Interview 3 (August 2021)	Grant Spencer, Adjunct Professor and former Deputy Governor of the Reserve Bank of New Zealand[281]
Interview 4 (August 2021)	Investor with significant experience in investment manager, private equity and credit investment, banking, finance, asset lending
Interview 5 (August 2021)	Former CEO of superannuation company, various roles as company director and now chair of an industry superannuation fund with relevant professional interests in investments, risk management, wealth management and portfolio management

Method

- The CRG contacted and scheduled appointments with participants.

- The first interview conducted in 2020, was relatively informal.

- To assist participants in the subsequent 2021 interviews, the CRG developed an interview conversation guide and shared this with participants in advance of the interviews. The conversation guide included:

  - Background information about the AER, the rate of return process, the CRG and reasons for the CRG's interest in independent investor perspectives, including links to the AER's previous rate of return papers

  - An outline of the four discussion topics, which included some more technical information and key questions to guide the interviews

- Interviews were conducted online using Zoom

- One CRG member led the interview, with one or two others present as observers and notetakers

- For the interviews 3 to 5, permission was sought to record the interviews, so they could later be transcribed – two participants agreed to having their interviews recorded and the CRG, with the ECA's assistance had these interviews transcribed

- Interviews lasted between 60 and 90 minutes.

- The CRG sought to keep the discussion open and centred on the interests of participants and draw on their real-world experience. As a result, not all topics were covered in each interview.

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[281] Participant gave permission to be named and quoted directly.

Interview guide

The following guide was provided to Interview participants, 3, 4, 5 and is a modified version of the Interview 2 guide.

Information for conversation with independent investment specialists

1 Background

The Australian Energy Regulator's role

- The Australian Energy Regulator (AER) determines the annual revenue allowances for regulated gas and electricity networks in eastern Australia.
  - The value of these regulated network assets is approximately $110 billion dollars.
- The AER's allowed rate of return is a significant component of the revenue allowance network owners can expect to achieve over a five-year regulatory determination period. The AER is currently developing a 'Rate of Return Instrument' (RoRI) that will apply to all its regulatory revenue determinations made from the start of 2023 to the end of 2026.
  - The final RoRI will be published in late 2022.
- The AER's must set an efficient rate of return that reflects the capital requirements of a theoretical 'pure play', 'benchmark' efficient firm operating in Australia and providing only regulated network services.
- The AER must, by law, make its decision to best achieve the national electricity and gas objectives (NEO, NGO), i.e. to determine the rate of return to achieve efficient investment in, and efficient operation and use of electricity or gas, in the long-term interests of consumers.[1]
- Over the last year, the AER has published various 'working papers' on rate of return issues.
- The AER's current papers which set out the AER's preferred position on rate of return issues and are open for consultation are as follows:[2]
  - *Rate of return - Debt draft working paper - July 2021*
  - *Rate of return - Equity draft working paper - July 2021*
  - *Rate of return - Overall rate of return draft working paper - July 2021*

Consumer Reference Group (CRG) role

- In 2020, the AER appointed the CRG under the National Gas and Electricity Laws, to provide advice on consumer perspectives related to processes and decisions associated with the RoRI.
- The CRG forms its views by engaging with energy consumers and other stakeholders, including industry bodies and investors to establish evidence of their interests and preferences.
- The key areas of current interest to the CRG arising from the AER's current papers relate to estimating an efficient benchmark for:
  1. the allowed return on equity

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[1] *National Electricity (South Australia) (New National Electricity Law) Amendment Act 2005*, South Australia (2005)

[2] See https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/rate-of-return-omnibus-papers

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2. the allowed return on debt
3. the optimal gearing ratio (debt/equity)
4. the optimal term and structure of company debt

CRG interest in independent investor perspectives

The CRG wishes to understand:

- How independent investors consider and value investment in regulated networks as part of their overall portfolio of investments in the Australian market
- Independent investor perspectives on the above four issues in the context of investing in regulated Australian energy networks

The CRG will use this feedback to help inform part its overall advice to the AER, in which we seek to balance the reasonable interests of investors with the long-term interests of energy consumers

To assist, we have outlined a series of guiding questions. Please feel free to make any additional comments as we go through each section.

2 Discussion outline

2.1 General questions

Before we consider the issues outlined by the AER, we are particularly interested here on hearing how you would normally construct an investment and if/how investment in regulated Australian energy networks might fit into this portfolio.

2

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1. Have you made or recommend investments (equity or debt) in revenue regulated assets?
   a. If so, what class of regulated assets would you invest in as part of an investment portfolio?
2. Have you made or recommended investments (equity or debt) in unregulated infrastructure assets?
3. What considerations and practices would you recommend in building an investment portfolio?
4. Does your advice vary for a retail investor or an institutional investor, such as a superannuation fund?
5. Thinking about investment in regulated companies that own/operate gas or electricity networks energy networks where the AER regulates the revenue:
   a. What are the benefits of in including such an investment in the portfolio?
   b. What are the risks?
6. The regulated rate of return for energy networks is usually lower than returns that for other investments in the market:
   a. Why do you think the AER would allow a lower return than the market average return?
   b. Would that impact on your decisions to invest or recommend investment in regulated energy networks? Why/Why not?
   c. Do you think it is reasonable for the AER to allow a lower-than-average return for these businesses?
7. Are there any other general issues we should consider?

2.2 Issues raised by the AER in its draft working papers

2.2.1 Return on Equity

Currently, the AER's overall allowed rate of return is based on a gearing ratio of 60% debt and 40% equity for its theoretical benchmark efficient regulated network entity; that is, a 'pure play'[3] benchmark efficient network entity, owned and operated in Australia, and providing only regulated network services.

The AER, like most other energy regulators in Australia and overseas, estimates an efficient return on equity using the original Sharpe-Lintner Capital Asset Model (SL-CAPM), whereby the efficient return on equity is calculated as a function of three independent parameters:

- The risk-free rate (currently based on the observed 10-year Commonwealth Government Securities (CGS)
- The equity beta for the regulated network industry (currently calculated as historical excess returns on a portfolio of ASX listed regulated network assets)

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[3] By 'pure play', we mean an entity that only, or very largely, provides regulated network services. Currently the closest companies to a pure play regulated network company are AusNet Services (ANS) and Spark Infrastructure (SKI) with some 80% - 90% of revenue coming from the provision of network services in Australia.

3

- The Market Risk Premium (currently calculated using long term historical average returns from ASX equity market)

NB: The AER is seeking to estimate efficient returns to equity ex ante, i.e, it is estimating efficient future returns.

Various stakeholders are proposing changes to each of these parameters.

The CRG is interested in understanding whether you use a capital asset pricing model, how you assess each of these CAPM parameters to assess efficient returns for a pure play benchmark efficient regulated network.

1. What approach do you use when estimating an efficient return on equity for a business?
2. Thinking about a pure play efficient regulated network business operating in Australia, would you use the same approach to estimating the future efficient cost of equity for the business?
3. What other factors would you consider?

Supplementary questions are appended.

4

2.2.2   Return on Debt

The AER has been collecting information from network owners for many years to assist it in estimating an efficient average term of the debt portfolio, the credit ratings of the business and the cost of this debt to the business. Based on this long-term data, the AER established the benchmark firm as BBB+ (or equivalent), with an average debt tenor of 10 years.

The AER then used 10-year yield curve data from three sources[4] to determine an average cost of debt in a particular year. Using this annual data, the AER applies a rolling 10-year average of the annual observed market debt costs to estimate the forward cost of debt for each year of a network's determination period.[5]

Over the last four years, the AER has collected more detailed information on network company's actual debt portfolios. The AER has observed that the average tenor of this debt is currently less than 10 years (8-9 years), and the average cost of this debt is less than the allowance calculated under the AER's current methodology. On the advice of a leading financial analyst firm, the AER constructed an index, the Energy Infrastructure Credit Spread Index (EICSI), which is updated every year.

The AER is considering how this lower tenor and debt cost that has been revealed in the EICSI can best be reflected in the AER's current return on debt allowance.

The CRG notes that the network businesses dispute the AER's observations and conclusions. Amongst other matters, the networks say that the AER has not taken proper account of various debt and hybrid instruments that they use to fund their activities.

> 1. What approach do you use when estimating an efficient cost of debt for a business?
> 2. Thinking about a pure play efficient regulated network business operating in Australia, would you use the same approach to estimating the future efficient cost of debt for the business?
> 3. What other factors would you consider?

Supplementary questions are appended.

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[4] Australian Energy Regulator, *Rate of Return Draft Debt Omnibus Paper*, July 2021, p. 1-7. The three sources are Bloomberg, Reserve Bank of Australia and Thomson Reuters.

[5] Before 2013, the AER assessed the cost of debt at the start of each determination based on the prevailing market debt costs. In 2013, the AER switched to adopt trailing average approach in 2013 to better reflect the structure of network debt portfolios and to provide more stable outcomes on the cost of debt. The transition to this approach is ongoing.

2.2.3   Gearing ratios and debt instruments

Based on historical data the AER currently assumes a gearing ratio for a benchmark efficient network business of 60% debt and 40% equity. The AER has observed from company data that in recent years the ratio for regulated network companies appears to be closer to 55% debt and 45% equity. The AER's analysis excludes assessment of most subordinated debt instruments

The AER is considering whether it should change the benchmark debt ratio to 55%/45% based on these recent observations.

Some stakeholders observe that such a change would make little difference either to the company's credit rating or the overall cost of capital. They have also highlighted that the AER's assessment is wrong because it excludes subordinated debt.

> 1. How would you assess the optimal capital structure for a business?
> 2. Thinking about a pure play efficient regulated network business operating in Australia, would you use the same assessment criteria?
> 3. How would you typically assess various hybrid/subordinated debt?
> 4. Do such hybrid instruments increase the financial risk of a business and if so, how?

Supplementary questions are appended.

Appendix: Supplementary questions

Return on Equity

Various stakeholders are proposing changes to each of the parameters in the SL-CAPM model. The CRG is interested in understanding more about whether you use a capital asset pricing model, and how you assess each of these parameters of the CAPM in the context of assessing efficient returns for a pure play benchmark efficient regulated network.

The AER's is seeking to estimate efficient returns to equity ex ante, i.e. it is estimating efficient future returns.

> 1. When considering the return on equity, do you use the SL-CAPM?
>   a. If yes, how do you use it (e.g. as a guide, or with other tools)?
> 2. If no, why and what other models/tools/information do you use to inform your assessment of the efficient return on equity
> 3. Is it reasonable for the AER to use the SL-CAPM when estimating the efficient rate of return on equity for a regulated efficient energy network? Why/why not?
> 4. Is the 10-year CGS is a reasonable proxy for the risk-free rate when considering investment in energy network assets with long asset lives? Why/why not?
> 5. Would a five-year CGS be more appropriate to use in the SL-CAPM model given the AER's revenue determinations are reset every five years? Why/why not?
> 6. Some stakeholders have proposed using AAA bond returns as a better proxy for the risk-free rate. Do you agree with their proposal? Why/why not?
> 7. Looking at the estimation of the equity beta: In considering expected returns from a firm, do you include some estimation of the relevant equity beta?
>   a. If so, how do you estimate the relevant equity beta for a firm?
> 8. The AER currently uses the average of historical excess returns data to estimate the equity beta of an efficient regulated energy network. Do you think that is reasonable? Why/why not?
> 9. There are now a very limited number of listed pure play regulated network companies now listed on the ASX. Do you think its reasonable for the AER to include other data in its estimation of the equity beta for these firms? The AER could include:
>   a. Analysis of other infrastructure companies that are not revenue regulated
>   b. Overseas regulated networks, even if under different regulatory frameworks
> 10. If the equity betas across the Australian equities market range from 0 to 2, with 1 being the average of the market overall, 0 being no systematic risk and 2 being high systematic risk, where would you estimate the systematic risk (equity beta) for a pure play regulated efficient benchmark energy network? Why?
> 11. Do you consider that electricity network firms and gas network firms should have the same equity beta? Why do you say that?
> 12. Looking at the estimation of the Market Risk Premium (MRP): In considering expected returns from a firm, do you include some estimation of the MRP for the Australian ASX market as a whole?
>   a. If so, how do you estimate the relevant MRP?

> 13. The AER's current approach uses the average historical market returns data to estimate the MRP. Do you think that is a reasonable approach? Why/why not?
> 14. Some stakeholders consider that the AER should use a different model to estimate the MRP, such as the Gordon Dividend Growth Model (DGM). They say that this would improve the AER's estimate of the MRP, in the context of firms holding long lived assets:
>   a. Do you use such models when estimating future market returns?
>   b. Is the DGM an appropriate model to assist the AER in estimating average future market returns over the longer term?
>   c. What are the risks and benefits to consumers of the AER using the DGM in the regulatory context?
> 15. Looking at the overall return on equity, the AER's current approach means that the total allowed return on equity will rise and fall largely in conjunction with the prevailing risk free rate. As an investor, do you think this is reasonable?
> 16. How would you assess the reasonableness of the overall return on equity for the gas and electricity networks?
> 17. Should the AER use other market data as a cross check on its return on equity decision?
>   a. If so, what cross checks on the overall return on equity would be appropriate?

Return on debt and gearing

Currently, the return on debt makes up 60% of the total allowed returns. This estimate of the gearing ratio is based on historical observations of the capital structure of regulated network businesses. However, the AER has observed that in recent years this ratio has declined to around 55%. The AER has also claimed that the actual cost of debt for the regulated networks is lower than the current regulatory allowance.

Based on these observations, the AER's expert consultant has constructed an index that captures this trend for shorter debt tenor and lower debt costs; the Energy Infrastructure Credit Spread Index (EICSI). The AER is considering how this Index might be used to adjust the allowed return on debt to better reflect current capital management strategies

The CRG notes that the network businesses dispute the AER's observations and conclusions. Amongst other matters, the networks say that the AER has not taken proper account of various debt and hybrid instruments that they use to fund their activities.

> 1. When considering the efficient cost of debt for an efficient firm, what factors do you consider?
> 2. Do the ratings and comments from credit agencies such as Moodys, influence your views?
> 3. What other data sources do you use?
> 4. Thinking about a benchmark efficient network company, do you think a credit rating of BBB+ is reasonable guide to the cost of its debt. Why/why not?
> 5. If the AER observes that the networks' cost of debt is lower than the debt cost allowed by the AER, do you think the AER should adjust its approach to reflect this (e.g. use the EICSI)
> 6. Should consumers share in the benefit of lower cost debt than the AER's approach provides?

7. Do you consider a gearing ratio of 60% debt/equity is consistent with an efficient capital structure for a regulated network entity?

8. If networks increase or decrease their gearing ratio, should the AER change its assumption of 60% gearing to align with this new data, or retain a more stable 'average' view over time?

9. If a network's gearing changed by + or - 5% would you expect this to change its credit rating (all other things being equal).

   a. What about a change of +/- 10%?

10. Some stakeholders claim that the AER should classify hybrid, or subordinate debt instruments as 100% debt. Others say 50% debt and 50% equity. Others say they should be excluded. There are many forms and terms of subordinated debt and it is not always clear how they should be treated. What approach do you use in assessing a business's financial risk and future debt costs?

9

## Appendix G: Further evidence of consumer sensitivity to price changes

Top of mind reaction to a <u>decrease</u> in the price of energy

Consumer Survey 1 participants were asked:

If the price you pay for energy <u>decreased</u>, how would you react?

Half of the residential consumers surveyed (50%) and 29% of commercial consumers indicated they would do nothing if the price they pay for energy decreased, while a significant proportion of commercial customers indicated they would change their energy use behaviour.

Impact of potential price decrease
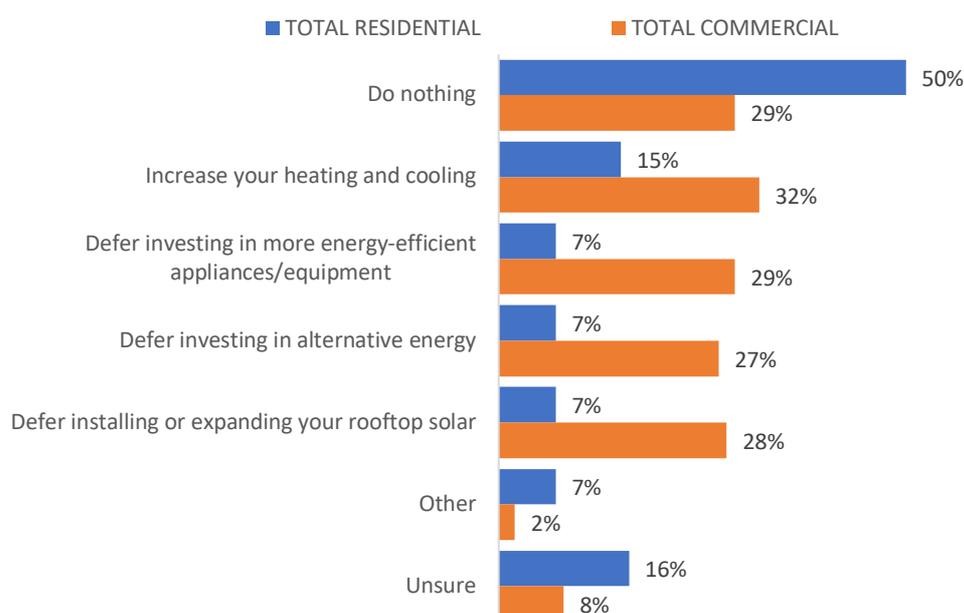
Consumers' sensitivity and expected reaction to price changes

To further understand energy consumers' sensitivity to price increases, In Consumer Survey 2 we asked participants, in either ascending or descending order of price increase, the following question:

If the price you pay for energy increased by 1%/2%/5%/10%/15% and 30%, how would you most likely react? or

If the price you pay for energy increased by 30%/15%/10%/5%/2% and 1%, how would you most likely react?
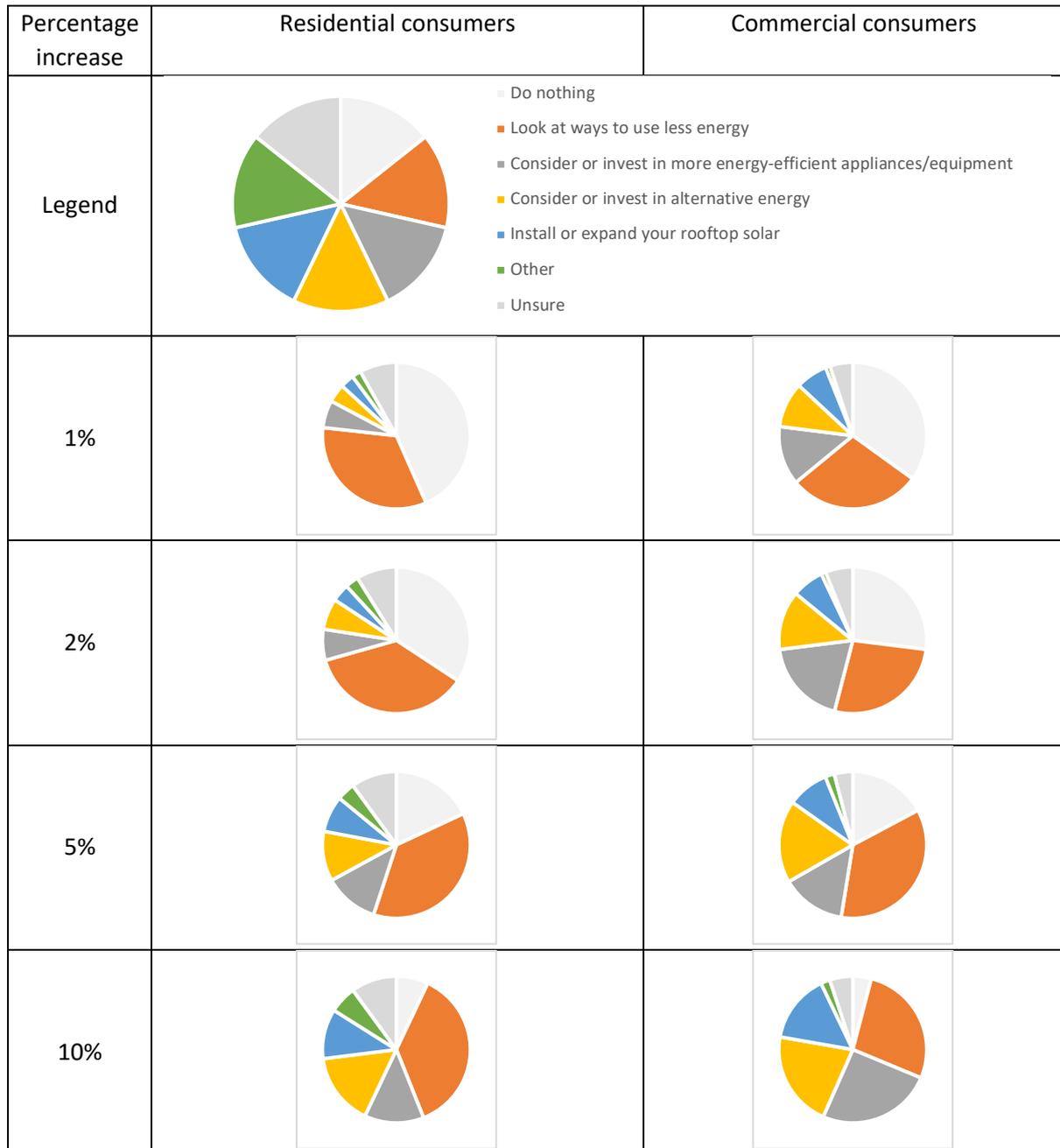
Survey participants were provided with a list of possible responses:

- *Do nothing*
- *Look at ways to use less energy*
- *Consider or invest in more energy-efficient appliances/equip*
- *Consider or invest in alternative energy*
- *Install or expand your rooftop solar*
- *Other*
- *Unsure*

The following figure summarises energy consumers' likely responses to different percentage increases in the price they pay for energy. The key message is as the price increases consumers are likely to respond by initially looking at ways to use less energy (orange pie segments), then as the percentage increase gets larger, they consider more significant actions including, considering (dark grey segments), investing in alternative energy (yellow segments) or installing or expanding their rooftop solar (blue segments)

Figure 0-1: Energy consumers' likely responses to increases in the price they pay for energy

Percentage increase	Residential consumers	Commercial consumers
Legend	Do nothing / Look at ways to use less energy / Consider or invest in more energy-efficient appliances/equipment / Consider or invest in alternative energy / Install or expand your rooftop solar / Other / Unsure	
1%		
2%		
5%		
10%		

Percentage increase	Residential consumers	Commercial consumers
15%		
30%		