APGA Submission to the AER

Draft working papers on term of the risk-free rate and the rate of return and cash flows in a low interest rate environment

2/07/2021

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1. Summary

The Australian Pipelines and Gas Association (APGA) welcomes the opportunity to comment on the Australian Energy Regulator's (AER) draft working papers on:

- the term of the rate of return (Term Paper),[1] and
- the rate of return and cash flows in a low interest rate environment (Low Interest Rate Paper).[2]

These are useful formative papers to the review of the 2022 rate of return instrument (the 2022 RORI Review). Our submission responds to these papers – both by providing feedback sought by the AER and more broadly by signposting three key concerns at this juncture in the review.

1.1 This review is important to us

We have previously outlined the importance of this review to us and our members:[3]

- the 2022 RORI review will play a critical role in shaping how regulated gas pipelines can support Australia's transition to decarbonised energy supply and deliver the outcomes that our customers want
- our gas pipelines are facing unprecedented times – we will play our part in supporting a secure, reliable, and affordable energy system in a low-carbon energy future
- With this backdrop, we are focused on working closely with the AER and other stakeholders to get the 2022 RORI right; an instrument that sets rates of return:
  - too high – will burden our customers with costs that they cannot afford and should not face
  - too low – will seriously undermine the investment needed to support the energy transition and deliver the services that those customers want.

The AER's recent focus on the impact that low interest rates are having is apt, including by asking whether the relationship between the risk-free rate and market risk premium (MRP) assumed in the 2018 RORI is appropriate. We certainly welcome new thinking on this.

We also understand why the AER is testing key components of how the rate of return is estimated, including term. Our expectation is that this is being done in a considered way where well-accepted logic and evidence drives outcomes, with potential changes properly tested.

1.2 Salient points

At this juncture, our submission raises three key points:

- **First**, the AER was right to previously not rely on Lally's advice to set the equity term to match the length of the regulatory period. Lally's advice is both inconsistent with the Sharpe-Lintner

1 AER, 21 May 2021, *Term of the rate of return, Draft working paper*.
2 AER, 21 May 2021, *Rate of return and cash flows in a low interest rate environment, Draft working paper*.
3 APGA, 9 October 2020, *APGA submission to the AER: Draft working papers on return on equity models and international approaches to the rate of return*, p.3.

Capital Asset Pricing Model (SL CAPM) and relies on assumptions that do not hold. It would be inappropriate to rely on it now when nothing has changed.

- **Second**, the AER is right to ask questions about whether the approach to determining the return on equity in the 2018 RORI is robust to low and high interest rate environments. Experience since 2018 suggests that it is not. Consumers and regulated businesses would benefit from an approach that is more robust. We welcome the AER's initiative shown in the Low Interest Rate Paper.
- **Third**, financeability assessments can provide a useful cross-check on the decisions that the AER needs to make when developing the 2022 RORI, which can be affected by model and parameter measurement errors.[4] There are no obvious harms to using them as cross-checks, but there is risk if financeability is ignored. We encourage the AER to consider using financeability assessments as a cross-check.

1.3 Our recommendations

Box 1 below includes recommendations on how the AER should address these concerns during the 2022 RORI process. Appendix A includes our responses to questions raised by the AER in its two working papers, which includes further recommendations specific to the matters raised in them.

We look forward to further engaging with the AER and other stakeholders about our concerns.

Box 1: Recommendations

1. Retain a term of 10 years for the returns on debt.
2. Estimate the return on equity using at least a 10 year estimate of the risk-free rate.
3. Recognise the flaws in Lally's advice that the NPV = 0 principle supports a 5 year term for equity.
4. Consider what changes are needed to how the return on equity is estimated to make it more robust to different interest rate environments.
5. Consider using financeability assessments as a cross-check before finalising the 2022 RORI (i.e. by using key credit metrics adopted by credit rating agencies before it is finalised to ensure that it does not unintentionally undermine efficient investment).

[4] In other words, we cannot simply assume that the proposed RORI will give the true (but unobservable) opportunity cost of capital.

1.4 Structure of our submission

Our submission is structured as follows:

- Section 2 explains why Lally's application of the NPV = 0 principle is flawed
- Section 3 explains why the AER should rethink its approach to the return on equity, especially given the low interest rate environment
- Section 4 asks the AER to consider giving financeability a role as a cross-check
- Appendix A responds to the AER's requests for stakeholder feedback on the two draft working papers
- Appendix B considers the other reasons identified by the AER to support a 5-year term for the equity term.

2. Problems with Lally's application of the NPV = 0 principle

The Term Paper relies on Lally's advice to support a preliminary position that the term of equity should match the length of the regulatory period.

In our view, that advice is flawed because it:

- is inconsistent with the SL CAPM, which is a single period model, and
- relies on assumptions that do not hold in reality.

If the advice is flawed – as we contend – then it should not be relied on to support a 5-year term for the return on equity. Given the importance that the Term Paper places on that advice, without it, the case for matching the length of the regulatory period appears to largely fall away.

We explain why that advice is flawed below. In Appendix B, we explain why other reasons identified by the AER to support a 5-year term are either inappropriate or logical extensions of Lally's advice.

We encourage the AER re-evaluate its preliminary position and retain a 10-year term. There is no case for change at this time.

2.1 How Lally applies the NPV = 0 principle

Lally describes the NPV = 0 principle as follows:[5]

> *A fundamental requirement of regulation is the NPV = 0 principle, i.e., at the time a firm invests in regulated activities, the present value of its future cash flows must be equal to its initial investment.*

We agree with this characterisation. It is consistent with statements made by the AER.[6] Importantly, it also implies that, if a firm invests in regulated activities that will generate future cash flows beyond the next regulatory period – as is the case for all energy networks regulated by the AER – then those cash flows are relevant to the NPV calculation.

Through a series of assumptions, Lally ultimately concludes that the cash flows after the end of the next regulatory period can be ignored. By ignoring those cash flows, Lally concludes that a regulator only needs to be concerned about cash flows over the regulatory period and so should set a term of equity equal to the length of that period. [7]

Key assumptions adopted by Lally are: [8]

- **First**, that there is a term structure of interest rates when estimating the return on equity
- **Second**, a regulated business will get – as a payoff – the market value of the business at the end of the regulatory period, and
- **Third**, that market value matches the value of the RAB at the end of that period.

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5 Lally, 9 April 2021, *The appropriate term for the allowed cost of capital*, p.7.

6 See: AER, May 2021, *Assessing the long term interests of consumers*, p.15; and

7 Davies included similar advice in his 2003 paper but has not repeated it in his subsequent work. In any event, the criticisms that we raise with Lally's advice can apply to Davies' earlier advice as well.

8 Lally, 9 April 2021, *The appropriate term for the allowed cost of capital*, pp.8–9.

In the next sub-section, we explain why the first assumption is inconsistent with the SL CAPM. We then explain why the second and the third assumptions do not hold.

2.2 Assuming a term structure is inconsistent with the SL CAPM

Lally advises that the NPV = 0 principle means that the term of equity must match the length of the regulatory period. To form this view, Lally assumes the existence of a term structure. This is inconsistent with the SL CAPM – the AER's current foundation model – which is a single period model with no term structure.

In short, this means that Lally's advice is inconsistent with the foundation model; adopting Lally's recommendations implies a fundamental change to the foundation model. We elaborate below.

In his original paper, Lally notes: [9]

> *The implications of using a risk free rate whose term is other than that of the regulatory cycle depends upon the slope of the term structure. In particular, if the term structure is upward sloping, then the use of a risk free rate for a term longer (shorter) than the review cycle produces a present value on the future cash flows that is greater (less) than the initial investment. If the term structure is downward sloping, then the conclusions are reversed.*

Although unstated, the obvious extension to the above quote is that, if either there were no term structure or the term structure were flat, it would not matter what tenor one used for the risk-free rate. Lally's conclusion that a 5 year term must be used follows directly from assumptions about term structure.[10]

By contrast, the SL CAPM is a single-period model that has no term structure. The only thing that the SL CAPM does is allow someone to price an asset – based upon its systematic risk-profile – by making a weighted average (the weight being beta) of the risky market asset and a risk-free asset. The term of a regulatory period is irrelevant. All that is required for the SL CAPM to operate is for the user to choose the market and risk-free assets.

When applying the SL CAPM, the theoretically correct risk-free asset is one with no systematic risk. An indexed perpetual government bond would be ideal as a proxy, but these do not exist. Therefore, standard practice amongst market participants and regulators has been to use the longest available government bond that is sufficiently liquid.

The AER recognised this in the explanatory statement to the 2018 RORI:[11]

> *Our final decision is to maintain use of a 10 year term for the risk free rate. We consider that the use of a 10 year term will lead to an overall rate of return that will better contribute to the achievement of the NEO and NGO. We consider a 10 year term is consistent with the theory of the Sharpe-Lintner CAPM which is a single period equilibrium model, estimating the returns an investor requires over a long-term*

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9 Lally, 2004, *Regulation and the Choice of the Risk Free Rate*, Accounting Research Journal, Vol. 17(1), p.20.

10 Indeed, arguments about term structure – and more particularly about how forward rates predicted rates at different time horizons – were at the core of the subsequent debate between Lally and Hall in 2007.

11 AER, December 2018, Rate of Return Instrument: Explanatory Statement, p.126.

investment horizon. The 10-year term also reflects the actual investor valuation practices and academic works.

And:[12]

We use the CAPM to estimate how an investor will value the potential returns from an investment in an infrastructure business with long-lived underlying assets. Equity investors seek out efficient returns for their diversified investment portfolio over long-term investment horizons. Although reinvestments may be more frequently, they are still being made with reference to a long-term equilibrium rate of return. This will reflect the excess return required for bearing the systematic risk of the investment over the return on a long-term riskless asset.

We agree with this rationale, including that the SL CAPM has no term structure (i.e. it is a single period model). In short, it also means that Lally's advice is inconsistent with the SL CAPM. Given the long-term nature of energy networks, it may also mean that longer-term Commonwealth Government Securities could be used to estimate the risk-free rate where these are available, such as the recently issued 30-year government bonds.

Given this, it would be inappropriate to assume that there *was* a term structure – as Lally's advice does implicitly – when determining what term to adopt for the return on equity when applying that model.

2.3 The other two assumptions do not hold

The second and third assumptions imply that an equity investor only cares about cash flows over the regulatory period. However, this chain of logic is flawed because the assumptions adopted by Lally simply do not hold.

Equity investors necessarily consider cash flows beyond a single regulatory period. They must consider cash flows over the life of the assets in which they invest. To do otherwise would mean that they ignore cash flows that affect the value of their investments.

Equity investors are also highly unlikely to assume that they will get back – as a payoff – the market value of the regulated business at the end of the regulatory period. There is no mechanism within the regulatory framework for this to occur.[13] It also seems implausible that equity investors would project the business being sold at the end of every regulatory period to receive a payoff.

Even if they did project that the business was sold at the end of the regulatory period, there is no empirical evidence that shows that the sale price will match the value of the RAB. Analysis of RAB multiples published by the AER makes this clear.[14] Given this, it is unlikely that equity investors would assume otherwise.

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12 AER, December 2018, Rate of Return Instrument: Explanatory Statement, p.127.

13 The National Gas Rules (NGR) require that assets are depreciated over their economic lives, which generally extend for multiple regulatory periods. There is no mechanism to return the full value of the RAB at the end of the regulatory period. There are also provisions in the NGR (rule 85) that mean that the AER could potentially write-down the value of the RAB if it is underutilised.

14 AER, February 2018, *Discussion paper – Financial performance measures*, pp.14-24

If these assumptions do not hold, then there is simply no link between the NPV = 0 principle and assuming a 5 year term for equity. Future cash flows after the next regulatory period *are* relevant to investor decision-making. [15]

[15] This view is consistent with the assumptions implicit in the AER's Post-Tax Revenue Model. That model does not include any costs for selling existing equity at the end of each regulatory period (it only includes costs of raising new equity). It also projects cash flows that extend well-beyond the next regulatory period.

3. Ensuring that the return on equity approach is robust

The 2018 RORI estimates the return on equity by adding a fixed uplift to the risk-free rate. Low interest rate environments like the present call this simplification into question.

The Low Interest Rate Paper appears to recognise that the simplification needs a rethink by asking questions about the relationship between the risk-free rate and MRP.

We agree that it needs a rethink and appreciate the AER taking an open mind to these questions. The AER's task is somewhat unique among regulators in that it must determine an approach to estimating the return on equity at one point in time to apply automatically at future points in time, without scope to reconsider. If not designed appropriately, there is a real risk that this approach – similar to the 2018 RORI – will not produce an outcome which does not reflect efficient financing costs at the time of a regulatory decision.

Below we explain why the simplification is problematic and what this means for how the return on equity should be estimated.

3.1 Why the simplification is problematic

In short, the 2018 RORI contains an approach to estimating the return on equity that automatically updates one parameter – the risk-free rate – but leaves all other parameters unchanged. This creates a real risk that the automatic updating does not capture the true changes in returns required by equity investors.

A similar concern was expressed by Brattle in recent work for the AER:[16]

> *we also think that there are important interactions between the CAPM cost of equity parameters, such that it may create inconsistencies—and thus an inaccurate result—if some parameters are updated but others are not. When estimating a forward-looking MRP, the measured MRP commonly increases as the risk-free rate declines and vice versa. Similarly, because the equity beta is estimated using market data, the beta estimate will typically be affected by changes in market conditions. We therefore think that it is problematic to change one of the CAPM inputs without updating the cost of equity estimate as a whole.*

Clearly, however, the National Gas Law requires the AER to develop an approach to estimating the return on equity that applies automatically, without discretion. We are not suggesting that that should be ignored.

However, the concern expressed above does mean that the AER cannot presume that the approach reflected in the 2018 RORI will produce an appropriate return on equity in all circumstances.

16 The Brattle Group, June 2020, *A Review of International Approaches to Regulated Rates of Return*, p.60.

3.2 What this mean for how the return on equity is estimated

What is important is ensuring that the MRP and risk-free rate parameters are estimated and combined in a consistent way *over time*.[17]

Although it is the low interest rate environment that we experience today that has prompted a closer look at how these parameters are currently being determined, it would be wrong to only focus on extreme outcomes when deciding on the approaches and assumptions to include in the 2022 RORI. They should be designed to be robust to different interest rate environments.

To quote the AER, they should be designed to increase the likelihood that – when applied automatically in the future – they give:[18]

> *an unbiased estimate of the expected efficient return [to equity investors], consistent with the relevant risks involved in providing regulated network services*.

Doing so will promote the long term interests of consumers.

By 'design' we mean the choices that the AER needs to make about:

- the initial values adopted for the risk-free rate and MRP parameters when the 2022 RORI is determined, and
- any mechanism that automatically updates those parameters when the 2022 RORI is applied in the future, conscious of any relationship between them.

We do not yet have a firm view on what the initial values should be, except that they should be estimated in a logically consistent way. For instance, if the risk-free rate parameter reflects a low interest rate environment, then so too should the initial MRP.[19]

In the 2018 RORI, a long run average that is unconditional on interest rates was used to estimate the MRP. This is logically consistent with a view that interest rates were – at that time – at or around their long run average. Now that we are in a low interest rate environment, retaining the same MRP in the 2022 RORI would only be appropriate if there were strong evidence that market returns moved in lock step with interest rates.[20]

If this evidence does not exist, then – relative to the MRP adopted in the 2018 RORI – the MRP adopt for the 2022 RORI would need to be:

- larger if the evidence suggests that market movements are smaller than movements in the risk-free rate, or
- smaller if the evidence suggests that market movements are greater than movements in the risk-free rate.

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17 We have assumed that the SL CAPM will continue to be applied.

18 AER, May 2021, *Rate of return – Assessing the long term interests of consumers – Position paper*, p.1.

19 The 6.1% MRP value reflected in the 2019 RORI is based on a long-term historical mean excess return. It does not reflect the low interest rate environment that we are currently experiencing. Given this, we question whether it is appropriate to combine that MRP value with a prevailing risk-free rate that does reflect that environment.

20 There is an implicit assumption here that the AER was correct in 2018. If the AER now believes that its 2018 MRP was wrong, then it could of course choose a new MRP that does not follow the logic outlined above.

This would ensure consistency between the risk-free rate and MRP parameters.

We also do not yet have a firm view on what any mechanisms should look like, or whether any such mechanism is feasible, given legal constraints or desirable given the uncertainties involved in estimation. However, were such a mechanism to be employed – like the starting position for MRP – it should be logically consistent with the evidence.

If the AER believes that the evidence suggests than market movements are greater than risk-free rate movements, then the MRP should increase as interest rates increase and decrease as interest rates decrease. If the AER believes that the evidence suggests that market movements are smaller than risk-free rate movements, then the MRP should decrease as risk-free rates rise and increase as they fall.

This is an issue which will be taken up in the MRP paper, but we note that the first case above leads to more volatile prices for consumers and the second to less volatile prices. We suggest this – along with Brattle's recommendation that when estimating a forward-looking MRP, 'the measured MRP commonly increases as the risk-free rate declines and vice versa' – may be an important consideration for the AER.

4. Financeability has a role as a cross-check

Financeability is core to investment decision-making. If an investment is not financeable, then it will not go ahead.

The Low Interest Rate Paper indicates that the AER does not intend to consider financeability when finalising the 2022 RORI.

We encourage the AER to reconsider this because:

- financeability affects whether regulated energy networks can fund – and therefore undertake – efficient investment that promotes the long-term interests of consumers
- there is no obvious downside to at least considering financeability before finalising the 2022 RORI – the AER is not bound to accept the results of any financeability assessment
- other regulators see the benefit in undertaking financeability assessments – they see it as prudent to use such assessments to check their regulatory decisions before finalising them.

In our view, financeability assessments should be one of the cross-checks that the AER uses to test whether the methods and assumptions proposed for the RORI are producing sensible results.

Below we explain why financeability assessments are important and how they could be used in the 2022 RORI review process.

4.1 Why financeability assessments are important

If the allowed rate of return calculated using a given set of methods and assumptions reflected the true opportunity cost of capital, then there would be no need to consider financeability.[21]

However, it is impossible to know whether they do give the true opportunity cost of capital. The rate of return is calculated based on methods and assumptions that all have strengths and weaknesses. Judgement is used to select among imperfect methods and imprecise assumptions or parameters. And although individually each selection may be reasonable, there is a risk that when combined they produce outputs that do not reflect the true opportunity cost of capital.

The AER's analysis in appendix B of its *Rate of return and cash flows in a low interest rate environment* working paper is based on the premise that the risk does not exist. In our view, however, the risk clearly does.[22]

It is this risk that cross-checks such as financeability assessments can help to mitigate. However, unlike other cross-checks that the AER has considered in the past, these assessments focus directly on a key consequence if the allowed rate of return is too low – namely, that efficient investment is undermined. As such, financeability assessments compliment other cross-checks.

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21 Here, we are referring to assessing the financeability of the allowed rate of return. If that return were appropriate, there may be financeability concerns that could be addressed by adjusting other aspects of how regulated revenues are determined. We do not explore these further in this submission.

22 For instance, there is model uncertainty arising from adoption of the SL CAPM as the foundation model. There is uncertainty about each of the parameter estimates made when applying the SL CAPM, including due data limitations (e.g. sample choice). In many cases the parameters do not have levels of statistical accuracy and depend heavily on methodological choices (e.g. monthly versus weekly betas).

4.2 How financeability assessments could be used

We appreciate that the AER is still considering the potential role of financeability in its regulatory decision making.

When developing the 2022 RORI, the AER could use financeability cross-checks to assess whether the RORI outcomes can sustain – for a representative or benchmark entity – the credit metrics adopted by rating agencies under various interest rate scenarios. This would help give the AER and stakeholders comfort over whether the RORI can support efficient investment that promotes the long-term interests of consumers.

We look forward to engaging further with the AER on this.

Appendix A: Response to AER requests for feedback

This appendix sets out our responses to the requests for feedback included in the two working papers. Our responses are not exhaustive and we expect to engage on many of these topics throughout the 2022 RORI review process.

Table A.1: Feedback on AER working papers

Topic	Question	Response
Term of the rate of return		
Link between terms used for expected inflation and rate of return	*1. Should the term for expected inflation match the term for the rate of return?* (pp.1&36)	• The terms could match, but they should not be required to. We agree with the AER's preliminary view on this.[23]
Link between the terms used for the returns on equity and debt	*2. Should the term for equity match the term for debt?* (pp.1&36)	• We agree with the AER's preliminary view that there is no requirement for terms to match.[24] • Similar to our answer to question 1, there is no intrinsic reason why the terms on debt and equity should be the same. They should each be determined on their own merits, including so that they reflect efficient financing practices for debt and equity respectively. • This is also consistent with advice to the AER from Lally.[25] • As shown in the AER's working paper, some regulators have adopted different terms of debt and equity.[26] This can occur, for instance, where regulators have access to data on longer-term government debt with sufficient liquidity (e.g. in the US and UK).
Term of the return on equity	*3. Should the term for the return on equity align to the regulatory control period (typically five*	• The term of equity should remain at 10 years. • Section 2 outlines our concerns why Lally's application of the NPV = 0 principle. Appendix B explains our concerns with the other reasons cited by the AER.

23 AER, 21 May 2021, *Term of the rate of return*, p.4.
24 AER, 21 May 2021, *Term of the rate of return*, p.4.
25 Lally, 9 April 2021, *The appropriate term for the allowed cost of capital*, pp.3–4.
26 AER, 21 May 2021, *Term of the rate of return*, Tables 1 and 2, pp.19–21. For instance,

Topic	Question	Response
	years) or a longer period more consistent with the life of the underlying asset life (e.g. ten years)? (pp.1&44)	
Form of return on debt	*4. What is the appropriate form for the return on debt for businesses we regulate?* (pp.1&50)	• The trailing average remains the most appropriate form. In short, there is no obvious case for adopting an alternative form. • The trailing average approach: – aligns with efficient debt financing practice, where an efficient long-lived infrastructure owners would hold a debt portfolio with staggered maturity dates – allows services providers to manage interest rate risk without exposing themselves to substantial refinancing risk – giving them a reasonable opportunity to recover efficient financing costs – satisfies the NPV = 0 principle and does so at the lowest costs to consumers. • Most gas and electricity network service providers are still transitioning to a trailing average following the 2013 rate of return guideline. It would be premature to move to an alternative form of debt when the trailing average is only just starting to apply. • Lally has also advised the AER that it is appropriate to retain the trailing average when estimating the return on debt.[27]
Term of the return on debt	*5. What is the appropriate term of debt given the form of the return on debt (in your response to question 3)?* (pp.1&50)	• The term of debt should be 10 years. • The term should match the term that an efficient business seeks when issuing new debt. This is consistent with the AER's preliminary position. [28] • The data that we have seen suggests that Australian energy networks are targeting 10 years: – once you adjust for value weights and include subordinate debt, the WATMI is close to 10 years[29]

27 Lally, 9 April 2021, *The appropriate term for the allowed cost of capital*, pp.3–4.
28 AER, 21 May 2021, *Term of the rate of return*, p.49.
29 Lally, 9 April 2021, *The appropriate term for the allowed cost of capital*, pp.50–51.

Topic	Question	Response
		– it tends to exceed 10 years if the NSW businesses that are still transitioning their debt portfolios following privatisation are excluded. • This supports the continued use of a 10 year term. The AER should only depart from the current 10 year term where there is sufficient evidence to do so (i.e. there is a clear departure from 10 years across most energy networks). • We will reconsider this question further once we see the AER's forthcoming working paper on the return on debt.
Use of EICSI and WATMI	*6. Should our index of network debt costs (EICSI) and the corresponding WATMI be used to adjust the benchmark debt term?* (pp.1&50)	• We previously provided our views on the potential role of the EICSI and WATMI.[30] • In short, we were concerned that: – using the WATMI is inconsistent with previous rate of return guidelines and instruments where the role of independent data curves was considered superior to use of actual data[31] – there was insufficient information or clarity for us to assess the usefulness of the EICSI and WATMI for determining the return on debt – using the EICSI and WATMI to determine the return on debt would mark a 'strategic change' that could affect the incentives networks face when raising debt (i.e. they will need to think about the impact on the EICSI and WATMI when doing so, not just on what is efficient debt financing). • The quality and usefulness of the EICSI and WATMI should be objectively assessed before it is used to inform the return on debt.
Transitional arrangements	*7. What transitional arrangements would be required if a change in the debt term is*	• There is a clear link between the assumed tenor and the trailing average used to determine the cost of debt. • *If* there were a clear case to adopt a different tenor, then it may be appropriate to adopt a transition equivalent to that used to arrive at the 10 year trailing

30 APGA, *APGA Submission to the AER – Draft working paper on Energy Network debt data*, 14 August 2020.

31 To our knowledge, no clear case has been made on why a new index is required in addition to three other independent indices currently being used.

Topic	Question	Response
	implemented? (pp.1&50)	average reflected in the 2018 RORI. However, it is not clear how such a transition would work. • It also risks compounding transitions. Applying a new transition to an energy network that is already part way through a transition would be complicated and potentially costly for an efficient business to replicate. It would also be challenging for many consumers to understand. • At one extreme, if the term were to change every time that the RORI were updated (e.g. because average terms change over time), then it is conceivable that the return on debt would constantly be transitioning from one average to another. • We should avoid this situation by targeting what is considered efficient debt financing practice rather than simply aligning the debt term to the average debt tenor that may be observed from time to time. Targeting such efficient practice can help lead to stability in the choice of assumed debt tenor – helping to avoid the need to amend transitions every time the RORI is updated.
Rate of return and cash flows in a low interest rate environment		
Low interest rate environment	*Are we in a low interest rate environment?* (pp.3&12)	• Yes, we are in a low interest rate environment. We agree with the AER. • This is evidenced by the charts presented by the AER.[32] Nominal yields on 10 year Government bonds are lower than they have been for the last 70+ years. • The RBA estimates that its recent bond purchases have reduced longer-term government bond yields by around 30 basis points.[33] • There is also evidence that real interest rates have fallen over at least the last 30 years, as the AER's paper itself shows.[34]
Consequences of low interest rates	*What are the consequences of interest rates being low?* (p.4)	• We agree with the AER that low interest rates lead to lower debt financing costs, but the extent to which they have affected the cost of equity is an open

32 AER, 21 May 2021, *Rate of return and cashflows in a low interest rate environment*, pp.12–17.
33 Debelle, G., 6 May 2021, Monetary Policy During Covid, Shann Memorial Lecture, Reserve Bank of Australia, p.14.
34 AER, 21 May 2021, *Rate of return and cashflows in a low interest rate environment*, pp.18–21.

Topic	Question	Response
	How might changes in the risk free rate affect the rate of return? (p.22)	question to be debated in forthcoming working papers. • If the cost of equity moves differently to debt in relation to the risk-free rate, we disagree with the AER that a fall in the cost of debt if not matched by a fall in the cost of equity would lead to an increase in gearing.[35] The AER's proposition assumes that networks can in fact increase debt easily and without limit. • For instance, when interest rates go down, this does not mean that individuals gear up their investment properties. It also does not mean that investors are willing to take lower rents and capital gains. • In fact, almost all debt holders place covenants on debt which limit the amount of new debt that can be raised to avoid a change in their own risk profile, and this would serve to limit any increase in gearing.
Changes needed	*Does this suggest that there is something that needs to be addressed?* (p.4)	• Yes, the AER should reconsider its approach to the return on equity. The low interest environment has revealed just how fragile assuming that the return on equity is a fixed markup on the risk-free is. • We and others have pointed out our concerns with this assumption in the past.[36] The low interest rate environment simply exacerbates those concerns. • We welcome the AER's opened mind to reconsider its approach to the return on equity and look forward to reading the foreshadowed paper by CEPA and the AER's return on equity paper. • We explain why something needs to change in section 3.
Financeability	*N/A*	• Financeability checks are important to ensure efficient and timely investment. • The draft working paper suggests that the AER does not intend to have regard to this when finalising the 2022 RORI. • This is a concern to us. There is no obvious harm if the AER considers financeability as a cross check before finalising the instrument.

35 AER, 21 May 2021, *Rate of return and cashflows in a low interest rate environment*, p.34.

36 See, for instance: APGA, 9 October 2020, *APGA Submission to the AER – Draft working papers on return on equity models and international approaches to the rate of return*, pp.6–9.

Topic	Question	Response
		• Section 4 explains out concerns and how the AER could incorporate financeability into the 2022 RORI review.

Appendix B: Review of other reasons for a 5 year term of equity

This appendix sets out our view as to why the other reasons for adopting a 5 year term for equity identified in the draft working paper on the term do not hold. Several of these reasons appear to be extensions of Lally's advice that the NPV = 0 principle supports a 5 year term.

Table B.1: Other reasons used to justify a 5 year equity term

Other reason	Reason why it does not support a 5 year term
The AER's regulatory task is different to investors at is only concerned about cash flows and expected returns over the next regulatory period and not over a longer ongoing period	This is untrue. AER regulatory decisions affect cash flows over more than just the next regulatory period. For instance, the AER: • approves capex allowances and asset lives that affect cash flows beyond the next regulatory period[37] • designs and approves depreciation methods – such as the year-on-year tracking method – that calculate forecast depreciation over the next regulatory period by projecting depreciation over the life of assets[38] • reviews and approves the business cases for expenditure that affect efficiency or life cycle costs beyond the next regulatory period (e.g. efficiency initiatives, capex-opex tradeoffs and the like) • approves incentive mechanisms that affect cash flows beyond the next regulatory period, such as the CESS and EBSS • approves pass-throughs that can affect cash flows in subsequent regulatory periods • considers how capital contributions should be calculated such that the NPV of cash flows related to new connections over lives well beyond the next regulatory period are zero

37 The AER's recent decision on Jemena Gas Network's proposed changes to asset lives clearly considered longer term cash flows.

38 Specifically, in its depreciation module to the Post-tax Revenue Model, the AER projects forecast depreciation of each asset class until the end of its life – which extends well beyond the next regulatory period. It then scales that depreciation up or down so that it matches the RAB value for each asset class. In this way, the final depreciation forecast for each regulatory period is affected by depreciation projected beyond that period.

Other reason	Reason why it does not support a 5 year term
	• consider long-run marginal costs when determining regulatory prices, with such costs extending well-beyond the next regulatory period • adopts return on debt estimation methods and transitions that affect how return on debt allowances are set in subsequent regulatory periods. To ignore the reality that the AER does and most consider cash flows beyond the next regulatory period is misleading. Going further to say, therefore, that a 5 year term is appropriate is simply wrong. Moreover, if it were true that the AER were only concerned about cash flows over the next period, then this is inconsistent with the NGO (and NEO). That objective is clear that the focus should be on consumers' long-term interests. It is simply not possible to consider those interests without considering cash flows beyond the next regulatory period. We discuss this further in section 2.5. Curiously, the AER's position paper on assessing the long-term interests of consumers makes clear that it considers the long term by considering dynamic efficiency,[39] which inherently requires a multi-period view of cash flows. It is hard to see how dynamic efficiency could be considered without considering longer term cash flows or expected returns. In that paper, the AER also explains that: [40] *The NEO and NGO 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.* Since consumer cash flows to regulated networks affect prices charted to consumers, it is unclear how the AER could interpret its task as only being concerned about cash flows over the 5 year regulatory period. It also appears inconsistent with what it actually does do – which is consider cash flows that extend beyond the next regulatory period.

39 AER, May 2021, *Assessing the long term interests of consumers*, p.4.
40 AER, May 2021, *Assessing the long term interests of consumers*, p.4.

Other reason	Reason why it does not support a 5 year term
Matching the term of equity to the length of the regulatory period means that the AER would be providing compensation that is consistent with its regulatory task and investors expectations over the same period	This is an extension of Lally's advice. Even if we put our concerns with that advice to one side, there is no basis for the AER's reason here: • the AER's regulatory task should be to determine allowed revenues and prices that promote the NGO – as a long-term objective, it would inappropriate for the AER to constrain its task to just the next 5 years[41] • this means that the allowed return on capital should match the expectations of investors in the market for bearing a given level of systematic risk • investors form expectations over the life of the assets in which they invest – there is no basis for artificially assuming that they only form expectations for the next 5 years • making such an artificial assumption would result in an allowance that does not match the opportunity cost of capital – it would lead to allocative *in*efficiency as capital is diverted away from the energy sector due to an artificial constraint that is irrelevant to investors' decision-making.

[41] In fact, the AER routinely makes decisions for one regulatory period that affect how revenues are determine in subsequent regulatory periods. Incentive mechanisms, for instance, often measure performance in one period and then reward or penalise that performance in subsequent periods. Capital allowances for one regulatory period affect allowed revenues and prices in subsequent periods as that capital is recovered over the economic life of the assets.

Other reason	Reason why it does not support a 5 year term
The yield curve is typically upward sloping, which means a longer-term risk-free rate will lead to higher regulatory cash flows than if a short term rate is used. Regulated businesses would be overcompensated for risks they do not bear when the term of equity exceeds the length of the regulatory period	This reason is also an extension of Lally's advice. It also rests on the premise that equity investors do not bear risk beyond the end of the next regulatory period. There is no basis for it. Section 2 explains why Lally's advice is flawed. But even if we ignore those flaws for now, it is simply not true that equity investors do not bear risk beyond the next regulatory period because they face risks, such as: • allowed returns on and of capital in years after the next regulatory period are affected by regulatory decisions that are presently unknown • businesses are responsible for managing safety, reliability, security, and other risks that occur beyond the next regulatory period – and these risks affect equity returns. It would be an error of logic to assume away these and other risks when regulating businesses that are clearly affected by them.
The return on equity can be thought of as a long-term floating rate bond with a coupon that resets at the start of every regulatory period	This is factually inaccurate, and it is reasonably clear that Lally meant it only as an allegory rather than a recommendation to guide how regulators view networks. Key characteristics of floating rate bonds are that:[42] • they have a maturity date by which outstanding capital is repaid • the value of the capital is fixed • the coupon rates are set based on a pre-defined index (e.g. a swap rate) • they rank above equity holders in the event of a liquidation of the entity.[43] These characteristics do not apply to equity, which: • do not have a fixed maturity date

[42] Although Lally and the AER both refer to 'floating rate bonds', the description provided by Lally appears to better reflect the characteristics of a coupon-resetting bond. Such bonds are rare.

[43] In fact, Lally refers to floating rate *government* bonds in his analogy. Such bonds have a significantly lower risk profile than equity – and it is for this reason that Commonwealth Government Securities are commonly used to proxy the risk-free asset.

Other reason	Reason why it does not support a 5 year term
	• has value that fluctuates with the value of the entity less any outstanding debt • does not get pre-determined coupon payments – instead, equity holders earn residual profit after costs are deducted • ranks below debt holders in the event of a liquidation. To ignore these differences by characterising equity as being like debt with floating rate coupons that reset once every regulatory period is misleading. To then conclude that that characterisation supports a 5 year term is an error. Not even Lally drew that conclusion.[44]
The ERA and NZ Commerce Commission both matched the term of equity to the length of the regulatory period, and these were upheld on appeal	This is clearly factually true. However, it is not reason to adopt a 5 year term for the return on equity, especially given that both the ERA and NZ Commerce Commission relied on Lally's advice when adopting 5-year terms. The NZ Commerce Commission uses a different cost of equity model than the AER, namely the Brennan-Lally CAPM. It also makes an upward adjustment to its allowed rate of return (to the 67th percentile). It would be inappropriate to adopt one aspect of that regulator's approach to estimating the rate of return without aligning with the other components. The AER would need to reconsider its foundation model if it were to rely on the NZ Commerce Commissions approach to equity. Moreover – as identified in the draft position paper – there are significantly more regulators that adopt equity terms that exceed the length regulatory period than those that match it. Some significantly longer (e.g. 20 or 30 years). It would be inappropriate to only have regard to 2 regulators when 14 other regulators adopted equity terms of at least 10 years. The Term Paper appears selective by only placing weight on the Competition Tribunal's 2012 decision while ignoring that past AER decisions have relied on an earlier 2003 Tribunal decision to support a 10-year term. The Tribunal ruled in 2003 that a ten-year term was appropriate. It also ruled in 2012 that the ERA was justified in using a five-year term. As the AER points out in the Term Paper, it responded immediately to the 2003 decision and has used ten years ever since. By contrast, the 2012 decision informed neither the 2013

[44] In his paper, Lally compares the regulatory valuation problem faced by the AER to that of a floating-rate government bond. However, he does not use this illustration to justify a 5-year term for the risk-free rate or term of equity. Lally did not compare the characteristics of equity in regulated energy networks to floating-rate government bonds.

Other reason	Reason why it does not support a 5 year term
	rate of return guideline nor the 2018 RORI. The Term Paper does not explain why it might now be appropriate to rely on the 2013 decision and not the 2003 decision. The NZ High Court is a foreign court. In the past, the AER has (understandably) been cautious when relying on foreign legal precedent. If the AER now intends to place some weight on such precedent, then it is important to do so in a balanced way. There are many other precedents that the AER could consider. For instance, the Competition Markets Authority in the UK has many decisions that support much longer terms for the risk-free rate. We would be concerns if the AER only selectively placed weight on the NZ precedent without having regard to other – in our view equally relevant – precedent.