Rate of return

Information paper

and call for submissions

December 2021

AUSTRALIAN ENERGY REGULATOR

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Amendment Record

Version	Date	Pages
1.0	17 December 2021	33

Contents

Shortened forms

Shortened form	Extended form
2018 Instrument	The rate of return instrument published on 17 December 2018
2022 Instrument	The rate of return instrument to be published in December 2022
ABS	Australian Bureau of Statistics
ACCC	Australian Competition and Consumer Commission
ACM	Authority for Consumers and Markets (a Dutch regulator)
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
ARERA	Italian Regulatory Authority for Energy, Networks & the Environment
ASX	Australian Securities Exchange
ATO	Australian Taxation Office
Brattle	The Brattle Group
CAPM	Capital asset pricing model (Sharpe-Lintner CAPM)
CGS	Commonwealth government securities
CMA	Competition and Markets Authority (UK)
CPI	Consumer Price Index
CPIH	Consumer Price Index including owner occupiers' housing costs
DGM	Dividend growth model
EICSI	Energy Infrastructure Credit Spread Index
FERC	Federal Energy Regulatory Commission (a US regulator)
FFO/net debt	Funds from operations to net debt
DGM	Dividend growth model
HER	Historical excess returns
Instrument	Rate of return instrument
ISP	Integrated system plan
MRP	Market risk premium
NEL	National electricity law

NEO	National electricity objective
NER	National electricity rules
NGL	National gas law
NGO	National gas objective
NGR	National gas rules
NPAT	Net profit after tax
NPV	Net present value
NZCC	New Zealand Commerce Commission
Ofgem	Office of Gas and Electricity Markets (a UK regulator)
Ofwat	Office of Water Services (a UK regulator)
PTRM	Post-tax revenue model
RAB	Regulatory asset base
RBA	Reserve Bank of Australia
REU	Regulatory Economics Unit
RFR	Risk free rate
RORI	Rate of return instrument
SL CAPM	Sharpe-Lintner capital asset pricing model (or just CAPM)
STB	Surface Transportation Board (a US regulator)
TNSP	Transmission network service provider
UK	United Kingdom
US	United States of America
WACC	Weighted average cost of capital
WATMI	Weighted average term to maturity at issuance

1 Purpose of this paper

This information paper is the first paper in the 'Making the Instrument' set of papers which take us from the positions set out in the individual working papers to the final 2022 Instrument The purpose of this paper is two-fold:

1. To set out priority topics for the Concurrent Evidence Sessions, and
2. To call for submissions to inform our draft rate of return instrument.

Throughout 2020 and 2021 we have been developing working papers which have explored specific issues on the rate of return. The papers have also explored the breadth of issues across the rate of return. In the papers we have noted preferred, preliminary and open positions on each aspect of the rate of return. In doing so, we have been able to identify issues that are a priority for consideration in the 2022 rate of return instrument (2022 Instrument). Stakeholders have broadly agreed with our characterisation of each of the issues.

The Concurrent Evidence Sessions comprise four 2.5 hour sessions, held over two days, separated by one week. These sessions will see a small number of experts engage in a group discussion with the AER board in order to aid them in their decision-making process. The sessions are not intended to develop consensus or majority views which would then bind the Board's decision making. In addition, it is important for the Board to be able engage with a balanced overview of the key topics where the breadth of expert views are available.

In this paper we set out the six priority topics we have identified to date. We think the Concurrent Evidence Sessions will be of most assistance to our decision making if they focus on these six issues. Similarly, we think submissions ahead of the draft instrument will be most helpful if they address the six priority issues. However, we have also included some detail on other areas of the Instrument that we have previously considered for reference and to guide stakeholders in their submissions. We note that the submission period following the Information Paper is the final opportunity for stakeholders to provide submissions ahead of the draft Instrument in June 2022. The experts' conclave in January 2022 is also an opportunity for the experts to advise us of other topics they think we should prioritise. Similarly, stakeholders are welcome in their submissions to direct our attention to any aspect of the rate of return.

The six priority topics we have identified are:

- Term of the rate of return
- Market risk premium (MRP)
- Equity beta
- Use of the industry Index
- Weighted trailing average return on debt
- Cross checks of the rate of return.

First up in this paper, we provide a table that sets out our preferred, preliminary, and open positions across the breadth of the rate of return. A preferred position is one that we have taken after having considered extensive evidence and the results of consultation, but where we are open to considering additional evidence. A preliminary position only indicates our initial thoughts on the issue. Where we consider an issue needs more analysis and wider input, we indicate an open position.

We trust this will be helpful for stakeholders as a reference guide and a prompt for expressing views. We then move on to the six priority issues. For each issue we provide a high-level summary of each topic and a reading guide indicating where readers can find more detailed discussion in each of our working papers. We also include a short set of questions highlighting the key aspects of each topic that are of most interest to us. As such we are not repeating the full analysis covered in our working paper series.

We then include a short list of other areas of the rate of return explored through our working paper series that stakeholders may wish to review. We also provide a link to material where stakeholders can find more detailed discussion on these other issues.

1.1 Invitation for submissions

We invite interested stakeholders to make submissions on both our final omnibus paper and this information paper by **11 March 2022**.[1]

This submission period is the final opportunity for stakeholders to provide submissions ahead of the draft Instrument. Submissions will be most helpful if they address the six priority issues identified in this information paper, however stakeholders are welcome to direct our attention to any aspect of the rate of return in their submissions.

We will consider and respond to all submissions received by that date in our draft Instrument which will be published in **June 2022**.

Submissions should be sent to: RateOfReturn@aer.gov.au

Alternatively, submissions can be sent to:

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Submissions should be in Microsoft Word or another text readable document format.

The AER prefers that all submissions be publicly available to facilitate an informed and transparent consultative process. We will treat submissions as public documents unless otherwise requested.

Parties wishing to submit confidential information should:

- clearly identify the information that is the subject of the confidentiality claim
- provide a non-confidential version of the submission in a form suitable for publication.

All non-confidential submissions will be placed on the AER's website.[2]

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1 NEL, s. 18M; NGL, s. 30H.

2 For further information regarding our use and disclosure of information provided to us, see the *ACCC/AER Information Policy* (June 2014), which is available on our website: https://www.aer.gov.au/publications/corporate-documents/accc-and-aer-information-policy-collection-and-disclosure-of-information.

2 Introduction

Investors in any business expect to receive an additional return above their initial investment (or capital). We use the phrase 'rate of return on capital'—or just 'rate of return'—to refer to this additional amount when expressed as a percentage of the initial investment. 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. We consider that the National electricity objective (NEO), National gas objective (NGO) and the long-term interests of consumers are best served through this guiding principle.[3] In this context, we published a position paper that sets out our views around what the NEO and NGO mean in regard to setting the expected rate of return.[4] In particular, we discuss how the concept of the long term interest of consumers—mentioned in the NEO and NGO—features in setting the expected rate of return.

The rate of return Instrument sets out how we determine the allowed rate of return on capital in regulatory determinations for energy networks. It specifies the mathematical formulae we will use to calculate the rate of return, and how we will obtain inputs for those formulae. It defines some inputs (fixed for the duration of the instrument) and for others states the process by which we will measure market data and use it as an input at the time of a decision.

There are many interrelationships between the individual components that are relevant to the estimates of the return on equity and the return on debt which we must have regard to in developing the rate of return Instrument. While we assess each individual rate of return input parameter in detail to determine the best possible estimate of the expected rate of return, our approach also allows us to take a holistic view of our return on equity estimate and overall rate of return. We want to develop an instrument that in the round contributes to the achievement of the long-term interests of consumers.

The current rate of return instrument was published on 17 December 2018 (the 2018 Instrument). In December 2022 we will publish the next rate of return instrument (the 2022 Instrument). This binding instrument will determine the allowed rate of return on capital for the following four-year period. We estimate the rate of return for regulated energy businesses by combining the returns of two sources of funds for investment: equity and debt. The rate of return provides the business funds to service the interest on its loans and give a return to shareholders.

2.1 Indicative timeline

In our Pathway to 2022, we set out the high-level process we will follow to develop the 2022 Instrument. As part of this process, we established a sequence of focused working papers. The aim of our working paper series was to explore the key issues relating to the rate of return and identify new theoretical and empirical evidence since the previous review. They were also a focal point for stakeholder consultation.

This information paper marks the start of the ‘Making the Instrument’ papers and activities that will take us from our positions set out in the individual working papers to the final 2022 Instrument.

The consultation period on the Information Paper will close in March 2022 after the conclusion of the Concurrent Evidence Sessions in February 2022. Hence, stakeholders will

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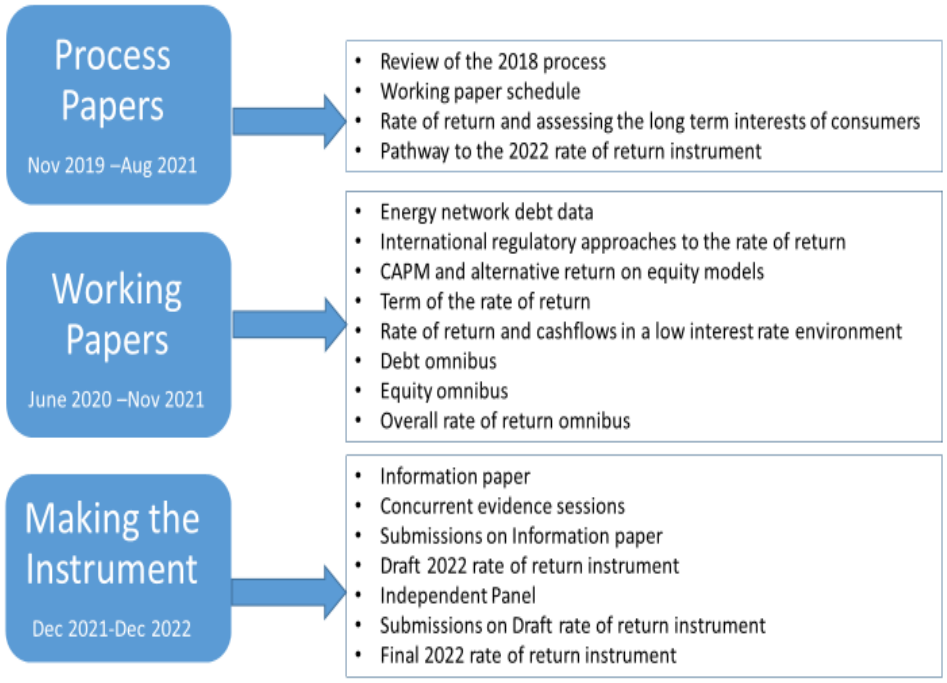
3 NGL, s. 23; NEL, s. 7.

4 AER, Rate of return and assessing the long term interests of consumers - Position paper, May 2021

have an opportunity to include their views on the expert sessions in their submission. Should stakeholders wish to make a submission to the Independent Panel, this submission can also be included as part of their response to the Information Paper. While this period is final opportunity for stakeholders to provide submissions ahead of the draft Instrument there will be a final opportunity for stakeholders to make a submission on the draft Instrument in September 2022.

Figure 1 Elements of the Pathway to 2022



An indicative timeline for Making the Instrument stage of our Pathway to 2022 is below.

Table 1 Indicative timeline of the 2022 Instrument

Milestone	Date
Experts conclave	27 January 2022
Concurrent evidence sessions	10 and 17 February 2022
Submissions on Information Paper close	11 March 2022
Draft 2022 Rate of Return Instrument released	June 2022
Release of Independent Panel's report	August 2022
Submissions on Draft Instrument close	September 2022
Final Instrument	December 2022

2.2 Positions and issues canvassed

Generally, in developing our working papers, we put forth a proposed position where possible and categorise our position as either preferred, preliminary or an open position. Importantly however, we may change or adapt the positions in the final working papers, as incorporated in the Information Paper, as we further consider issues. In particular, evidence

in submissions to the Information Paper and opinions of experts that participate at our experts' Concurrent Evidence Session will also be considered by us before making the draft 2022 Instrument. We also need to consider the impact of potential individual decisions 'in the round'. While we have focussed on six priority issues at this stage, we welcome receiving further evidence and submissions on all the positions and issues canvassed via our working paper series as well as any other issue related to the rate of return.

Our current positions fall into one of three categories and are set out in the Table 2 below:

- those where we have a preferred position (blue highlight)
- those where we have a preliminary position (yellow highlight)
- those where we have taken no position and are seeking views (green highlight).

Table 2 Rate of return positions and issues canvassed

Working Paper	2018 Instrument position	Positions published as at July 2021	Proposed positions on the 6 focus issues
Energy network debt data	Use the EICSI as a cross-check for benchmark credit rating	EICSI is to be used directly to determine the benchmark blend of A and BBB bonds	Preliminary position is to further analyse and consult on whether the residual outperformance identified, or departures on term should be adjusted for, and what form such an adjustment may take
	Use the weighted average term to maturity at issuance (WATMI) as the floor of possible options for the benchmark term	An updated WATMI, combined with the more detailed drawdown data, may be useful in determining a benchmark term	Preliminary position that the WATMI can be useful in determining the benchmark term. Open to considering change to the benchmark term further but note the practical difficulties and further analysis required.
International regulatory approaches to the rate of return	Review of instrument to be held every five years consistent with legislation. Annual updates to be undertaken annually.	Review of instrument to be held every four years consistent with legislation. Annual data updates published.	
	Set the risk-free rate only at the beginning of each reset period	Set the risk-free rate only at the beginning of each reset period	
	Make no adjustments for expected incentive scheme outcomes	Make no adjustments for expected incentive scheme outcomes	
CAPM and alternative return on equity models	Standard Sharpe-Lintner CAPM model used as the basis for determining the return on equity	Standard Sharpe-Lintner CAPM model used as the basis for determining the return on equity	
Term of the rate of return*	The term of equity and debt were of ten-year duration	It is unnecessary to align the term of equity, debt and expected inflation	Preferred position is that the terms of equity, debt and inflation do not have to be of the same value.
	10-year term for return on equity, consistent with life of underlying asset	Ten-year term consistent with existing practice or five-year term for return on equity, consistent with length of the regulatory period	This topic remains open and will continue to consult on this topic as part of our 2022 review including at the Concurrent Evidence Sessions. 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.
	Return on debt determined through a trailing average approach	Return on debt determined through a trailing average approach	Preferred position is to estimate the return on debt through a trailing average approach.

	Ten-year term for return of debt	Match the term of the return on debt to that of an efficient firm's borrowing	Preferred position is to match the term of the return on debt to that of an efficient firm's borrowing based on Dr Lally's advice. Preliminary position is that the WATMI can be useful in determining the benchmark term but note the practical difficulties of change and further analysis required.
Rate of return and cashflows in a low interest rate environment		We are currently in a low interest rate environment.	
		The reduction in our return on debt has been in line with movements in the broader market for debt and the costs the regulated businesses face.	
	Commonwealth Government Securities are an appropriate proxy for the riskless investment for our purposes.	Commonwealth Government Securities are an appropriate proxy for the riskless investment for our purposes.	
	Measures of financeability are not used directly when setting the rate of return	Measures of financeability are not used directly when setting the rate of return	Consistent with our preliminary position on overall cross checks, our preliminary position is that we intend to review financeability tests as a sense check on our overall allowed rate of return.
Equity Omnibus*	Use comparator set of nine Australian firms to estimate equity beta	Use comparator set of nine Australian firms to estimate equity beta	Our preliminary position is to maintain the current approach for estimating beta. This includes retaining the current comparator set. We need to lay the foundation for future reviews to consider approaches which may involve being informed by international energy firms and domestic infrastructure firms.
	Give the greatest weight to equity beta estimates from the longest estimation period	Give the greatest weight to equity beta estimates from the longest estimation period	Our preliminary position is to continue to place most weight on the longest period estimates.
	Set a forward-looking market risk premium	Set a forward-looking market risk premium	
	Diminished confidence in the use of dividend growth models	Consider if the dividend growth model might be used to inform the relationship between the MRP and risk-free rate	Open to considering the use of estimates from the dividend growth model to inform our point estimate of the MRP within the range observed from the evidence we look at.
			Open to considering the use of estimates from the dividend growth model estimate(s) alongside the historical excess returns estimate by applying a method to give weight to both sets of estimates.

	In determining the MRP, have regard to the historical excess return, both the arithmetic and geometric mean MRP, and MRP surveys and conditioning variables	In determining the MRP, have regard to the historical excess return, both the arithmetic and geometric mean MRP, and MRP surveys and conditioning variables.	Open to considering the historical excess return, both the arithmetic and geometric mean MRP, and MRP surveys and conditioning variables
	No reliance placed on the Wright approach	Consider the potential for a relationship between the MRP and risk-free rate, and whether an appropriate implementation method is available	Not pursue the potential for a relationship between the MRP and risk-free rate, and whether an appropriate implementation method is available
	Allow networks flexibility in nominating the averaging period for the risk-free rate	Allow networks flexibility in nominating the averaging period for the risk-free rate	
	Averaging period was between 20 and 60 consecutive business days within a window running from between three and seven months prior to the commencement of the regulatory control period	Shift the allowed nomination period window for the risk-free rate forward in time by one month to lessen timing issues	
	Use cross checks to inform our overall return on equity point estimates	Use cross checks to inform our overall return on equity point estimates	
	Adopt a single benchmark for electricity and gas businesses.	Adopt a single benchmark for electricity and gas businesses.	Our preliminary position is to continue to adopt a single benchmark for electricity and gas business and to consider gas network stranding risk under the broader regulatory framework. We are open to considering further evidence on this matter.
	Do not adjust for 'low beta bias'.		Our preliminary position is to not adjust for 'low beta bias'.
Debt Omnibus*	Application of a simple trailing average approach to determine the return on debt, with a 10 per cent weighting for each of the 10 years	Seek views on weighting trailing average approach by capex spending	We will continue to explore and analyse the available options: • Option 1: Maintain the current (simple trailing average) approach. • Option 2: Weighted trailing average that applies to every regulated business. Weights are based on the debt issuance assumptions in the PTRM. • Option 3: Weighted trailing average only starts to apply when a large increase in the regulatory asset base (RAB) (and therefore debt issuances) is forecast. We would need to set a threshold for the shift to a weighted trailing average. Once the weighted trailing

			average is triggered, weights are based on the debt issuance assumptions in the PTRM. • Option 4: Weighted trailing average that applies to all TNSPs. Weights are based on the debt issuance assumptions in the PTRM. Our preliminary position is that if a weighted trailing average (using any of the above options) was to be adopted, it should be based on the debt issuance assumptions in the PTRM.
	The debt averaging period must start no more than 16 months before the regulatory period, and finish no less than four months prior to the commencement of the regulatory period	Change timing so the debt averaging period must start no more than 17 months before the regulatory period, and finish no less than five months prior to the commencement of a regulatory year.	
	Included only pure debt instruments in the EICSI, excluding hybrids, working capital and bridging loans, any instrument with a term under 12 months, and any instrument not used to finance the RAB	Included only pure debt instruments in the EICSI, excluding hybrids, working capital and bridging loans, any instrument with a term under 12 months, and any instrument not used to finance the RAB	
	Used the EICSI purely as a cross-check for benchmark credit rating	Implement the EICSI by adjusting the weights of A and BBB data to match network cost of debt over the past four years	Preliminary position is to further analyse and consult on whether the residual outperformance identified, or departures on term should be adjusted for, and what form such an adjustment may take.
	Instrument set out a number of contingencies to ensure that the formulaic application of the instrument could be applied in instances where all relevant debt data was not available	Continuation of 2018 approach	
	Debt raising costs collected on the basis of historical criteria	Debt raising costs collected through a Debt RIN to be issued in 2021	
	Continued use of the RBA and Bloomberg data providers, while adding Thomson Reuters	Continued use of the RBA, Bloomberg and Thomson Reuters data providers.	
		Consider the merits of any additional debt data providers	
	Debt averaging periods must be between 10 days and a year in length and not overlap with each other.	Debt averaging periods must be between 10 days and a year in length and not overlap with each other.	
	Nominal vanilla WACC, estimated as a weighted average of the return on equity and return on debt	Nominal vanilla WACC, estimated as a weighted average of the return on equity and return on debt	

Overall Rate of Return Omnibus*	Place primary reliance on market value estimates and the continued use of existing observation periods when estimating gearing	Place primary reliance on market value estimates and the continued use of existing observation periods when estimating gearing	
	In calculating gearing, hybrid securities excluded from Envestra and Spark Infrastructure, but included for AusNet services	Seek views on the inclusion of hybrid securities for gearing.	
	After reviewing data, consistency with previous use of 60 percent gearing	Consider adjusting gearing to more closely align with market data	
	Distribution rate for imputation credits obtained through the use of ASX50 firms, utilisation rate from ABS wealth data	Distribution rate for imputation credits obtained through the use of ASX50 firms, utilisation rate from ABS wealth data, pending investigation of ATO data	
	Assume that non-resident investors assign no value to imputation credits	Assume that foreign non-resident investors assign no value to imputation credits	
	Cross checks have limitation but can provide contextual information. However they are not useful in informing the rate of return directly	Seeking views on the use of cross checks	Our preliminary position is to use overall cross checks as a sense check on our overall allowed rate of return. That is, gauge whether the regulatory allowance is likely to be sufficient; alternatively, evidence is used to assist with identifying potential issues with our regulatory regime and areas of further research and inquiry. We intend to review RAB multiples, scenario testing and financeability tests. To the extent any information can be drawn, RAB multiples may act as a trigger for investigation and indicate if the total compensation (inclusive of the rate of return) provided to investors is sufficient. We think historical profitability, investment trends, other regulators' rate of return and other practitioners' discount rates have greater limitations and are of less value than RAB multiples, scenario testing and financeability

3 Issues canvassed

This section provides a high-level summary of each topic and a reading guide indicating where readers can find more detailed discussion in each of our working papers. A short set of questions highlighting the key aspects of each topic that are of most interest to us is also included for each topic.

3.1 Term of the rate of return

In a commercial context, the term of the required rate of return on an asset relates to the expected time horizon of investors' investment in an asset. These may be investors that take on debt issued by the firm or take an equity stake in the firm. In a regulatory context, the term of the allowed rate of return is related to the time horizon of the regulatory allowance. The term of the return on equity determines how we estimate the risk-free rate and the market risk premium. It is also sometimes referenced as the term of the risk-free rate. The risk-free rate is an input to estimate the allowed return on equity. The term of the return on debt determines the specific yields on corporate bonds which will be used as an input for estimating the return on debt.

There are typically two choices for the term of the rate of return:

- Match to the length of the regulatory period (typically five years)
- Match to the underlying asset lives (typically ten years is used as it is considered to better reflect long asset lives)

The 2018 Rate of Return Instrument set the term for the rate of return as ten years for both the return on equity and return on debt. We previously also determined a ten-year estimate of the expected inflation. 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.[5] This prompted our review of the term of the rate of return including whether we can assess the terms for inflation, debt and equity independently of one another.

Our preferred position is that the term of the return on equity, term of the return on debt and the term for expected inflation should be independently assessed. The choice of terms should be underpinned by the same principles and this may lead to the same term being applied.[6]

We have decided to leave the term of the return on equity and term of the return on debt open for further consideration as part of Concurrent Evidence Sessions in 2022. This is because we would like to gather more evidence and hear expert opinions on these issues. Stakeholders will also have a chance to comment on these issues further after the expert sessions.

We set out our key considerations for the term of equity and term of debt below.

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5 AER, *Final position, Regulatory treatment of inflation*, December 2020, p. 35

6 AER, *Term of the rate of return & Rate of return and cashflows in a low interest rate environment, Final working paper,* September 2021, p. 43.

Return on equity

We are open on whether to match the term of equity to the length of the regulatory period or the underlying asset lives. However, we have noted that there are merits with matching the equity term to the length of the regulatory period rather than ten years:[7]

- It satisfies the zero net present value (NPV=0) condition.
- The problem facing a regulator with a five-year regulatory cycle is different from that of valuing an unregulated business. Valuing an unregulated business typically involves establishing its value at a particular point in time based on expected cashflows over its entire lifespan. A regulator must establish a methodology that sets components of expected cash flows for various regulated businesses which apply for a regulatory period. We are also only concerned with estimating efficient costs attributable to a single regulatory period rather than over the entire asset life. This is because we reset the revenue allowance every regulatory period.
- It would be consistent with the principle from the 2020 Inflation Review. In that review, we changed the term for expected inflation to match the length of the regulatory period based on the NPV=0 condition and Dr Lally's advice. The same principle when applied to the term of the return on equity would support matching to the length of the regulatory period.

Return on debt

For the term of debt, our preferred position is to maintain the use of a trailing average return on debt and match the term of the return on debt to that of an efficient firm's borrowing based on Dr Lally's advice.[8]

Our preliminary position in our final term paper was to leave the numerical value open for further consideration as we have some reservations about departing from the current ten-year term.[9] We will consider this issue further as part of the Concurrent Evidence Sessions in 2022.

The final omnibus paper included consideration of term in relation to our use of the EICSI and the updated analysis of the weighted average term to maturity at issuance (WATMI) for informing the term of debt. We noted that departures on term appear to be a key driver of the outperformance observed in the EICSI. However, removing term-based outperformance creates significant practical implementation issues, and we consider any change to term must reflect the efficient borrowing practice of firms. We also note that average term of debt in the EICSI varies significantly across service providers and the departures on term are influenced by a few service providers that raise shorter term debt.

Our preliminary position is that the WATMI can be useful in determining the benchmark term. Our updated analysis suggests that the conservative upper bound of WATMI (based on bank drawdown scenarios) remains above 10 years, while the lower band is around 8 years. We consider further analysis on the actual drawdown of bank debt is required to use WATMI to make a more accurate assessment to inform any change to the benchmark term.

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7 AER, *Term of the rate of return & Rate of return and cashflows in a low interest rate environment, Final working paper,* September 2021, p. 18, 52.

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

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

Previous considerations

Table 3 Previous considerations of the term of the rate of return

Document	Summary
Rate of return instrument explanatory statement, December 2018 (Link)	We maintained a ten-year term for the return on equity based on considerations of the NEO/NGO, actual investor valuation practices and academic works and alignment with the Sharpe-Lintner CAPM theory. We noted that there was evidence to support the application of a five-year term for equity. However, we found the evidence to be less persuasive than that of a ten-year term. We maintained a benchmark debt term of ten years because this had been adopted consistently over several regulatory cycles and that regulated networks had an incentive to match debt issuance to the ten-year term in order to minimise interest rate risk. Also, our analysis of actual debt raising practices did not allow us to draw firm conclusions as to the debt term for a benchmark entity.
Regulatory treatment of inflation final position paper, December 2020, December 2020 (Link)	We aligned the term for expected inflation with the length of the regulatory period (five years) because it would: • satisfy the NPV=0 principle • result in expected RAB indexation matching the amount taken out over the regulatory period • be more responsive to changes in market circumstances • allow for prices and revenues to continue to move along with inflation and maintain the current indexation of the RAB to allow intergenerational equity between consumers.
Energy Network Debt Data working paper, November 2020 (Link)	Evaluated options for how the EICSI could be used in estimating the regulated return on debt, credit rating and term. The updated WATMI, combined with the more detailed drawdown data that will be collected in the coming round of data collection, will be useful data in determining a benchmark term, if appropriate. Our preferred option uses curves from external data providers, and as such we require a term to be set. Under our preferred approach for using the EICSI it would not be necessary to apply the WATMI independently.
Draft debt omnibus paper, July 2021 (Link)	The WATMI and average term at issuance showed a declining term, as well as active management of debt instruments. Commenced the work to break down the impact of term and rating on the difference between the EICSI and the AER's benchmark estimate. We think an adjustment should be made if this confirms our initial finding that our current approach is overstating the return on debt. Our preferred adjustment would be to change the blend of A and BBB bonds used in our estimate. This reduces disruption to the current process, whilst making an adjustment that would be equivalent to adjusting the term. It also preserves the option for networks to employ strategies to match our benchmark allowance.
Term of the rate of return & Rate of return and cashflows in low interest rate environment, final working paper, September 2021 (Link)	Preferred position is that the term of the return on equity, term of the return on debt and the term for expected inflation should be independently assessed. The choice of terms should be underpinned by the same principles and this may lead to the same term being applied. Term for the return on equity can match to the length of the regulatory period or the underlying asset lives. Continue to consider and consult on the term for the return on equity as part of the 2022 review and discuss at the Concurrent Evidence Sessions. Preferred position is to maintain a trailing average return on debt and match the term of the return on debt to that of an efficient firm's borrowing. Leave the numerical value open for further consideration as we have some reservations about departing from the current ten-year term. Leave the use of the EICSI and WATMI open for further consideration in the final Omnibus paper.

Document	Summary
Overall rate of return, equity and debt omnibus, Final working paper, December 2021 (Link)	Preferred position is to match the term of the return on debt to that of an efficient firm's borrowing based on Dr Lally's advice. Preliminary position is that the WATMI can be useful in determining the benchmark term but note the practical difficulties of change and further analysis required. Analysis suggests that the conservative upper bound of WATMI (based on bank drawdown scenarios) remains above 10 years, while the lower band is around 8 years. Further analysis on the benchmark term and actual drawdown of bank debt is required.
2021 Rate of return annual update, December 2021 (Link)	The WATMI as at June 2021 ranged from 7.9 (100 per cent of debt facilities drawn down) to 10.2 (no debt facilities being drawn down).

Key questions for stakeholders and experts

We are particularly interested in stakeholders' and experts' views on the following issues:

1. 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?
2. Should the term for equity match to the length of the regulatory period or the underlying asset lives?
3. Should the EICSI (and resulting WATMI) be used to inform the term for the return on debt? And if so, how?
4. If we do change the term for the return on debt how should this be implemented?

3.2 Market risk premium

The market risk premium (MRP) is the difference between the expected return on a market portfolio and the return on the risk-free asset. The expected MRP is not directly observable. As a result, several different methods have been put forward to us by stakeholders to estimate the expected, or forward-looking MRP. These methods largely fall into four categories: using dividend growth models (DGMs); the Wright approach (one for one negative relationship between the MRP and the risk-free rate); historical excess returns; and survey evidence.

Our regulatory task is to determine an overall rate of return (or WACC) for an efficient firm that is in the supply of regulated energy network services commensurate with its efficient financing costs. Because we use an Australian domestic Sharpe-Lintner capital asset pricing model (CAPM), the relevant MRP is the expected Australian dollar return on the Australian market portfolio less the return on the Australian dollar risk free asset.

Our current approach uses historical excess returns as the main source of evidence to estimate the expected MRP. We recognise that the MRP may vary over time; however, it is unclear whether an appropriate method to determine changes (if any) and its direction is available for use in our regulatory task. In the 2018 Instrument we gave more weight to the historical excess returns estimates when selecting a point estimate within our established MRP range and gave less weight to other evidence, such as DGM's, surveys and conditioning variables.

In both our previous rate of return reviews (2013 Guideline and 2018 Instrument) we considered DGM evidence in estimating the MRP. Compared to the 2013 Guideline, we gave

less weight to DGMs in 2018 because we had diminished confidence in these estimates.[10] The networks and the Network Shareholder Group (NSG) submitted in 2021 that more weight should be given to estimates from DGMs. In contrast, the Consumer Reference group (CRG) submitted the DGM should play no role in estimating the MRP.

Having considered stakeholder submissions and expert reports submitted to us since the 2018 Instrument, our final omnibus working paper proposes to keep an open position on the best method to estimate a forward-looking MRP. Stakeholders and experts have provided differing opinions on the underlying factors related to setting a forward looking MRP in a regulatory framework. We propose to explore three potential options:[11]

- Maintain our current approach to inform our estimates of the MRP (consistent with our 2018 Instrument). Under this approach, the historical excess returns method (using both arithmetic and geometric averages) plays a primary role in developing our MRP estimation range. We give less weight to other evidence such as DGMs, surveys and conditioning variables to inform our point estimate from within the historical excess returns range.
- Use estimates from the DGM to inform our point estimates of the MRP, within the range observed by our current approach (similar to our 2013 Rate of return guideline approach). That is, in exercising our judgement to pick a point estimate from the historical excess returns range, we will use the information from the DGMs in a directional sense. Where there is an increasing/decreasing trend in DGM estimates relative to their long-term averages, we may pick a point estimate that is higher or lower within the range of historical excess returns estimates, respectively. Alternatively, we could set a value for the MRP having considered both historical excess returns and DGM estimates and any other relevant evidence.
- Provide more weight to the DGM alongside our current approach (a mechanical approach). This would require us to determine how the historical excess returns estimate(s) and DGM(s) are weighted as well as the specifications of the DGM(s) inputs. Further, given the 2022 Instrument must be applied without exercising any discretion, we will also have to decide whether this method will be used to set a MRP point estimate in the 2022 Instrument or set a method that will mechanically update throughout the life of the Instrument.

We also considered other options but at this point we are not intending to pursue those options after assessing them. These options are:

- Estimating and employing a relationship between the MRP and the risk-free rate.
- Giving weight to the historical Commonwealth Government Securities (CGS) yield when estimating the risk-free rate.
- Set a floor to the risk-free rate to ensure the real risk-free rate does not become negative.

Previous considerations

Further detail of our open position and our reasons for this are discussed in the final rate of return omnibus working paper. A link to this paper is included in the table below. The table below also sets out our previous considerations of the estimation of a forward looking MRP (including links to the relevant documents) and a brief summary of the issues discussed.

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10 AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 92.

11 AER, *Final rate of return omnibus working paper*, December 2021, p. 17.

Table 4 Previous considerations of the market risk premium

Document	Summary
Rate of return instrument explanatory statement, December 2018 (Link)	In determining the MRP, the historical excess returns method (using both arithmetic and geometric averages) played a primary role in developing our MRP estimation range. We give less weight to other evidence such as DGMs, surveys and conditioning variables to inform our point estimate from within the historical excess returns range.
CAPM and alternate return on equity models working paper, December 2020 (Link)	Propose to continue using historical excess returns data to inform our market risk premium and intended to further consider measures to use alongside this method. Open to considering the use of the DGM at the MRP level (rather than the overall return on equity) alongside the historical excess returns approach.
Draft equity omnibus working paper, July 2021 (Link)	Our preliminary view was to continue to consider the historical excess returns, both the arithmetic and geometric mean MRP to inform our selection of a forward looking MRP. Open to considering how our estimates of the MRP could be improved by employing the DGM. Consider the potential for a relationship between the MRP and risk-free rate, and whether an appropriate implementation method is available
Overall rate of return, equity and debt omnibus, Final working paper, December 2021 (Link)	Propose to keep an open position on the best method to estimate a forward-looking MRP and explore three potential options. • Maintain our current approach to inform our estimates of the MRP (consistent with our 2018 Instrument). • Use estimates from the DGM to inform our point estimates of the MRP, within the range observed by our current approach (similar to our 2013 approach). • Provide more weight to the DGM alongside our current approach (a mechanical approach). We also considered other options but decided not to pursue them are after assessing them. These options are: • Estimating and employing a relationship between the MRP and the risk-free rate. • Giving weight to the historical Commonwealth Government Securities (CGS) yield when estimating the risk-free rate. • Set a floor to the risk-free rate to ensure the real risk-free rate does not become negative.

Key questions for stakeholders and experts

We are particularly interested in stakeholders' and experts' views on the following issues:

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?
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?

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?
8. Is there a reliable way to estimate changes in the market risk premium through time?
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?
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?

3.3 Equity beta

Equity beta is a key parameter in our current approach for determining the return on equity under the SL-CAPM. In particular, beta measures an asset's systematic risk. Under the current approach, we use a comparator set of nine Australian energy firms for estimating the equity beta for the benchmark business that provides the Australian regulated energy network services. Six firms have been delisted since the comparator set was initially established and currently there are three live comparator firms remaining (i.e. Spark Infrastructure, AusNet, APA). When determining our estimate range, we placed most weight on the longest period available data.

Our preliminary position in the *Overall rate of return omnibus final working paper* is to maintain the 2018 Instrument approach to determining equity beta in the 2022 Instrument. This includes:

- placing most weight on the longest period estimates,
- retaining the existing comparator set,
- continuing to set a single rate of return for gas and electricity network businesses, and
- not adjusting equity beta or the rate of return for a 'low beta bias'.

We consider that placing most weight on the long-term estimates 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. This appears to be supported by the latest empirical evidence where the long-term beta estimates from our comparator firms continue to remain relatively stable in times of recent market volatilities. In contrast, the short-term estimates have declined notably since the beginning of 2020.[12]

While recent take-over activities in relation of Spark Infrastructure and AST have highlighted the challenge of the limited number of live firms in our comparator set, we consider that for the purpose of the 2022 instrument, the existing comparators remain appropriate. 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.

A number of gas stakeholders and consultant reports considered that gas networks potentially face different risks to electricity networks due to differences in their characteristics, including in particular stranding risk due to government policy in relation to climate change and decarbonisation. While we acknowledge that there may be some differences between

[12] AER, *Overall rate of return, equity and debt omnibus, Final working paper*, December 2021, p.113.

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. 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.[13] 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. We are open to further examining any relevant evidence on this matter.

On the issue of low beta bias, we maintain our position in the 2018 instrument that we should not adjust equity beta or rate of return in relation to a low beta bias.

Previous considerations

The draft equity omnibus paper and the overall rate of return omnibus final working paper considered issues relating to equity beta in further details. The table below includes links to our recent working papers, which considered equity beta, and summarises our previous considerations.

Table 5 Previous considerations of the equity beta

Document	Summary
Rate of return instrument explanatory statement, December 2018 (Link)	In the 2018 Instrument, we maintained our overall approach to estimating the equity beta parameter from the 2013 Guidelines We used a combination of three estimation periods: the longest period, the period after the technology bubble excluding the global financial crisis, and the most recent 5 years. We placed the greatest weight on the longest period. We used nine listed Australian electricity and gas networks in our comparator set. We applied a single beta for regulated gas and electricity firms. We did not adjust our SL CAPM return on equity estimate for the low beta bias.
CAPM and alternate return on equity models working paper, December 2020 (Link)	Raised issues on the comparator set as well as potential difference in beta between electricity and gas networks, but left these issues open for later in the review.
International regulatory approaches to the rate of return, December 2020 (Link)	Reviewed international regulators approaches in estimating beta, noting that most regulators use a shorter estimation period of 2-5 years. Noted that some international regulators apply different approaches between electricity and gas networks, but ultimately left the issue open for subsequent working papers.
Draft equity omnibus paper, July 2021 (Link)	Noted concerns of having a small number of live firms in our comparator set; evaluated potential options for augmenting the existing comparator set by including domestic infrastructure firms and/or international energy firms; set out a preliminary view of retaining the existing comparator set of 9 Australian energy firms. Considered the merits of adopting long vs. short estimation periods; set out a preliminary view of retaining the existing approach of using a mix of longest period and 5-year estimates. Noted concerns regarding potential differences in beta for electricity and gas; set out a preliminary view of continuing to use the same equity beta for electricity and gas networks.
Overall rate of return, equity and debt omnibus, Final working paper, December 2021 (Link)	Reviewed existing evidence on the estimation period, noting that the systematic risk of the Australian regulated energy networks is likely stable over the long term;

13 AER, *Regulating gas pipelines under uncertainty- Information paper*, November 2021, p.27-48.

Document	Summary
	reaffirmed our preliminary view of continuing to use a mix of longest period and 5-year estimates. Considered the merits of adding international energy firms and/or domestic infrastructure firms to the comparator set, as well as removing delisted firms from the comparator set; reaffirmed our preliminary view of continuing to use the existing comparator set of 9 Australian energy firms. Considered potential differences in risks between electricity and gas networks as well as the issue of stranding risk; reaffirmed our preliminary view of continuing to use the same equity beta for electricity and gas networks. Discussed the issue of low beta bias and set out a preliminary view of not adjusting for low beta bias in the SL-CAPM.

Key questions for stakeholders and experts

We are particularly interested in stakeholders' and experts' views on the following issues:

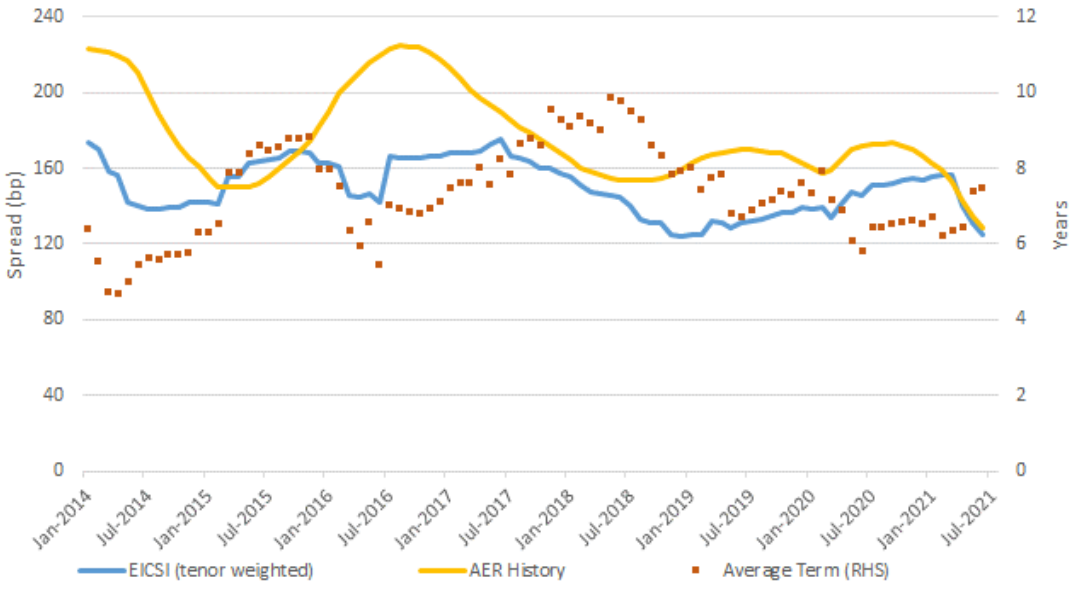
11. Do you agree with our preliminary position to maintain our current approach to estimating the equity beta in the 2022 Instrument?
12. What are the pros and cons of using beta estimates of the longest period available and 10-year period? How much weight should we place on the most recent 5-year data given market volatilities in recent periods?
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 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?

3.4 Use of the industry debt Index

The Energy Infrastructure Credit Spread Index (EICSI) is a simple index constructed from actual debt information collected from privately owned (i.e. non-government owned) network service providers we regulate. The EICSI provides an indication of the cost of network-issued debt to compare with our estimate of the cost of debt.

Figure 2 below presents the EICSI (tenor weighted) against our current benchmark approach to estimating the cost of debt.

Figure 2 Comparison of EICSI weighted by tenor against AER A/BBB 10 year estimate, 12 month rolling average and average EICSI term (January 2014 to June 2021)



Source: AER analysis; Chairmont, Aggregation of debt data for portfolio term to maturity, 28 June 2019.

The EICSI has generally tracked below our benchmark approach for the period we have data (since 2014). On average the EICSI has been 18 basis points lower than our benchmark since 2014.

Our preliminary position in the final working paper is to further analyse and consult on whether the residual outperformance identified, or departures on term should be adjusted for, and what form such an adjustment may take.

Conceptually, we think we ought to use the EICSI to adjust our return on debt approach to remove any residual outperformance that is material and persistent. In this context 'residual outperformance' refers to the ability of the regulated networks to raise debt at a lower rate (for a given term and credit rating) than the broader market that is represented in the third-party debt yield curves we use in determining our return on debt benchmark. We consider that adjusting for the residual outperformance, if it is considered material and persistent will result in an approach that better aligns the benchmark allowance with the actual debt costs of the networks.

In our final working paper we disaggregated the observed outperformance into outperformance due to credit rating, debt term and any residual. This analysis revealed that departures on credit rating do not appear to be a key driver of the observed outperformance in the EICSI. Similarly, residual outperformance (after accounting for departures on credit rating and term) was modest, at an average of approximately 4 basis points. This residual outperformance is predominantly evident when the benchmark credit spread increases above a certain level, suggesting debt raised by the privately-owned regulated service providers may be insulated from the high average risk premiums that are evident at times in the secondary market. However, it is not clear that this residual outperformance is material and persistent outperformance that needs to be adjusted for at this time. We consider that further analysis and consultation on whether any adjustment is required to our return on debt approach to remove the residual outperformance and what form such an adjustment may take.

Departures on term on the other hand do appear to be a key driver of the observed outperformance i.e. the lower credit spreads are predominantly due to debt issued at a shorter term than our benchmark. Our preliminary position is that we are open to considering change to the benchmark term further but note there are significant practical limitations on implementing this adjustment. More broadly, we consider that any change to term needs further evidence that any change is reflective of efficient practice and will continue to be so in the long term (See section 3.1).

Previous considerations

Further detail of our preliminary decision, and our reasons for this are discussed in greater detail in the final rate of return working paper. A link to this paper is included in the table below. The table below also sets out our previous considerations of the industry Index, (including links to the relevant documents) and a brief summary of the issues discussed.

Table 6 Previous considerations of the use of the industry Index

Document	Summary
Discussion paper – Estimating the allowed return on debt, May 2018 (Link)	Original paper discussing Chairmont report. Provides detail on purpose, key outputs and methodology of the construction of EICSI.
2018 Rate of Return Instrument - Explanatory Statement, December 2018 (Link)	Engaged Chairmont to develop debt data from privately owned service providers into credit spread index. Relied on this analysis as a 'sense check' on our benchmark characteristics and how we implement them.
Energy Network Debt Data working paper, November 2020 (Link)	Updated EICSI for any debt instruments issued since January 2018, extending the series which had previously been provided. Identified improvements to the original Index that ensure it better reflects costs faced by networks. These were to refine the criteria on instruments to be included and re-weighting of costs by term to maturity at issuance. Proposed a preferred approach of using the EICSI to directly determine the benchmark blend of A and BBB bonds.
2020 Rate of return annual update, December 2020 (Link)	Presented EICSI reweighted by tenor to account for the difference in issuing long term debt compared to short term debt. Debt in the rolling data window (12 months) given more weight than the spread of shorter-term debt.
Draft debt omnibus paper, July 2021 (Link)	Evaluated options for how our EICSI could be used in estimating the regulated return on debt, credit rating and term. Considered stakeholder and consultant feedback on previous working paper and noted further work to be done to decompose the observed outperformance into three factors to judge which is the most significant. Maintained a preferred position to use the EICSI to adjust the blend of A and BBB bonds used in our estimate – pending the result of decomposition. Noted concerns that altering the term at this point could create issues for implementation.
Overall rate of return, equity and debt omnibus, Final working paper, December 2021 (Link)	Clarified detail of the construction and computation of the EICSI. Conducted analysis to decompose observed outperformance to that driven by credit rating, term, and residual. Considered further options of adjusting for any residual outperformance by applying a cap or other constraint on the debt risk premium. Considered additionally adjusting the benchmark term or credit rating as well as removing residual outperformance. Preliminary position is to further analyse and consult on whether the residual outperformance identified, or departures on term should be adjusted for, and what form such an adjustment may take.

Key questions for stakeholders and experts

We are particularly interested in stakeholders' and experts' views on the following issues:

15. Do you agree with our preliminary position to further consider whether to make an adjustment for the residual outperformance of the EICSI compared to our benchmarks?
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'?
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?
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?

3.5 Weighted trailing average return on debt

Our current approach to estimating the return on debt is a trailing average portfolio approach. Under this approach, we set the return on debt allowance normally as an average of (up to) ten annual return on debt estimates, which we then update annually. Each year in the 10-year trailing average is given equal weighting. We call this a simple (unweighted) trailing average. We have applied this trailing average in all determinations after our 2013 rate of return guideline. However, this entails a ten-year transition period and regulated businesses are still transitioning, making further changes to the approach more complex.

The integrated system plan (ISP) developed by the Australian Energy Market Operator (AEMO) has raised the prospect of large projects being undertaken over the next ten to fifteen years. These projects could result in the Regulatory Asset Bases (RABs) over several transmission network service providers (TNSPs) increasing significantly over a short period. As a result, there could be large debt raising requirements in some years beyond the 10 per cent level built into our current trailing average return on debt. This in turn could create a mismatch between our return on debt and the capital requirements (and its cost) of the firms we regulate and may also affect incentives to invest in large capital-intensive projects.

We are concerned that if we do not make adjustments to mitigate these material mismatches, we could see pressure for policy changes to address the mismatch from either consumers or networks. Any such policy intervention would upset the balance of the trailing average and undermine NPV neutrality. We therefore think it is prudent to consider addressing the potential mismatch in the upcoming rate of return instrument and have set out some options for doing so.

At this point, we propose to maintain an open position on whether and how our current 2018 approach needs to be modified in response to large regulatory asset base growth. We will continue to explore and analyse the available options:

- **Option 1**: Maintain the current (simple trailing average) approach.
- **Option 2**: Weighted trailing average that applies to all distribution and transmission network service providers. Weights are based on the debt issuance assumptions in the Post Tax Revenue Model (PTRM).
- **Option 3**: Weighted trailing average only starts to apply when a large increase in the RAB (and therefore debt issuances) is forecast. We would need to set a threshold for the shift to a weighted trailing average. Once the weighted trailing average is triggered, weights are based on the debt issuance assumptions in the PTRM.

- **Option 4**: Weighted trailing average that applies to all TNSPs. Weights are based on the debt issuance assumptions in the PTRM.

Our preliminary position is that if a weighted trailing average (using any of the above options) was to be adopted, it should be based on the debt issuance assumptions in the PTRM, that is, forecasts rather than actual data.

Previous considerations

Table 7 Previous considerations of the weighted trailing average return on debt

Document	Summary
Rate of return instrument, Explanatory statement, December 2018 (Link)	Our decision was to estimate the return on debt using the ten year trailing average portfolio approach. Our decision was also to include a ten-year transitional arrangement to transition from previous return on debt allowances calculated using the 'on-the-day' approach. The trailing average used uniform weights, that is, was a simple / unweighted average.
Draft debt omnibus paper, July 2021 (Link)	Discussed the limitations of the current approach based on the 2018 Instrument. Sought stakeholder views on whether a weighted trailing average approach should instead be adopted, how the weights should be estimated and whether transitional arrangements would be required. Expressed our initial view that, if weight were to be used, it would be better to use weights based on forecast capex (and hence debt issuance assumptions in the PTRM) so that the weights can be set in advance.
Overall rate of return, equity and debt omnibus, Final working paper, December 2021 (Link)	Elaborated on situations when we think using simple trailing average may be problematic. Introduced three options of adopting a weighted trailing average. Provided preliminary considerations and analysis and posed further questions for the stakeholders. Proposed to maintain an open position on whether and how our current 2018 approach needs to be modified in response to large regulatory asset base growth. Our preliminary position is that if a weighted trailing average was to be adopted, it should be based on the debt issuance assumptions in the PTRM, that is, forecasts rather than actual data.

Key questions for stakeholders and experts

We are particularly interested in stakeholders' and experts' views on the following issues:

19. What are the relative merits of Options 1–4?
20. Is there a better option to address our concerns?
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)?
22. How would such an approach work under the current law and given the mechanistic nature of the Rate of return instrument?
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?

3.6 Cross checks of the rate of return

Cross checks involve comparing estimates of the rate of return against other relevant information sources.

We can apply cross checks at the overall rate of return level and at the return on equity level. This section is on the possible cross checks at the overall rate of return level. These checks do not relate to individual parameters of our rate of return.

We have considered what role to assign to overall cross checks after reviewing stakeholder submissions and expert reports submitted to us since the 2018 Instrument. We have considered the possible use of the following overall cross checks:

- Financeability tests
- Regulatory asset base (RAB) multiples
- Historical profitability
- Investment rends
- Other regulators' rate of return and other practitioners' discount rates
- Scenario testing

Our preliminary position is to use overall cross checks as a sense check on our overall allowed rate of return. That is, to assist with identifying potential issues with our regulatory framework and areas of further research and inquiry. There is no new evidence that would support elevating any of the cross checks we reviewed to a formulaic approach.

We have further considered what information we can infer about our rate of return estimate based on each cross check, particularly in response to stakeholder submissions.

Our preliminary positions are as follows:

- We propose to review RAB multiples, scenario testing and financeability tests as a sense check on our overall rate of return. These measures have limitations but also have some informational value. To the extent any information can be drawn, RAB multiples may act as a trigger for investigation and indicate if the total compensation (inclusive of the rate of return) provided to investors is sufficient.
- We think historical profitability, investment trends, other regulators' rate of return and other practitioners' discount rates have greater limitations and are of less value than RAB multiples, scenario testing and financeability. We have changed our view on historical profitability because of its limitations. For example: it is not a measure of expected returns, many factors contribute to historical profitability and there is much subjectivity and no agreement on the appropriate assumptions to use to disaggregate historical profitability.[14]
- Subject to the limitations of the cross checks we examined, at the moment, they do not appear to suggest major concerns with our current approach to the rate of return (the 2018 Instrument) in the context of the total compensation provided to investors.

We also think that a balanced set of cross checks and scenarios should be used to sense check the overall rate of return consistent with our goal to estimate an unbiased rate of return.

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[14] AER, *Overall rate of return, equity and debt omnibus, final working paper,* December 2021, p. 133.

Previous considerations

We have considered overall cross checks in a number of regulatory processes since the 2018 Instrument. Summaries and links of our thinking in these processes (and the 2018 Instrument) are included in the table below.

Table 8 Previous considerations on the possible use of overall cross checks

Document	Summary
2018 Rate of Return Instrument - Explanatory Statement, December 2018 (Link)	We examined a range of cross checks and concluded that none of them can be used to inform the rate of return in any deterministic way. However, we found that at least some of them (RAB multiples, historical profitability and investment trends) may provide useful contextual information.
AER submission to AEMC on TransGrid and ElectraNet's proposed rule change for financeability of ISP projects, December 2020 (Link)	A decrease in FFO/net debt does not of itself indicate a financeability issue that requires a rule change. Financeability is substantially impacted by the practices and choices made by the firm itself. Regulated firms can, and do, engage in a range of practices specific to managing their own operations. Businesses are also not required to achieve the benchmark assumptions used in making and applying the Rate of Return Instrument at all times. Where regulators have included financeability tests within the regulatory regime they have generally stressed that the primary responsibility for managing financeability rests with the regulated businesses.
Rate of return and cashflows in a low interest rate environment, Draft working paper, May 2021 (Link)	A low net profit after tax (NPAT) and FFO/net debt ratio does not of itself reflect that the overall rate of return is too low. Credit rating agencies review a range of quantitative and qualitative factors when making their assessments. A decrease in FFO/net debt does not of itself indicate an issue with financeability. Regulated businesses' actual financeability is substantially impacted by the practices and choices made by the regulated businesses. They have flexibility in their capital structure decisions and employ this accordingly. The AEMC rule change process rejected the proposal to bring forward cash flows in order to improve financeability metrics, and concluded that the regulatory framework does not create a barrier to financing large projects The ACCC Regulatory Economics Unit (REU) provided advice on the effect of low interest rate / low return environment on regulatory cash flows and financeability in an appendix to the paper.
Overall rate of return, draft working paper, July 2021 (Link)	Explored if, and how, cross checks can be used to inform the rate of return at the overall level. In particular, we considered whether cross checks could inform the choices we make when exercising our judgement. We discussed their strengths, limitations, their suitability for our regulatory task and sought submissions. We also summarised our positions in the 2018 Instrument and our considerations since the 2018 Instrument.
Term of the rate of return & Rate of return and cashflows in a low interest rate environment, Final working paper, September 2021 (Link)	Measuring financeability is a subjective process that involves considering a wide range of qualitative and quantitative factors. A particular financeability metric of itself does not indicate the rate of return is incorrect. We set a benchmark rate of return, this does not mean individual businesses will. or can, achieve all the individual parameters at any one time. Regulated businesses also have the flexibility to depart from the benchmark to improve their FFO/net debt metric. No one definitive measure of financeability amongst regulators and credit rating agencies. Businesses are in a far better position than a regulator to manage financeability issues as they arise.
Overall rate of return, equity and debt omnibus, Final working paper, December 2021 (Link)	Sets out the overall cross checks we are considering and our preliminary view on the possible use of these checks. Updated our 2018 funds from operations to net debt (FFO/net debt) analysis which indicated no material deterioration since the application of the 2018 Instrument.

Document	Summary
	Preliminary positions are: • Overall cross checks can be used in a sense check capacity but no new evidence to indicate it should be used in a formulaic role. • RAB multiples, scenario testing and financeability tests are being reviewed as a sense check on our overall rate of return. We have changed our view on historical profitability (since the 2018 Instrument) because we do not think useful conclusions about the rate of return can be drawn from it. • No role for historical profitability, investment trends, other regulators' rate of return and other practitioners' discount rates

Source: AER

Key questions for stakeholders and experts

We are particularly interested in stakeholders' and experts' views on the following issues:

24. Do you agree with our preliminary positions in the final working paper?
25. Do the cross checks that we have selected provide a balanced assessment that promote the NEO and NGO?
26. Which financeability tests should be undertaken to inform our decision on the rate of return?
27. How can RAB multiples be appropriately adjusted to identify and disaggregate the impact of the rate of return from other contributing factors?
28. Should we prioritise information from transaction RAB multiples or trading multiples?
29. Which scenarios should we consider to provide a balanced assessment of possible outcomes from our rate of return decision?
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.

3.7 Other issues

In addition to the six priority topics we have identified to date, there are a number of other areas of the Instrument that we have previously considered for reference. The table below lists the various areas of the Instrument that we have previously considered and some key questions for stakeholders on these topics.

Table 9 Other topics of the instrument considered and key issues considered

Topic	Key issues considered	Relevant papers (link)
Gearing	Preferred position: • Place primary reliance on market value estimates and the continued use of existing observation periods when estimating gearing Open position: • Considering and seeking views on the inclusion of hybrid securities for gearing Preliminary position: • Considering adjusting benchmark gearing to more closely align with market data	Overall rate of return draft working paper, July 2021 (Link)

Topic	Key issues considered	Relevant papers (link)
Value of imputation credits (gamma)	Preferred position: • Distribution rate for imputation credits obtained through the use of ASX50 firms, utilisation rate from ABS wealth data, pending investigation of ATO data Preliminary position: • Assume that foreign non-resident investors assign no value to imputation credits	Overall rate of return draft working paper, July 2021 (Link)
Nomination window for the risk-free rate	Preferred position: • Shift the allowed nomination window forward in time by one month to lessen timing issues. • The extra month will assist in removing timing pressures that arise particularly when holidays intervene and third-party data availability is impacted.	Equity omnibus draft working paper, July 2021 (Link)
Averaging period flexibility for the risk-free rate	Preferred position: • Allow networks flexibility in nominating the averaging period for the risk-free rate. • This approach will allow service providers flexibility in how they mitigate their exposure to volatility in the risk-free rate. As networks are required to nominate the period in advance, this will reduce the possibility of bias in the risk-free rate.	Equity omnibus draft working paper, July 2021 (Link)
CAPM and alternative return on equity models	Preferred position: • The standard Sharpe-Lintner CAPM model is used as the basis for determining the return on equity. We considered the Sharpe-Lintner CAPM is the preeminent model; it has a strong theoretical basis and is widely used by market practitioners. This is reflected in its use by all international regulators reviewed—and for most, it is the only model used. • We did not endorse the use of a multiple model approach.	CAPM and alternative return on equity models (Link)
Cross checks on return on equity point estimates	Preliminary position: • Use cross checks to sense check our overall return on equity point estimates. They will not be applied mechanistically to estimate the overall return on equity, but rather provide a sense check for our decision. • Propose to maintain and apply the cross checks in line with the approach we adopted in the 2018 Instrument. There are significant issues with each of the cross checks in 2018, such that we do not see how they could be used more directly.	Equity omnibus draft working paper, July 2021 (Link)
Third-party debt data providers	Preferred position • Maintain the 2018 Instrument approach and use debt data from multiple providers: RBA, Bloomberg & Thomson Reuters. We will continue to monitor the datasets for regulatory suitability and consider the merits of any additional debt data providers.	
Benchmark credit rating	Preliminary position • Maintain the 2018 Instrument approach and set the benchmark using the median observed credit rating of Australian energy network businesses. However, recent data indicates that the observed median benchmark has increased from BBB+ to A- in 2021,	2020 Rate of return annual update, December 2020 (Link) Draft debt omnibus paper, July 2021 (Link)

Topic	Key issues considered	Relevant papers (link)
	which may alter the weighting of A and BBB data used in our estimate. We have also considered using the EICSI to adjust the weights of A and BBB data to match network cost of debt over the past four year.	
Debt data contingencies	Preferred position • Maintain the debt data contingencies outlined in the 2018 Instrument.	
Update frequency of the risk-free rate	Preferred position • Set the risk-free only at the beginning of each reset period. We considered annual update to the risk-free rate, but we did not pursue this option due to lack of stakeholder support.[15]	International regulatory approaches to the rate of return, December 2020 (Link)
Proxy for the risk-free asset	Preferred position • Commonwealth Government Securities (CGS) remain an appropriate proxy for the riskless investment for our purposes, and that we should not adjust for an estimated convenience yield.[16] • We did not consider it is viable to adjust the SL CAPM estimate to incorporate an estimated convenience yield or to adopt an alternative proxy for the risk-free rate. Any of these actions are likely to lead to an inferior estimate rather than an improvement.[17]	Term of the rate of return & Rate of return and cashflows in a low interest rate environment, September 2021 (Link)

Source: AER

Key questions for stakeholders and experts

31. Should hybrid securities be included in our analysis of benchmark gearing?
32. Should we adjust benchmark gearing to more closely align with market data?
33. Should we continue to assume that non-resident investors assign no value to imputation credits?
34. Are there additional debt data providers that we should consider in setting the return on debt estimate?
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?

15 AER, *International regulatory approaches to the rate of return*, 16 December 2020, p.34.
16 AER, *Term of the rate of return & Rate of return and cashflows in a low interest environment*, September 2021, p.102.
17 AER, *Term of the rate of return & Rate of return and cashflows in a low interest environment*, September 2021, p.103.