



Rate of return

Overall rate of return

Draft working paper

July 2021

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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
ACM	Authority for Consumers and Markets (a Dutch regulator)
AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
ARERA	Italian Regulatory Authority for Energy, Networks & the Environment
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
FERC	Federal Energy Regulatory Commission (a US regulator)
Instrument	Rate of return instrument
MRP	Market risk premium
NEL	National electricity law
NEO	National electricity objective
NGL	National gas law
NGO	National gas objective
NPV=0	Net present value neutrality
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
SL CAPM	Sharpe-Lintner capital asset pricing model (or just CAPM)

STB	Surface Transportation Board (a US regulator)
UK	United Kingdom
USA	United States of America
WACC	Weighted average cost of capital

1 Overview

This working paper is part of a series that we have produced, and will produce, as part of our pathway to the 2022 Rate of Return Instrument (2022 Instrument). The outcomes from these working papers will feed directly in to our 2022 Instrument review process.

The information in this working paper series will assist us to develop a 2022 Instrument that sets a rate of return that contributes to the achievement of the National Gas Objective (NEO) and National Electricity Objective (NEO).¹ These objectives focus on the long term interests of consumers.²

In advancing consumers' interests we aim to promote efficient investment in and operation of regulated energy businesses.

1.1 What do we want to achieve through our working papers?

The aim of this working paper series is to explore the key issues relating to the rate of return, and identify new theoretical and empirical evidence since the previous review. They are also a focal point for stakeholder consultation. From these working papers, we establish positions on issues and lay a foundation for the development of the 2022 Instrument.

Part A of this draft working paper provides an overview of the rate of return, indicating where individual components fit into the overall framework. Key elements are:

- A schematic of the overall rate of return and the interactions among parameters
- A figure showing how the various working papers fit together in the overall rate of return process.
- A summary of our approach in the 2018 Rate of Return Instrument (2018 Instrument)
- A high level overview of conclusions from our working paper series
- An indication of areas where we are most actively explore changes and an indication of the potential cumulative impact of those changes.

This outline draws on the submissions we have received and the considerations in our working papers. We also identify the factors and criteria we utilise in informing our decision on whether to make changes.

In Part B of this paper, we assess topics that have not been considered elsewhere in our working papers. In this way, we will have spanned the full range of rate of return in our working paper series:

¹ NGL, s. 23; NEL, s. 7.

² The NEO is to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas. The NEO is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interest of consumers of electricity with respect to: price, quality, safety and reliability, and security of supply of electricity; and the reliability, safety and security of the national electricity system.

1.2 Why does the rate of return matter?

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.

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.

In our view, the best possible estimate of the expected rate of return—neither upwardly biased nor downwardly biased—will promote efficient investment in, and efficient operation and use of, energy network services. While the capital market transaction is between investors and networks/pipelines, the ultimate effects will flow through to consumers.

If the rate of return is upwardly biased:

- Investors will be over compensated for the risk involved in supplying capital to networks, so will show increased willingness to invest in regulatory assets in comparison with other investments in the economy.
- Networks will have an incentive to over-invest in regulated assets over the longer term, increasing the regulatory asset base above the efficient level.
- Energy consumers will pay inefficiently higher prices, which will distort energy consumption decisions, and downstream investment decisions. This will result in efficiency losses where consumers use less energy network services than otherwise and non-monetary impacts such as disconnection of vulnerable consumers.

If the rate of return is downwardly biased:

- Investors will be under compensated for the risk involved in supplying capital to networks, so will show reduced willingness to invest in regulatory assets in comparison with other investments in the economy.
- Networks will not be able to attract sufficient funds to be able to make the required investments in the network. Over the longer term there will be declines in quality, reliability, safety and/or security of supply of electricity or gas.
- Consumers of energy will pay lower prices, at least in the short term; but will wear the risk of adverse outcomes for quality, reliability, safety and/or security of supply of energy services. Lower prices will also distort energy consumption and downstream investment decisions (though in the opposite direction to the previous case). This new level of downstream investment will be inefficient for the Australian economy.

Hence, an unbiased estimate of the expected efficient return, consistent with the relevant risks involved in providing regulated network services, is necessary to promote efficient prices in the long term interests of consumers.³

We consider that the NEO, NGO and the long term interests of consumers are best served through this guiding principle.

³ AER, *Rate of return and assessing the long term interests of consumers*, May 2021, p. 1.

1.3 Why this paper?

This paper, and the other omnibus papers, will progress the work and positions of the more focused working papers, such as the *CAPM and alternative return on equity models* and *International regulatory approaches to rate of return* papers, which have been published in the last 12 months.

The paper will lay out our previous positions, work we have covered since the 2018 Instrument and our current thinking on the topics. By doing so, stakeholders will be able to submit their opinions and relevant evidence in full knowledge of what we have considered so far.

Part A of this paper provides a high level road map of the rate of return and our process. We think it is important to summarise how the individual components fit together and their cumulative impact. Stakeholders in our process have indicated this is something they value.

Our early working papers have focussed on high priority topics, identified by ourselves and stakeholders. We think these papers have been successful in allowing stakeholders to engage with important topics in manageable components. We have been able to provide early indications of our thinking, highlighting aspects where we reached preliminary views and areas where we think further consideration is necessary.

We think it is now time to draw these components together into a holistic framework so stakeholders can identify the critical points and focus their attention. This work will also provide a foundation for the upcoming expert sessions leading into our draft instrument.

Part B of this paper explores topics that affect the overall rate of return but have not been considered elsewhere. These are:

- the form of the rate of return.
- gearing—the level of benchmark gearing including the treatment of hybrid securities and the length of the observation period.
- gamma—the data used to estimate the value of imputation credits (gamma).
- the use of cross checks at the overall rate of return level.

The draft working paper proposes preliminary positions on these topics, having considered a range of evidence including previous academic work, previous expert reports, other regulators' practices and previous stakeholder submissions.

It is important to note that we will not finalise our in-depth working papers (*Term of the rate of return* and *Rate of return and cashflows in a low interest rate environment*) prior to receiving submissions on this omnibus working paper. We acknowledge that with multiple working papers being developed concurrently, there may be inevitably some overlap in the issues being considered. Where it is necessary to engage further on any specific issue put forward in submissions, we will set up workshops to discuss and develop positions put to us.

1.4 Next steps

Public forum

Our past practice was to hold a public forum in person during the consultation period, where stakeholders can ask questions of the AER and interact directly to hear each other's perspectives. However, our experience during the COVID-19 pandemic has demonstrated the practicality and value of online forums. Therefore, our current intent is to hold an online event during the consultation period. The online forum will be held on 4 August 2021 from 2:00–4:30pm.

Information about the online forum will be available on the AER's website in due course.

After consideration of submissions, we expect to conclude this working paper topic with the release of a final working paper.

Making a submission

Written submissions should be emailed to the AER at RateOfReturn@aer.gov.au, by close of business, 27 August 2021.

Alternatively, submissions can be sent to:

Mr Warwick Anderson
General Manager, Network Pricing
Australian Energy Regulator
GPO Box 3131
Canberra ACT 2601

We prefer that all submissions be sent in an electronic format in Microsoft Word or other text-readable document form and publicly available, to facilitate an informed, transparent and robust consultation process.

Submissions will be treated as public documents and posted on the AER's website unless prior arrangements are made with the AER to treat the submission, or portions of it, as confidential. Those wishing to submit confidential information are requested to:

- clearly identify the information that is the subject of the confidentiality claim; and
- 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 at www.aer.gov.au. For further information regarding the AER's use and disclosure of information provided to it, see the ACCC/AER Information Policy, June 2014 available on the AER's website.

Enquiries about this paper, or about lodging submissions, should be directed to the Network Pricing branch of the AER on (03) 9290 1800.

PART A

2 Process background

2.1 What is the rate of return instrument?

The rate of return instrument (RORI) 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.

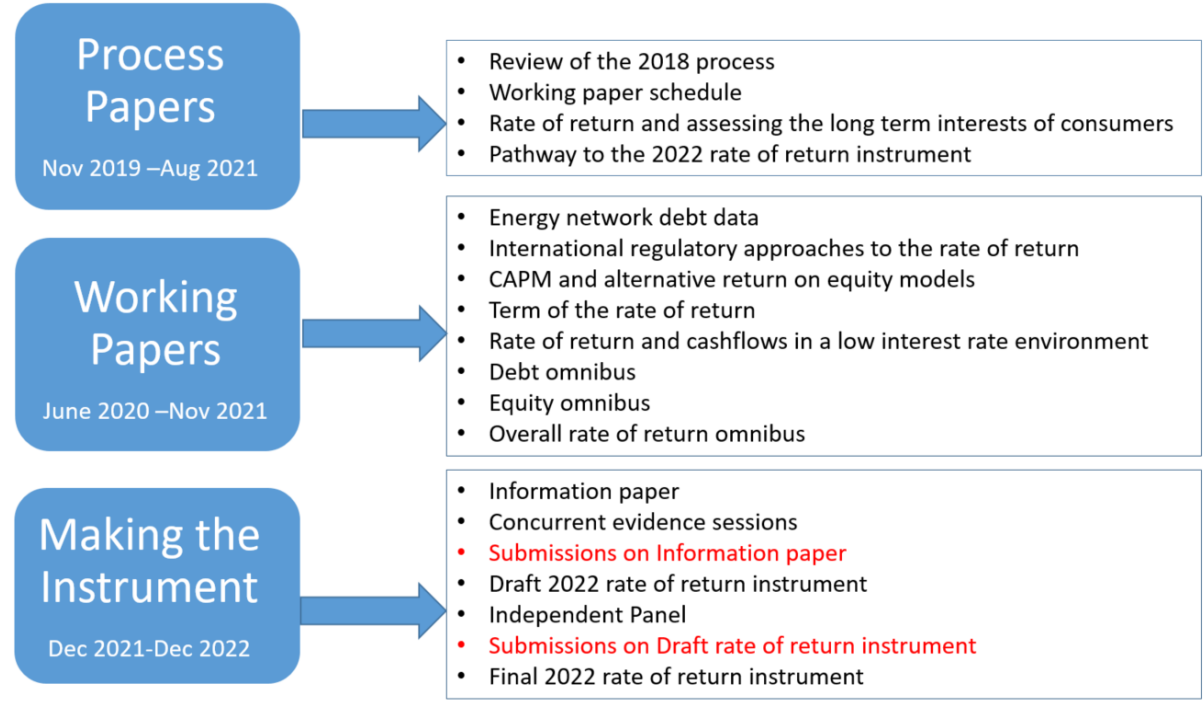
The current rate of return instrument was published on 17 December 2018 (the 2018 Instrument). In December 2022 we will publish the next rate of return instrument (the 2022 Instrument). This binding instrument will determine the allowed rate of return on capital for the following four-year period.

We estimate the returns required by investors in view of the risks associated with regulated energy network companies compared to their other investment opportunities. We make this judgement by examining a broad range of evidence including financial market data, models of financial returns, the latest investment knowledge and the views of all stakeholders.

2.2 What is our 'Pathway to 2022'?

We use the term 'Pathway to 2022' to describe the process by which we will develop the 2022 Instrument. The major elements of this process are illustrated in Figure 1.

Figure 1 Elements of the Pathway to 2022



2.2.1 Process papers

The ‘Process Papers’ allowed us to review the process we adopted to develop the 2018 Instrument, and improve upon it. The series of papers we published has enabled us to hear views from stakeholders to inform our design of the process.

In November 2019, we released a consultation paper⁴ that proposed a pathway to the 2022 Instrument, together with a report by The Brattle Group summarising stakeholder feedback on the process used to set the 2018 Instrument.

Following stakeholder consultation, in May 2020, we published a position paper⁵ that set out a pathway to the 2022 Instrument. This paper:

- Had an explicit focus on the decision making process, not the content of the instrument.
- Highlighted and explained changes made from the 2018 review process.
- Provided a high-level outline and timeline for decision-making stages.

In May 2021, we published *Rate of return and assessing the long term interests of consumers*,⁶ which sets out our views around what the energy market objectives mean in the context of setting the expected rate of return.

⁴ AER, *Consultation paper, Pathway to the 2022 rate of return instrument*, November 2019; Brattle, *Stakeholder feedback on the AER’s process for the 2018 rate of return instrument*, June 2019.

⁵ AER, *Position paper, Pathway to the 2022 rate of return instrument*, May 2020, p.2.

⁶ AER, *Rate of return, Assessing the long term interests of consumers, Position paper*, May 2021.

We released a *Consultation paper on the 2022 Instrument process* in June 2021,⁷ seeking comment on elements of Evidence Sessions and the appointment of the Independent Panel. We intend to release a position paper on the 2022 Instrument process in August 2021.

2.2.2 Working papers

The ‘Working Papers’ allowed us to explore the key issues relating to the rate of return, and identify new theoretical and empirical evidence since the previous review. They are also a focal point for stakeholder consultation. From these working papers, we establish positions on issues and lay a foundation for the development of the 2022 Instrument,

Between November 2020 and December 2020, we released three final working papers:

- *Energy network debt data*⁸
- *International regulatory approaches to rate of return*,⁹ and
- *CAPM and alternative return on equity models*.¹⁰

In March 2021, we published a further position paper, setting out our working paper schedule for the calendar year:

- *Term of the rate of return*¹¹
- *Rate of return and cashflows in a low interest rate environment*¹²
- *Debt Omnibus*
- *Equity Omnibus*
- *Overall Rate of Return Omnibus*.

Following stakeholder consultation, final versions of these working papers will be released in the second half of 2021.

2.2.3 Making the instrument

The ‘Making the Instrument’ papers and activities will take us from our positions set out in the individual working papers to the final 2022 Instrument. In doing so, our analysis will be subject to two detailed reviews from third parties (experts and the Independent Panel) and further stakeholder consultation.

The *Information Paper*, to be published in December 2021, will bring together our findings from the working paper series. It will identify subject matter where there is a reasonably settled view among stakeholders and those areas where there are still a number of open

⁷ AER, *Pathway to the 2022 rate of return instrument, Consultation paper on 2022 Instrument process*, June 2021.

⁸ AER, *Rate of return, Energy network debt data, Draft working paper*, June 2020; Chairmont, *Aggregation of debt data for portfolio term to maturity*, June 2019.

⁹ AER, *Rate of return, International regulatory approaches to rate of return, Draft working paper*, August 2020; Brattle, *A review of international approaches to regulated rates of return*, June 2020.

¹⁰ AER, *Rate of return, CAPM and alternative return on equity models, Draft working paper*, August 2020; Graham Partington and Stephen Satchell, *Report to the AER: Alternative asset pricing models*, June 2020.

¹¹ AER, *Term of the rate of return, Draft working paper*, May 2021.

¹² AER, *Rate of return and cashflows in a low interest rate environment, Draft working paper*, May 2021.

options and more work is required. In this context, it will guide submissions in advance of the publication of our Draft 2022 Instrument.

The *Information Paper* will also provide a guide for the expert conclave and be a basis for the discussions at the Concurrent Evidence Sessions in February 2022.

We intend to publish the Draft 2022 Instrument in June 2022.

The Independent Panel will subsequently review the Draft 2022 Instrument and report on whether it is supported by sound reasoning, based on the available information, such that it is capable of promoting achievement of the national energy objectives.

The Final 2022 Instrument will be released in December 2022.

2.3 Have your say

We have now decided upon most aspects of the process for making the 2022 Instrument and are well-advanced in the development of our working papers. For the remainder of this year, you still have an important opportunity to influence the direction of the instrument by providing views on our final three working papers.

We encourage all stakeholders to participate in this process—this is a key opportunity for you to put forward proposed changes supported by robust analysis and evidence. Your submissions will assist us in developing the 2022 Instrument that contributes to the achievement of the NEO and NGO.

The working papers are where we discuss, narrow and potentially settle on options for the 2022 Instrument. As such, it is an important opportunity to influence our thinking and formulation of views at an early stage. For example, in the papers we developed in 2020, we were able to set out some preliminary views on a range of topics.

It is important to note that we will not finalise our in-depth working papers (*Term of the rate of return* and *Rate of return and cashflows in a low interest rate environment*) prior to receiving submissions on the three broad omnibus working papers. We also recognise that with multiple working papers being developed concurrently, there is inevitably some overlap in the issues being considered. Where it is necessary to engage further on any specific issue put forward in submissions, we will set up workshops to discuss and develop positions put to us.

The *Information paper* released in December 2021 will be an important document for drawing together all the threads from the working paper series. It will provide an overview of the proposed approach to setting the rate of return, set out the topics to be considered in the expert sessions in early 2022 and to guide submissions in advance of our draft instrument.

We will provide a period for submissions on the content of the *Information paper* so we can hear your views on the topics that require further consideration. This submission period will end after our Concurrent Evidence Sessions, and therefore will allow you to reflect on the full breadth of the working papers that have been developed progressively as well as the opinions expressed by the experts.

However, our strong preference is for stakeholders to take the opportunity to engage as early as possible on the drafts of our three omnibus working papers during July and August 2021,

and not wait until the release of the *Information Paper*. This will enable us to fully consider stakeholders' views in developing the information paper and preparing for the Concurrent Evidence Sessions.

There will also be a period for submissions on the Draft 2022 Instrument, which we will release in June 2022.

3 Overview of AER rate of return framework

We apply a 'building block' model to set regulated revenues for electricity and gas network service providers. The building blocks—return on capital, return of capital, operating expenditure and tax—reflect the expected costs that would be incurred by a benchmark efficient entity operating the network.

This is a form of incentive regulation, as building blocks are estimated in advance for a regulatory control period (typically five years) and the network retains any benefit (or bears any detriment) where it is able to reduce costs below the AER's estimates. Revealed costs are then used to inform building block estimates for the following control period, so that efficiency gains are passed on to consumers. We also operate a number of incentive schemes in conjunction with the building block framework.

The return on capital building block is set by applying a rate of return on capital to the regulatory asset base each year. This rate of return is calculated using the approach set out in the rate of return Instrument which has a legislated duration of four years.

Once determined by the AER, the rate of return Instrument is binding under the National Electricity Law (NEL) and National Gas Law (NGL) for pricing determinations. This means that the AER and network businesses are required to set the rate of return according to the current Instrument.

The AER currently estimates the allowed rate of return for regulated businesses using the approach set out in the 2018 Instrument. Our Pathway to 2022 process concerns the development of the Instrument that will apply to determinations made in the four years from 2022.

3.1 2018 Instrument

The 2018 Instrument applies the following key characteristics when estimating a businesses' allowed rate of return:¹³

1. It uses a nominal vanilla weighted average cost of capital (WACC) formulation.¹⁴
2. It assumes a 40 percent equity and 60 percent debt capital structure.
3. It uses a domestic capital asset pricing model (CAPM) to estimate the return on equity. This is implemented as:
 - (a) The risk-free rate (RFR) is estimated from the yield on ten-year to maturity Commonwealth Government Securities (CGS) over a short averaging period (20 to 60 business days) prior to the commencement of the regulatory control period.
 - (b) Equity beta of 0.6 (fixed for the life of the 2018 Instrument).
 - (c) Market risk premium (MRP) of 6.1 per cent (also fixed for the life of the 2018 Instrument).

¹³ AER, *Rate of return instrument, Explanatory Statement*, December 2018, pp. 13–16

¹⁴ Used in a post-tax revenue model, i.e. effect of the interest tax shield is considered in cashflows.

(d) The return on equity is therefore the risk-free rate plus a fixed equity risk premium of 3.66 percent.¹⁵

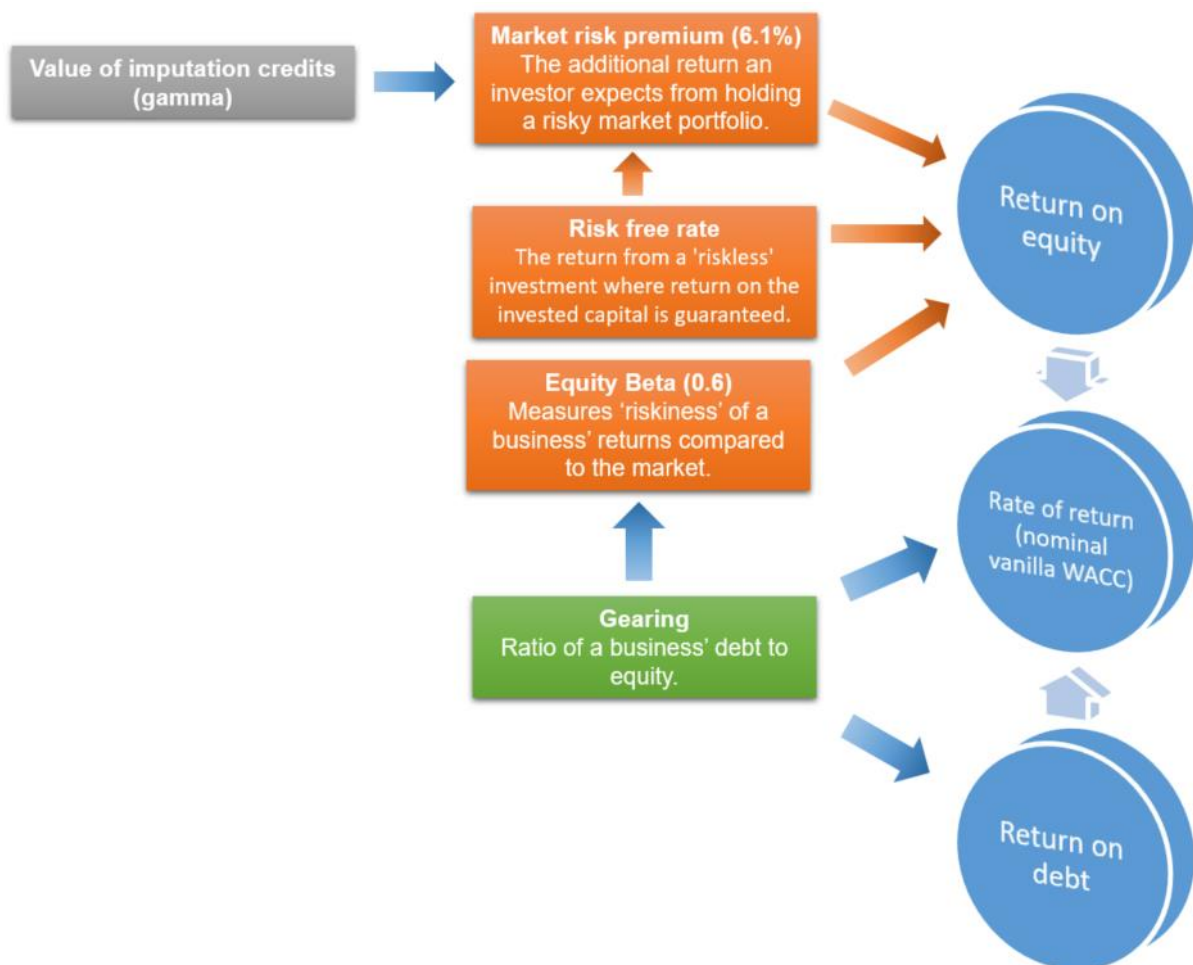
4. It uses a trailing average portfolio for the allowed return on debt, updating 10 per cent of the portfolio estimate annually (i.e. a 10 year rolling window of annual debt observations).
5. The annual return on debt is based on debt costs for the benchmark BBB+ credit rating at a 10 year term, estimated by weighting A rated and BBB rated benchmark curves (from a number of providers) over an averaging period.
6. Market data for the return on debt and risk-free rate is sourced from averaging periods nominated by the network businesses in advance.

3.2 Inter-relationships among parameters

The rate of return parameters are inter-related. As a result, a change in one parameter results in a change in one or more other parameters.

Figure 2 below provides an illustration of how the parameters feed into our rate of return estimate, and the inter-relationships between those parameters. A more detailed diagram is provided in Appendix A.

Figure 2 The rate of return framework



¹⁵ The equity risk premium is the product of beta and the market risk premium.

4 High level overview of working paper series

4.1 Working paper series

Our rate of return working papers discuss issues and provide evidence on key rate of return topics.

In selecting the topics for the working paper series, we have had regard to stakeholder feedback on subjects of interest or importance. We have also considered whether they could be constructively considered as discrete issues.

In general, on each chosen topic, our process has been to:

- release a draft working paper, often accompanied by an expert report
- provide for a consultation period, including facilitated discussion with stakeholders
- release a final working paper with our response to submissions.

We intend for the material from all of the working papers to feed in to the review, providing a foundation for constructive discussion.

4.2 How does this all come together?

To this time, we have finalised three working papers. The preliminary positions in these three papers are set out in Table 1 below. Table 1 also indicates the draft positions and issues we are canvassing for further consideration in the remaining five working papers.

Our current positions fall into one of three categories:

- those where we have a preferred position (blue highlight)¹⁶
- those where we have a preliminary position (yellow highlight)
- those where we have taken no position and are seeking views (green highlight).

Table 1 2022 RORI Working papers - positions and issues canvassed

Working Paper	2018 Instrument position	Current Position
<i>Energy network debt data</i>	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
	Use the 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
<i>International regulatory approaches to the rate of return</i>	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

¹⁶ We remain open to considering any new information and arguments put forward by stakeholders.

	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
	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
	Return on debt determined through a trailing average approach	Return on debt determined 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
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
Equity Omnibus*	Use comparator set of nine Australian firm to estimate equity beta	Use comparator set of nine Australian firms to estimate equity beta
	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
	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
	In determining the MRP, have regard to the historical excess return, both the arithmetic and geometric mean MRP, and MRP surveys	In determining the MRP, have regard to the historical excess return, both the arithmetic and geometric mean MRP, and MRP surveys
	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
	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.
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
	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
	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.
Overall Rate of Return Omnibus*	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
	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

* Denotes a draft Working Paper

It should be noted that Table 1 only reflects those issues we have considered as part of the working paper series. The Information Paper will provide a summary of our positions on all rate of return matters.

Generally, in developing our working papers, we put forth a preliminary position where possible, having balanced the evidence available, advice from consultants and submissions from stakeholders.

Our approach is to transparently set out our thinking on the specific issues discussed in the working papers, as the papers progress through a comprehensive stakeholder engagement. In some instances, we are satisfied to put out preliminary positions on our thinking and, where we consider an issue needs more analysis and wider input, we indicate a more open position.

Importantly however, the positions in the final working papers, as incorporated in the *Information Paper*, will not necessarily reflect the corresponding positions that we adopt in the Draft 2022 Instrument. In particular, persuasive 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.

Thereafter, stakeholders have an opportunity to make submissions on our Draft 2022 Instrument, which will be reviewed by the Independent Panel.

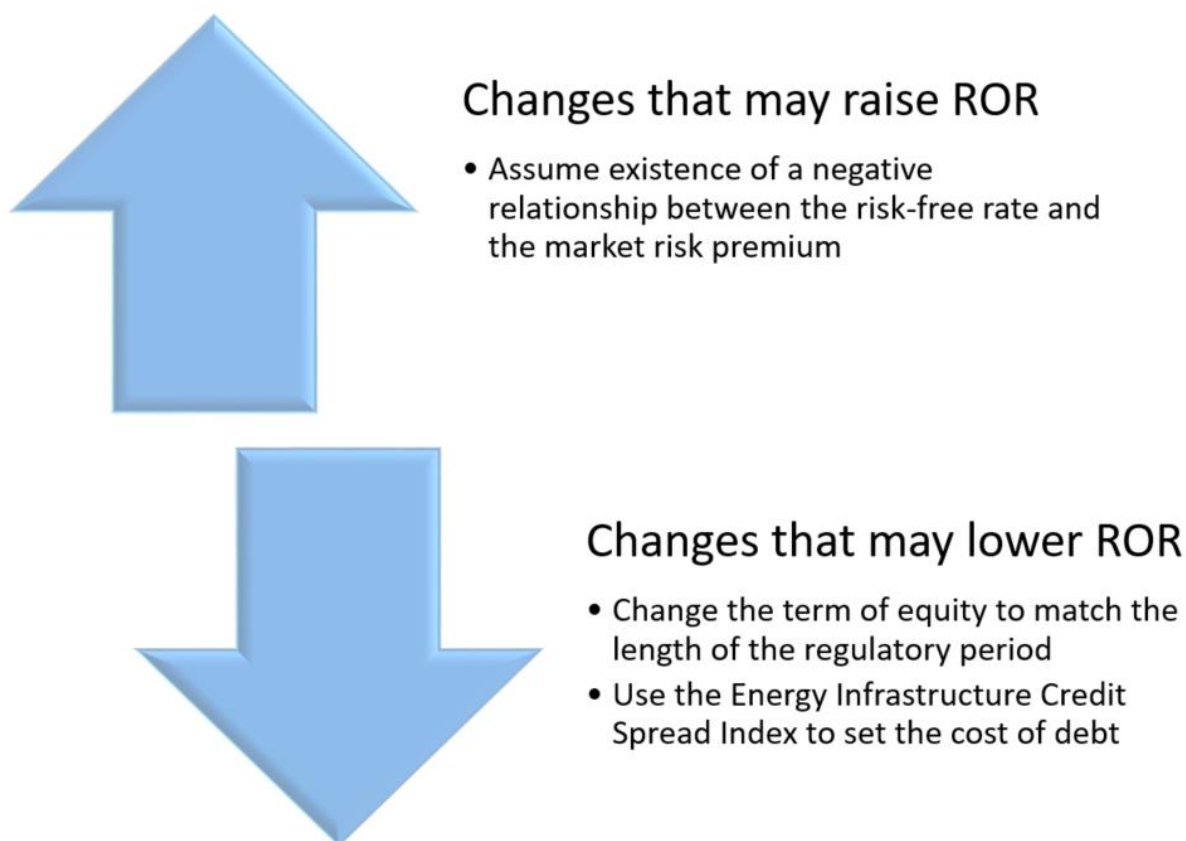
We will consider the submissions on our Draft 2022 Instrument and the advice of the Independent Panel before making the Final 2022 Instrument.

4.3 Potential impact on the rate of return

At this time, there are only a small number of *substantial matters of methodology* that we consider may warrant change from the respective positions taken in the 2018 Instrument.

Figure 3 below lists those matters and provides an initial indication of the direction of change in the estimated rate of return that may result given current market data and economic conditions. It is important to note that the indicated impacts represent a direct effect, and do not take account of the cumulative impact of the changes or any of the inter-relationships among the parameters.

Figure 3 Possible changes that may raise (or lower) the rate of return



As noted in Table 1 above, we are considering if the dividend growth model might be used to inform the relationship between the market risk premium and risk-free rate. At this stage, we do not see this as a substantial methodological change and have therefore not included it in Figure 3 above. However, we acknowledge that, as we develop our 2022 Instrument, new evidence might emerge to warrant the use of the dividend growth model in a sufficiently different manner to be considered a methodological change from our 2018 Instrument.

While we are unable to reliably quantify the impact on the estimated rate of return of any of these potential changes at this time, we expect stakeholders may wish to undertake their own scenario analysis. We would note that the impact of the changes will vary in magnitude over time and in the case of the estimation of the market risk premium the direction of the impact may also vary. In the 2018 review, we published an excel workbook to help stakeholders in this context. We have updated this model for the 2022 review.¹⁷

We also note that there are a number of WACC inputs such as gearing, equity beta, debt and the risk-free rate that could change from our 2018 Instrument due to data updates. These data updates will be done at a later stage, and therefore Figure 3 does not include the impacts of those particular inputs.

Drawing all this together, the most significant elements we are seeing at this stage of the review are:

¹⁷ AER, *AER – WACC-Sensitivity of regulated revenue to the rate of return.xlsm*, July 2021. We have used AusGrid's 2019–24 final decision PTRM as the base for this model.

- the relationship between the market risk premium and the risk-free rate
- the estimation of the equity beta
- changing the term of equity to match the regulatory period
- using the EICSI to adjust the regulated cost of debt
- change in the level of gearing to reflect market information.

5 Decision-making framework

Stakeholders have indicated that they are seeking greater clarity on how we evaluate the relative merits of available information and our decision-making consideration.

This section sets out the decision-making framework which we have adopted for the development of the 2022 rate of return instrument.

5.1 Overall approach

It is a legislative requirement for us to periodically review our models, information sets and parameters. We also think it is good practice to review our key building blocks from time to time.

These reviews need to take account of a number of factors, including:

- new theoretical developments which may strengthen old arguments or make the case for an alternative, for example in relation to estimation methodologies
- recently-published data used to update parameter estimates
- changing market practices.

In this context, the approach we have adopted for the 2022 review is to:

- take the 2018 Instrument as an initial reference point,
- scope all components of the rate of return for potential change, having regard to stakeholder feedback on subjects they consider of interest or importance, and
- assess the relative merits of any new evidence before us, being open to consider any new issues that stakeholders raise as relevant.

We are of the view that this approach has the advantage of consistency and provides stakeholders with stability across regulatory periods.

The working papers we have developed (and those presently under development) as part of the initial phase of our 2022 review have laid down a clear path for us. They have allowed us to explore a large number of issues across the breadth of rate of return. This has been important to check we have not missed any key aspects requiring consideration and potential change. In doing so, it has revealed that, at this time, there are only a small number of significant methodological matters where we consider a change from our position in the 2018 Instrument may be warranted.

These matters were highlighted earlier in Figure 3.

5.2 Stakeholder views

The Consumer Reference Group (CRG) is of the view that the regulatory framework cannot lead to the efficient outcomes envisaged in the energy market objectives unless all stakeholders have confidence in how the regulatory framework is applied (and changed).¹⁸

It also noted that consumers value stability in the AER's approach, and where any change is proposed, there must be strong evidence to support that change.¹⁹ In this context, the CRG supported the AER clearly defining its evidentiary thresholds upfront.²⁰

The Network Shareholders Group similarly argued for the AER to have an objective and transparent assessment framework.²¹ We support this sentiment, recognising the importance of stability, transparency and certainty in regulatory design and practice.

More generally, stakeholders have emphasised the need for us to adopt a 'high bar' in making any change to the rate of return framework.

For example, in its 2020 submission to our draft working paper, *CAPM and alternative return on equity models*, the CRG argued that there should be a high bar for change to any of the rate of return parameters, and that those seeking a change should be able to demonstrate how it would promote significantly better long-term outcomes for consumers.²² It has continued to support the principle of a high bar for change in its recent submission to the *Term of the Rate of Return* draft working paper.²³

5.3 How do we exercise our discretion

The legislative framework does not prescribe methodologies or lock in specific benchmark characteristics for the estimation of the various components of the rate of return. Rather, it provides discretion and requires us to exercise judgement about the analytical techniques and evidence to use to make an estimate that is commensurate with efficient financing costs.

We think it is appropriate and transparent to set out the factors we consider when exercising our judgement. Clearly, the NEO and NGO are pre-eminent.

The NEO and NGO establish the ultimate objective of the AER's decision-making.²⁴ In each case, the objective is to promote efficient investment in, and efficient operation and use of,

¹⁸ Consumer Reference Group, *submission to the AER, Advice to the AER on the term of the rate of return, submission in response to draft working paper*, June 2021, p. 42

¹⁹ Consumer Reference Group, *presentation to AER public forum on Term of the Rate of Return working paper*, 15 June 2021, p. 17

²⁰ Consumer Reference Group, *submission to the AER, Advice to the AER on the term of the rate of return, submission in response to draft working paper*, June 2021, p. 42

²¹ Network Shareholders Group, *Incentivising investment in energy infrastructure, presentation to the AER's webinar on term*, 15 July 2021, p.

²² Consumer Reference Group, *Submission to the AER Return on Equity*, October 2020, p. 31.

²³ Consumer Reference Group, *Advice to the Australian Energy Regulator on the Term of the Rate of Return*, July 2021, p. 41

²⁴ NEL, s. 7; NGL, s. 23.

the relevant electricity or gas services, for the long term interests of consumers with respect to the price, quality, safety, reliability and security of supply.²⁵

We are required to make a Rate of Return Instrument under the NEL and the NGL. We may make an instrument only if satisfied the instrument will, or is most likely to, contribute to the achievement of the national energy objectives to the greatest degree.²⁶

When we prepared the 2018 Instrument, we informed our decisions by applying detailed criteria that we previously set out in the 2013 Rate of Return Guidelines (2013 Guidelines). These contribute to the NEO and NGO and support the legislative objectives. We have reviewed these criteria and think they remain useful for the current review. In particular, they provide transparency and predictability about how we will undertake our role. A number of stakeholders have told us this is important for them.

Where change is under consideration, based on new evidence before us, we are of the view that these criteria provide a lens through which we can assess alternative estimation methods, financial models, market data and other evidence to which we must have regard in our decision-making. They also improve the transparency and predictability of our review process.

These criteria:

- set out desirable qualities against which new evidence should be assessed, and
- place the long-term interests of consumers, as reflected in the energy market objectives, at the heart of any decision to change from historical practice.

5.3.1 Assessment criteria

In the 2013 Guidelines, we developed a set of transparent criteria to inform our regulatory judgement on rate of return matters when evaluating material put before us.²⁷

At that time, we considered that decisions on the rate of return are more likely to achieve the allowed rate of return objective if they used estimation methods, financial models, market data and other evidence that were:

1. where applicable, reflective of economic and finance principles and market information
 - (a) estimation methods and financial models are consistent with well-accepted economic and finance principles, and informed by sound empirical analysis and robust data
2. fit for purpose
 - (a) the use of estimation methods, financial models, market data and other evidence should be consistent with the original purpose for which it was compiled and have regard to the limitations of that purpose
 - (b) promote simple over complex approaches where appropriate

²⁵ The NEO contains an additional objective of the reliability, safety and security of network system: see NEL s.7.

²⁶ NEL, s. 18I—AER to make rate of return instrument; NGL, s. 30D—AER to make rate of return instrument.

²⁷ AER, *Better regulation Explanatory Statement Rate of Return Guideline*, December 2013, p. 23.

3. implemented in accordance with good practice
 - (a) supported by robust, transparent and replicable analysis that is derived from available credible datasets
4. where models of the return on equity and debt are used these are
 - (a) based on quantitative modelling that is sufficiently robust as to not be unduly sensitive to errors in inputs estimation
 - (b) based on quantitative modelling which avoids arbitrary filtering or adjustment of data, which does not have a sound rationale
5. where market data and other information is used, this information is
 - (a) credible and verifiable
 - (b) comparable and timely
 - (c) clearly sourced
6. sufficiently flexible as to allow changing market conditions and new information to be reflected in regulatory outcomes, as appropriate.²⁸

These criteria were subordinate to the law, the rules and the allowed rate of return objective.²⁹ They provided a framework through which we were able to exercise our regulatory judgment in respect of evidence before us, while allowing sufficient flexibility to make decisions in changing market circumstances.

In developing the 2018 Instrument, stakeholders indicated that they valued certainty and predictability.³⁰ Accordingly, we adopted the same criteria in our assessment of information when making the 2018 Instrument.³¹

In the interests of maintaining continuity and stability, we will again adopt this suite of criteria to assess the merits of new evidence that has become available since 2018.

However, in assessing possible changes for the 2022 review, we will also have regard to:

- the materiality of any proposed change, and
- the longevity or sustainability of new arrangements.

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

In the long-term interest of consumers

We consider that enhancing the long-term interests of consumers should be an overarching objective of any change to the rate of return framework. Accordingly, having successfully met the threshold criteria for making a change, its impact needs to be considered in this context.

²⁸ AER, *Better regulation Explanatory Statement Rate of Return Guideline*, December 2013, pp. 23–4.

²⁹ AER, *Better regulation Explanatory Statement Rate of Return Guideline*, December 2013, p. 23.

³⁰ AER, *Draft rate of return guidelines explanatory statement*, July 2018, p. 25.

³¹ See for example AER, *Draft rate of return guidelines explanatory statement*, July 2018, pp. 216, 282.

Having consulted with CRG and Energy Networks Australia (ENA) during 2021, we resolved not to make a decision with a conscious bias toward a higher or lower expected rate of return. Rather, we undertook to aim for the best possible estimate in an environment of uncertainty, given the best available information.

To this end, in our position paper *Rate of return and assessing the long-term interests of consumers*,³² we established a guiding principle that we would seek to determine an unbiased estimate of the expected efficient return, consistent with the relevant risks involved in providing regulated network services.

On the basis that this principle best serves the long-term interests of end users, any change to the 2018 Instrument will need to pass this final test.

³² AER, *Rate of return and the long term interest of consumers*, Position paper, May 2021.

PART B

6 Possible options and preliminary views for 2022

In this Part B we explore topics that affect the overall rate of return but have not been considered elsewhere. These are:

- the form of the rate of return.
- gearing—the level of benchmark gearing including the treatment of hybrid securities.
- gamma—the data used to estimate the value of imputation credits (gamma).
- the use of cross checks at the overall rate of return level.

The draft working paper proposes preliminary positions on these topics, having considered a range of evidence including previous academic work, previous expert reports, other regulators' practices and previous stakeholder submissions.

Form of the rate of return

Our preliminary position is to maintain the use of a nominal vanilla WACC from the 2018 Instrument. We consider it is simple, transparent and consistent with our estimation of gamma.

Gearing

Our preliminary view is to set the benchmark gearing level to be line with market value estimates. Based on our annual updates, there is evidence for lowering the benchmark gearing below the current 60 per cent value. We propose to maintain primary reliance on market-values and our annual updates have indicated declines in market value gearing estimates.

We are seeking submissions and views on how hybrid securities should be treated when estimating gearing.

Value of imputation credits

Our preliminary view is to maintain the 2018 Instrument's use of data to estimate the value of imputation credits (gamma):

- Use annual report information from Top-50 ASX-listed firms to inform our estimate of the distribution rate. This is because we continue to consider that a regulated firm will typically be a listed firm or owned by a listed firm and this firm will seek to distribute a large proportion of its credits to its shareholders in a manner consistent with the estimated aggregate distribution rate of listed firms.
- Use ABS wealth data to inform our estimate of the utilisation rate. This will be subject to our findings from the December 2018 Australian Taxation Office (ATO) note, which provided two potential measures of the utilisation rate.

We are also investigating if we should continue to assume that non-resident investors assign no value to imputation credits. We are aware that there are taxation agreements that may allow residents in some other countries to utilise imputation credits generated in Australia. However, this is a complex task which requires understanding of overseas taxation

arrangements and how local tax laws operate. Our initial research suggests we may not be able to make clear conclusions on this question.

Use of cross checks

We are reviewing cross checks to consider what role they might play in assisting the exercise of our judgement in setting the overall rate of return. Our considerations are informed by previous work and recent submissions. We note that cross checks carry a number of limitations, which makes it difficult to use them to inform the allowed rate of return in any deterministic way. However, we seek submissions on if, and how, they can be used in setting the rate of return instrument.

We proposed a number of questions throughout the paper to seek stakeholders' views on our preliminary views and thinking. For convenience, these are reproduced below.

Question 1: should a nominal vanilla WACC be used to estimate the allowed rate of return?

Question 2: what is the appropriate approach for estimating gearing?

Question 3: what is the appropriate value for benchmark gearing?

Question 4: what is the appropriate treatment of hybrid securities in the gearing estimation methodology?

Question 5: what is a suitable method for allocating hybrid securities between debt and equity?

Question 6: to what extent should the treatment of hybrid securities in the gearing estimation methodology align with the estimation of equity beta?

Question 7: should the data used to inform gamma in the 2018 Instrument continue to be used?

Question 8: is the data in the ATO's December 2018 note suitable for informing the utilisation rate?

Question 9: should non-resident investors be assumed to derive no value from imputation credits?

Question 10: how can profitability measures be used as a possible cross check for informing the overall rate of return?

Question 11: how can RAB multiples be used as a possible cross check for informing the overall rate of return?

Question 12: how can investment trends be used as a possible cross check to inform the overall rate of return?

Question 13: how can financeability metrics be used as a possible cross check to inform the overall rate of return?

Question 14: can scenario testing be used to inform the overall rate of return?

7 Form of the rate of return

The form of the rate of return sets out how we will estimate a rate of return that achieves our legislative objectives.

7.1 2018 Instrument

In 2018, we estimated the rate of return on a nominal vanilla basis that was consistent with our estimate of the value of imputation credits.³³ The rate of return was based on a weighted average of the return on equity and return on debt and was calculated as follows:

$$WACC = E(k_e) \cdot (1 - G) + E(k_d) \cdot G$$

where:

- *WACC* is the weighted average cost of capital
- $E(k_e)$ is the expected return on equity
- $E(k_d)$ is the expected return on debt
- *G* is the proportion of debt in total financing, otherwise referred to as the gearing ratio

7.2 Development since the 2018 Instrument

We did not receive any new material regarding the form of the rate of return.

7.3 Preliminary views

Our preliminary view is to maintain our 2018 approach and implement a nominal vanilla WACC to estimate the allowed rate of return. It is:³⁴

- simple and transparent
- consistent with our estimation of the value of imputation credits
- consistent with our long-standing approach that we have applied over a number of years.

Question 1: should a nominal vanilla WACC be used to estimate the allowed rate of return?

³³ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 57.

³⁴ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 57.

8 Gearing

Gearing is the ratio of the value of debt to total capital (that is, debt plus equity).³⁵ The gearing ratio is used to weight the expected required return on debt and equity to derive the WACC. The level of gearing is interrelated with equity beta and credit rating due to the effect of leverage risk on these parameters. There are also interrelationships between gearing and tax expense.

We note the issue of the comparator set is shared between gearing and equity beta. To avoid repetition, this issue is discussed in our Equity Omnibus working paper.

8.1 Level of benchmark gearing

We determine a benchmark gearing ratio from observed gearing ratios of listed Australian energy networks. We consider that the gearing ratios of Australian service providers will most closely reflect the regulatory and commercial risks involved in providing regulated services. Benchmarking against listed service providers allows us to consider market gearing values.

8.1.1 2018 Instrument

In 2018, we adopted a benchmark gearing level of 60 per cent based on the observed gearing ratios of listed Australian energy networks.³⁶ Estimates of business' gearing values can be obtained from a business' books (financial statements) or from market prices of debt and equity securities.³⁷ In 2018, we placed primary reliance on long term market value estimates of gearing from our comparator set which supported a 60 per cent value despite some recent decline.³⁸

Furthermore, we considered that a benchmark level of gearing of 60 per cent was appropriate for the following reasons:

- The rate of return was relatively invariant to changes in gearing.³⁹
- Gearing across service providers varied materially and appeared relatively volatile through time.⁴⁰ This showed that service providers are able to adjust their gearing to meet their financial needs despite a 60 per cent benchmark gearing level.

8.1.2 Developments since the 2018 Instrument

We have been publishing updated rate of return data (including empirical gearing estimates) annually following the release of the 2018 Instrument. The intent is to provide stakeholders with information on the rate of return between reviews. Table 2 demonstrates how our gearing estimate has changed over the last two years.

³⁵ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 64.

³⁶ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 64.

³⁷ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 69.

³⁸ AER, *Rate of return instrument, Explanatory Statement*, December 2018, pp. 65, 71.

³⁹ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 66.

⁴⁰ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 67.

Table 2: Annual update of rate of return

	2018 RORI	2019 Update	2020 Update
Market gearing: 5 year average	54%	53%	52%
Market gearing: 10 year average	60%	57%	55%
Book gearing: 5 year average	69%	69%	71%
Book gearing: 10 year average	70%	69%	70%

Note: We use the methodology from the 2018 Instrument to estimate gearing.

Market gearing is estimated using the market values of equity and the book value of debt (book value is used as a proxy for market value of debt). Book gearing is estimated using the book value of equity and debt

In 2020, we commissioned a report from the Brattle Group (Brattle) as part of our review of international regulators' approach. The report reviewed the rate of return methodologies including gearing, of eight international regulators. In Table 3, we summarise the debt methodologies currently used by these international regulators.

Table 3: International regulators methodologies

Regulator	Gearing Methodology	Estimate
Dutch Authority for Consumers and Markets (ACM)	Median market gearing value from its comparator set. ⁴¹	50 per cent
Surface Transportation Board (STB)	Market value weighted industry average. ⁴²	17 per cent
Federal Energy Regulatory Commission (FERC)	Use regulated business' actual gearing provided it is within the range from comparable companies. ⁴³ If this gearing is excessively low, the FERC may use a hypothetical gearing level, or alternatively, the gearing of a corporate parent entity.	Gas pipelines: typically 40 per cent Electricity transmission: typically 40–50 per cent
New Zealand Commerce Commission (NZCC)	Average of a survey of 70 listed utility companies in New Zealand, Australia and the United States. The survey was based on individual firms' market value leverage. This reflected the average leverage of the sample of comparator firms, also reflected the differences in leverage, which exist between electricity distribution businesses, gas transmission businesses and other regulated services.	42 per cent
Italian Regulatory Authority for Energy, Networks and the Environment (ARERA)	Notional level of gearing used by other European energy regulators to a maximum value of 50 per cent. ⁴⁴	50 per cent with the exception of distribution and metering of natural gas, which was 44.4 per cent.
Office of Gas and Electricity and Markets (Ofgem)	Ofgem was consulting on the level of benchmark gearing when Brattle completed its report. Ofgem mentioned the importance of companies' business plans and that it expects companies to make risk assessments and advance proposals for notional gearing. It noted the riskiness of business plans and financeability before determining the level of benchmark gearing. ⁴⁵	60 per cent as working assumption
	Ofgem released its final determination in December 2020 after Brattle released its report. It considered that the notional gearing ratios provide adequate but not excessive headroom. ⁴⁶ Furthermore, Ofgem stated that the gearing levels are reasonable given market data, medium term interest rate trends and embedded debt costs.	Electricity transmission: 55 per cent (notional) National Grid Gas (Transmission) and gas distribution networks: 60 per cent (notional)
The Water Services Regulation Authority (Ofwat)	Ofwat reduced gearing from its previous value of 62.5 per cent. This was because its price review increased the share of revenues at risk from service performance and hence, decided to lower their level of benchmark gearing. ⁴⁷ Ofwat observed that actual company gearing is in excess of its notional gearing assumption but that it forecasts gearing to decrease over the regulatory period.	60 per cent (notional)
	Four regulated disputed Ofwat's decision and appealed to the Competition and Markets Authority (CMA) after the Brattle report was released. ⁴⁸ The CMA maintained Ofwat's 60 per cent notional gearing because it did not receive evidence that an alternative value would better serve customers.	

We have also commissioned a report from Partington and Satchell.⁴⁹ The key conclusion is that small changes in gearing, 'plus or minus five percent, are likely to have little appreciable effect on the cost of capital for regulated networks and that even outside this range changes

in the cost of capital are likely to be relatively small within quite a wide range of leverage'.⁵⁰

TransGrid and Electranet's 2020 proposed change to the National Electricity Rules, associated with the financeability of projects in the Integrated System Plan (ISP), raised the topic of gearing.⁵¹ In our submission to the AEMC consultation paper, we noted that we would assess benchmark gearing ratio as part of our development of the 2022 Instrument.⁵²

8.1.3 Preliminary views

A gearing ratio requires estimates of the value of a business' debt and equity.⁵³ These values can be obtained from book values and market values. Book values are derived from business' financial statements whereas market gearing values are obtained from market prices of debt and equity securities.

We propose to adopt a benchmark gearing value that aligns with our empirical estimates of market value for the following reasons:

- We placed primary weight on gearing estimates from market values and secondary weight on book values of the same listed firms to estimate the benchmark level of gearing in 2018.⁵⁴ At that time, we noted that:⁵⁵
 - other rate of return parameters are typically informed by market data
 - experts agreed that market-based estimates are most appropriate
 - book values may not be representative of a firm's market risk or forward looking target gearing

⁴¹ Brattle, *A review of international approaches to regulated rates of return*, June 2020, p. 129; Brattle, *A review of international approaches to regulated rates of return*, June 2020, p. 80, 103.

⁴² Brattle, *A review of international approaches to regulated rates of return*, June 2020, p. 129; Brattle, *A review of international approaches to regulated rates of return*, June 2020, p. 80, 103.

⁴³ Brattle, *A review of international approaches to regulated rates of return*, June 2020, p. 94; Brattle, *A review of international approaches to regulated rates of return*, June 2020, p. 95.

⁴⁴ Brattle, *A review of international approaches to regulated rates of return*, June 2020, p. 109.

⁴⁵ Brattle, *A review of international approaches to regulated rates of return*, June 2020, p. 126.

⁴⁶ Ofgem, *RIO-2 Final determination—Finance Annex (Revised)*, February 2021, p. 85.

⁴⁷ Brattle, *A review of international approaches to regulated rates of return*, June 2020, p. 133.

⁴⁸ CMA, *Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations, Final report*, March 2021, p. 9.

⁴⁹ Partinton and Satchell, *Report to the AER: WACC and leverage*, 19 May 2021.

⁵⁰ Partinton and Satchell, *Report to the AER: WACC and leverage*, 19 May 2021, p. 27.

⁵¹ Australian Energy Market Commission, *Consultation paper, National electricity amendment (Participant derogation - Financeability of ISP projects (TransGrid)) Rule, National electricity amendment (Participant derogation - financeability of ISP projects (ElectraNet)) Rule*, November 2020, p. 1.

⁵² AER, *AER submission - Consultation on TransGrid and ElectraNet participant derogations - Financeability of ISP projects*, December 2020, p. 3.

⁵³ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 69.

⁵⁴ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 71.

⁵⁵ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 70.

- Brattle's review of international regulators indicated that a range of approaches are used when estimating gearing and two regulators explicitly use market value estimates.
- Our review of domestic regulators indicates that approximately half of the seven regulators use market value estimates only.⁵⁶
- Partington and Satchell considered that market values should be used when estimating gearing where possible.⁵⁷

From our annual updates, we see a declining trend in the market value gearing estimates with five-year and ten-year averages falling to 52 per cent and 55 per cent respectively.⁵⁸ These values were 54 per cent and 60 per cent in 2018.⁵⁹ Therefore, based on the long-term data available at present we are considering changing the gearing ratio from 60 per cent to 55 per cent.

Lowering the value of benchmark gearing would likely entail the following consequences:

- Equity beta – gearing is positively correlated with the equity beta. A lower gearing, holding all other factors constant, would lower equity beta estimates and thus the return on equity.
- Credit rating – gearing is inversely related to credit rating. A lower gearing for a given project risk will typically receive a higher credit rating and a lower cost of debt.⁶⁰
- Weighting of WACC components – lower benchmark gearing would lower the weight assigned to the cost of debt in the WACC equation (with a corresponding increase to the weight assigned to the cost of equity). The return on equity is typically higher than the return on debt. On the other hand, lowering the proportion of debt financing typically reduces the required return on equity and debt. Overall, a lower WACC would only occur if the latter effect dominates.
- Taxation – the benchmark gearing ratio is currently used in our Post-Tax Revenue Model (PTRM) to calculate projected deductible interest expenses and tax expenses (the allowed tax revenue building block). A lower gearing ratio will result in lower deductible projected interest expense and higher allowed revenue for the tax building block (all else equal).⁶¹ In addition, a lower benchmark gearing may reduce (increase) the overall WACC which can reduce (increase) the taxable income and thus the tax building block.

We also note that other regulators have adopted a benchmark gearing of less than 60 per cent:

- International regulators outside the UK generally adopted a gearing value below 60 per cent.

⁵⁶ We reviewed seven domestic regulators: Economic Regulation Authority in West Australia, Independent Competition and Regulatory Authority (ICRC) in Canberra, Queensland Competition Authority (QCA), Australian Competition and Consumer Commission (ACCC), Essential Services Commission of South Australia (ESCOSA), Essential Services Commission (ESC) in Victoria.

⁵⁷ Partington and Satchell, *Report to the AER: WACC and leverage*, 19 May 2021, p. 20.

⁵⁸ AER, *Rate of return, Annual update*, December 2020, p. 6.

⁵⁹ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 65.

⁶⁰ AER, *Rate of return and cashflows in a low interest rate environment, Draft working paper*, May 2021, p. 36.

⁶¹ AER, *Discussion paper, Gearing*, February 2018, p. 8.

- The ACM, ARERA and NZCC applied a gearing ratio of 50 per cent, 44 per cent and 42 per cent respectively.
- The STB implemented the lowest benchmark gearing ratio of 17 per cent.
- The ARERA's gearing was set at 50 per cent for all regulated industries with the exception of the distribution and metering of natural gas where it chose to apply a gearing of 44.4 per cent.
- The ERAWA adopted a benchmark gearing level of 55 per cent for regulated energy businesses.⁶² The ERAWA also adopted a gearing value of 20, 25 or 50 per cent for its railway determinations depending on the railway business.⁶³
- The ACCC has adopted a gearing of 50 per cent in its 2018 draft decision on Australian Rail Track Corporation's access undertaking.⁶⁴
- The QCA has adopted a value of 55 per cent for Aurizon Networks in 2018.⁶⁵

Question 2: what is the appropriate approach for estimating gearing?

Question 3: what is the appropriate value for benchmark gearing?

8.2 Treatment of hybrid securities

Hybrid securities are securities that have characteristics of both debt and equity.⁶⁶ They are different to typical debt securities and it is important to understand the terms and conditions of each security.

8.2.1 2018 Instrument

When we developed the 2018 Instrument we considered two applications of hybrid securities:

- Envestra and Spark Infrastructure had shareholder loan notes that were included as debt for accounting purposes but had characteristics similar to equity.⁶⁷ We did not include hybrid securities from Envestra and Spark Infrastructure in our gearing calculation because they were not sufficiently similar to debt.⁶⁸

⁶² ERAWA, *Final gas rate of return guidelines, Explanatory statement, Meeting the requirements of the National Gas Rules*, December 2018, pp. 66, 73; ERAWA, *Final Decision on Proposed Revisions to the Access Arrangement for the Western Power Network, Appendix 5: Return on Regulated Capital Base*, September 2018, p. 91;

⁶³ ERAWA, *2018 and 2019 Weighted Average Cost of Capital For the Freight and Urban Networks, and the Pilbara Railways, final determination*, August 2019, p. 19.

⁶⁴ ACCC, *Australian Rail Track Corporation's 2018 Interstate Access Undertaking, draft decision*, December 2018, p. 143.

⁶⁵ QCA, *Appendices Aurizon Network's 2017 draft access undertaking*, December 2018, p. 134.

⁶⁶ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 71.

⁶⁷ ACG, *Review of gearing issues raised in AER Issues Paper*, 21 September 2008, p. 32.; Spark Infrastructure, *Prospectus and product disclosure statement*, 18 November 2005, pp. 4, 31, 86, 140

⁶⁸ AER, *Rate of return instrument, Explanatory Statement*, December 2018, pp. 71 –72.

- AusNet Services carried two hybrid securities in the form of non-convertible subordinated notes.⁶⁹ We did not remove AusNet Services' hybrid securities because it was unlikely to be material when estimating gearing and the Energy infrastructure credit spread index (EICSI).

8.2.2 Developments since the 2018 Instrument

We observe an increased use of hybrid securities by regulated businesses in 2020 and 2021:⁷⁰

- On 25 September 2020, AusNet Services issued an AUD 650 million, 60-year AUD denominated hybrid security in the form of non-convertible subordinated notes.
- On 3 March 2021, AusNet Services issued a EUR 700 million, 60-year EUR hybrid security in the form of non-convertible subordinated notes.
- On 31 May 2021, Spark Infrastructure announced that TransGrid had secured an AUD \$295 million hybrid security instrument in the form of subordinated notes from the Clean Energy Finance Corporation (CEFC). Spark Infrastructure has a 15 per cent ownership in TransGrid.⁷¹

Our annual updates use information from AusNet Services' annual reports, which contain information to 31 March each year.⁷² Therefore, the 2020 Annual Update did not include AusNet Services' hybrid securities issuances as they were both issued after its' 2020 annual report was released.

Our 2020 *Energy network debt data* working paper proposed to exclude hybrid securities from the EICSI.⁷³ We excluded instruments that did not satisfy simple debt criteria because the inclusion of debt with equity or non-debt characteristics could lead us to incorrectly assess the realised cost of debt.

8.2.3 Preliminary views

The 2018 Instrument adopted different approaches depending upon the circumstances and we now consider that a consistent approach is needed for the 2022 Instrument. This is because of the increased issuance by regulated businesses. Table 4 outlines reasons supporting the inclusion and exclusion of hybrid securities.

⁶⁹ AusNet Services, *AusNet Services Successfully Prices SGD200M Hybrid Offer*, ASX and SGX-ST release, 1 March 2016, p.1; AusNet Services, *AusNet Services successfully prices USD 375M hybrid offer*, ASX and SGX-ST release, 10 March 2016, p. 1.

⁷⁰ AusNet Services, *AusNet Services Successfully Prices AUD650M subordinated hybrid issue*, ASX announcement, 25 September 2020, p.1; AusNet Services, *AusNet Services successfully prices EUR700M subordinated hybrid issue*, ASX announcement, 3 March 2021, p.1; AusNet Services, *TransGrid to build new electricity interconnector to facilitate Australia's renewables transition*, ASX release, 31 May 2021, p. 2.

⁷¹ Spark Infrastructure, *Annual report 2020, Infrastructure for the future*, February 2021, p. 3; Spark Infrastructure, *Transgrid to deliver Project Energyconnect*, 31 May 2021.

⁷² AER, *Rate of return, Annual update*, December 2020, p. 6.

⁷³ AER, *Rate of return, Energy network debt data, Final working paper*, November 2020, p. 25.

Table 4: Hybrid securities

Reasons supporting inclusion	Reasons supporting exclusion
<ul style="list-style-type: none"> • Hybrids securities contain characteristics of both debt and equity so arguably they should be included in some manner. We note that market values of gearing (which we propose to place primary reliance on) would likely already reflect some valuation of hybrid securities. • We did not remove AusNet Services' hybrid securities from measures of AusNet Services debt in 2018.⁷⁴ • In 2018 and subsequent annual updates we followed AusNet Services' approach of treating their hybrid securities as debt in their financial statements. This may be a simple solution to inclusion of hybrid securities. 	<ul style="list-style-type: none"> • It is difficult to adjust for hybrid securities because they are very different to typical debt securities.⁷⁵ It would be important to understand the terms and conditions of each instrument and the pricing of those instruments, which is likely to be complex and difficult. • In 2008, the Allen Consulting Group (ACG) submitted to our review of rate of return parameters that convertible securities are excluded from equity by Standard & Poor's and have been excluded from equity by US regulators until they have been converted to equity.⁷⁶ • In our 2009 review of WACC parameters ACG submitted,⁷⁷ that Envestra's shareholder loan notes should be treated as equity. As such, the value of these loan notes should be removed from the value of debt when estimating gearing from market values, and transferred from debt to equity when estimating gearing from book values.⁷⁸ • The Economic Regulation Authority (ERA) Western Australia adjusted debt and equity to account for hybrid securities in their gas regulatory decisions.⁷⁹ That is, hybrid securities which had equity characteristics were removed from debt. • We proposed to exclude hybrid securities from the EICS⁸⁰ hence, excluding hybrid securities from the gearing estimation methodology would promote consistency in the calculation of the overall allowed rate of return

We consider the main difficulty with including hybrid securities would be the apportionment between debt and equity.

We note that AusNet Services appear to classify its pre-2018 hybrid securities as debt in its annual reports. However, recent announcement indicate that some hybrid issuances are anticipated to be given partial equity credit treatment by credit rating agencies:⁸¹

- AusNet Services anticipated 50 per cent equity credit treatment.
- Spark Infrastructure noted that Transgrid's hybrid securities will attract partial equity credit treatment but a specific value was not provided.

⁷⁴ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 71.

⁷⁵ AER, *Discussion paper, Gearing*, February 2018, p. 22.

⁷⁶ AER, *Discussion paper, Gearing*, February 2018, p. 22.

⁷⁷ ACG, *Review of gearing issues raised in AER Issues Paper*, 21 September 2008, p. 22.

⁷⁸ AER, *Discussion paper, Gearing*, December 2018, pp. 23, 25.

⁷⁹ ERAWA, *Final gas rate of return guidelines, Explanatory statement, Meeting the requirements of the National Gas Rules*, December 2018, p. 66.

⁸⁰ AER, *Rate of return, Energy network debt data, Final working paper*, November 2020, p. 25.

⁸¹ AusNet Services, AusNet Services successfully prices EUR700M subordinated hybrid issue, ASX Announcement, 3 March 2021; AusNet Services, AusNet Services successfully prices AUD650M subordinated hybrid issue, ASX Announcement, 25 September 2021; Spark Infrastructure, TransGrid to deliver Project Energyconnect, 31 May 2021.

There may also be a disconnect between how businesses report their hybrid securities and that of credit rating agencies.

We have conducted a sensitivity analysis on the inclusion of hybrid securities on our gearing estimates (from our 2020 Annual Update) using the following scenarios:

- I. 2018 Approach
- II. Hybrids as 100 per cent debt
- III. Hybrids as 100 per cent equity
- IV. Excluded for all businesses

We have not included AusNet Services' post-2018 hybrid securities or TransGrid's issuances in our sensitivity analysis. These were issued after the 2020 annual reports were published. Hence, the securities were not included in the 2020 Annual Update.

Table 5 displays the results from our sensitivity analysis.

Table 5: Sensitivity analysis on the treatment of hybrid securities

	Scenario I: 2018 Approach	Scenario II: Hybrids treated as 100% equity^a – Lower bound	Scenario III: Hybrid treated as 100% debt^b – Upper bound	Scenario IV: Hybrids excluded from debt and equity
Market value				
5-year industry average estimates	52%	48%	53%	51%
10-year industry average estimates	55%	52%	56%	54%
Book value				
5-year industry average estimates	71%	66%	72%	70%
10-year industry average estimates	70%	65%	71%	69%

Note: ^a This scenario assumes that 100 per cent of the book value of hybrid securities is allocated to equity.

^b This scenario assumes that 100 per cent of the book value of hybrid securities is allocated to debt.

If hybrid securities were included in our gearing calculations, the estimates would likely be within the range given by scenario II and III.

Therefore, we are seeking submissions on the treatment of hybrid securities when estimating gearing and a method for allocating between debt and equity. If a suitable method is not available, we may exclude hybrid securities from the gearing calculation entirely or apply a simple 50/50 allocation between debt and equity.

We are also considering the extent to which we should align the treatment of hybrid securities in the estimation of gearing and the equity beta. In 2018, the Independent Panel

noted that there should be consistency in the treatment of hybrid securities for estimating gearing and equity beta, but did not comment on consistency with the return on debt.⁸²

We proposed to exclude hybrid securities from the EICSI in our *Energy network debt data* working paper.⁸³ We planned to exclude instruments that do not satisfy simple debt criteria because in our rate of return estimation we calculate a weighted average cost of capital. We have a return on debt and a return on equity allowance, and would therefore need to be able to separately calculate the two. Considering debt with equity or non-debt characteristics could lead us to incorrectly assess the realised cost of debt.

However, we note that the treatment of hybrid securities for estimating gearing does not need to be the same as that for the EICSI. The EICSI provides a measure of industry debt costs while gearing is a measure of the value of debt to equity.⁸⁴

Question 4: what is the appropriate treatment of hybrid securities in the gearing estimation methodology?

Question 5: what is a suitable method for allocating hybrid securities between debt and equity?

Question 6: to what extent should the treatment of hybrid securities in the gearing estimation methodology align with the estimation of equity beta?

⁸² AER, *Rate of return instrument. Explanatory Statement*, December 2018, pp. 71–2.

⁸³ AER, *Energy network debt data, Final working paper*, November 2020, p. 25.

⁸⁴ AER, *Energy network debt data, Final working paper*, November 2020, p. 37.

9 Gamma

9.1 What is gamma?

Gamma refers to the value of imputation credits. Under the Australian imputation tax system, when franked dividends are distributed, investors receive imputation credits for tax paid at the company level. For eligible shareholders, imputation credits offset their Australian income tax liabilities.

We factor the value of imputation credits (known as gamma or 'γ') into our regulatory determination allowances via adjustments to the taxation building block and market risk premium. For example:⁸⁵

- Gamma is a direct input into the calculation of the tax allowance (the tax building block) in our revenue determinations.⁸⁶ The tax building block is reduced by the value of imputation credits. This is because imputation credits can reflect prepayment of personal tax at a company tax level for eligible investors. To prevent 'double compensation', we reduce the tax allowance to reflect the value of imputation credits to equity investors. Therefore, a higher gamma results in a lower tax building block (holding everything else constant).
- We adjust upwards our estimates of the market risk premium to reflect that eligible shareholders benefit from receiving imputation credits, as they are a prepayment of personal tax for eligible investors. This recognises that imputation credits benefit equity holders, in addition to any dividends or capital gains they receive.

We interpret the value of imputation credits as an estimate of the proportion of company tax, which is expected to be returned to investors through utilisation of imputation credits. That is, we apply an 'utilisation' approach to estimating the post company tax value of imputation credits.

In 2017, the Full Federal Court found this approach open to us and that it was not an error of construction for the AER to focus on utilisation rather than on implied market value.⁸⁷ In making the 2018 Instrument, we continued to apply the utilisation approach for estimating gamma.⁸⁸ We adopted the utilisation approach because it is consistent with:⁸⁹

- The Monkhouse extension of the Officer framework
- The framework employed under the National Electricity Rules (NER) and National Gas Rules (NGR)⁹⁰

⁸⁵ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 307.

⁸⁶ We use a building block approach to estimate the revenue for regulated businesses in our revenue determinations. The revenue is composed of four building blocks: the return of capital (that is, depreciation), return on capital, tax, and operating expenditure. The rate of return (along with the value of the regulatory asset base) is used to set the return on capital.

⁸⁷ Federal Court of Australia, *Australian Energy Regulator v Australian Competition Tribunal (No 2)* [2017] FCAFC 79, May 2017, para. 756.

⁸⁸ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 308.

⁸⁹ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 308.

⁹⁰ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 319.

- The approach we used for all determinations under the 2013 Guideline

Most stakeholders also supported this approach during the 2018 Instrument process.⁹¹

We remain of the view the gamma value for the 2022 Instrument should be estimated:

- using the utilisation approach, and
- as the product of the estimated payout ratio for a benchmark firm and the economy-wide utilisation rate.

The focus of discussions on gamma in making the 2018 Instrument surrounded the selection and use of data for informing the gamma estimate. We consider these issues should remain the focus in determining the gamma value for the 2022 Instrument. This paper focuses on these data related issues.

Our considerations on data selection and use are detailed in the sections below. Our preliminary views are:

- The payout information of top-50 ASX-listed firms should be used to inform the payout ratio.
- Equity ownership estimates based on ABS wealth and finance data should be used to inform the utilisation rate.
- We will consider if more weight can be given to ATO private data on imputation credit usage. This will be subject to findings from our review of the estimates provided by the ATO in December 2018 and any updated material that the ATO is able to provide us.
- We are considering whether non-resident investors assign no value to imputation credits.

9.2 Data for informing gamma

We aim to estimate the per-dollar value of imputation credits. Under our utilisation approach, this is based on two parameters:

- The payout ratio, which is the proportion of imputation credits generated that is expected to be distributed to investors.
- The utilisation rate, which is the utilisation value to investors in the market per dollar of imputation credits distributed.

9.2.1 2018 Instrument

In 2018, using analysis from Dr Lally,⁹² we estimated the distribution rate by placing most reliance on the largest 50 Australian Stock Exchange (ASX) listed firms' annual financial reports. This was principally because we:⁹³

- expected that a regulated firm will typically be a listed firm or owned by a listed firm, and

⁹¹ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 318.

⁹² AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 309.

⁹³ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 309.

- considered a distribution rate estimate based on these firms is an appropriate benchmark for a regulated network service provider operating efficiently.⁹⁴

These were supported with advice by Lally who examined the regulated firms and concluded the firms are listed or owned by listed entities (local or foreign).⁹⁵ Lally also noted that unlisted firms would be expected to have lower distribution rates due to tax deferral advantages to the owners which appeared consistent with ATO public data. We chose the largest 50 ASX listed firms because they account for a large proportion of the market capitalisation of listed firm.

This was a change from our approach used in determinations under the 2013 Guideline. Our prior approach primarily used estimates of the distribution rate based on ATO franking account balance data.⁹⁶ However, the 2018 Instrument identified shortcomings with this public ATO data and the ATO itself advised against using this data.

In making the 2018 Instrument, we estimated the utilisation rate primarily using equity ownership information. We used data from the Australian Bureau of Statistics (ABS) wealth data on the proportion of Australian equity held by domestic investors.⁹⁷ This approach assumes that domestic investors can and will make use of imputation credits while foreign investors are unable to do so.

9.2.2 Developments since the 2018 Instrument

In 2018 and 2019, we engaged Dr Lally to estimate the market-wide distribution rate from the financial statements of the largest 50 ASX-listed firms over the periods 2000–2017 and 2000–2018 respectively.⁹⁸

We have also recently engaged Dr Lally to extend his analysis on the distribution rate to cover the 2000–2020 period. We are still checking the latest estimates from Dr Lally and will publish them in our annual update for 2021.

9.2.3 Preliminary views

We note that stakeholders held differing views on what data should be used to inform our gamma estimate in 2018:

- Regulated networks and investors disagreed with the data we used and preferred our previous (pre-2018) approach to estimating the distribution rate.⁹⁹
- The CCP supported our use of ABS wealth data for estimating the utilisation rate.¹⁰⁰

⁹⁴ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 309.

⁹⁵ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 309.

⁹⁶ AER, *Better regulation, Explanatory statement, Rate of return guideline*, December 2013, p. 165.

⁹⁷ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 311.

⁹⁸ Dr Martin Lally, *Estimating the distribution rate for imputation credits for the top 50 ASX companies*, October 2018; Dr Martin Lally, *Estimating the distribution rate for imputation credits for the top 50 ASX companies*, December 2019.

⁹⁹ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 318.

¹⁰⁰ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 360.

- The CRG proposed a gamma of or close to one (0.9 if gamma is fixed to cover the possibility that over the period there may be some need for net new investment in the networks) for the following key reasons:¹⁰¹
 - An efficiently financed firm would source its equity finance from domestic shareholders who are able to use their imputation credits, which would entail an utilisation rate of one.¹⁰²
 - The distribution rate should be one or close to one based on the assumption that all the efficiently financed firm's earnings (and hence imputation credits) should be fully distributed if there is no need to make a net new investment in the RAB.¹⁰³

At this time, our preliminary view is to maintain the data used in the 2018 Instrument for estimating the distribution rate:

- We propose the use of financial report data from the top 50 ASX listed firms for estimating the distribution rate.
- We continue to expect a regulated firm will typically be a listed firm or owned by a listed firm and this firm will seek to distribute a large proportion of its credits to its shareholders in a manner consistent with the estimated aggregate distribution rate of listed firms.

Our preliminary view, for the reasons set out above, is to continue the use of the equity ownership information (based on ABS wealth data) to inform the value of the utilisation rate. However, the weight accorded to it will be subject to findings from our review of the December 2018 ATO note and any updated data the ATO can provide (discussed further in section 8.3).

We note the CRG previously proposed a gamma estimate of 0.9 for the 2018 Instrument. We considered that its approach was consistent with our 'utilisation' interpretation of gamma. That is, the value of imputation credits is the proportion of company tax returned to investors through the utilisation of imputation credits.¹⁰⁴ The CRG's proposed distribution rate of 0.9, although based on a different approach, is also consistent with the rounded distribution rate estimate from the financial report of the top 50 ASX listed firms with no adjustment for foreign operation.¹⁰⁵ We note Dr Lally's 2019 and 2021 updates yielded payout ratios of 0.886 and 0.89 respectively.¹⁰⁶

We note that there are three other potential sources of utilisation rate estimates: implied market value studies, public ATO data, and private ATO data. However, we do not consider it appropriate to place material weight on the first two of these estimates for the reasons set

¹⁰¹ The CRG, Submission to the Australian Energy Regulator – response to the rate of return draft decision, September 2018, p. 38.

¹⁰² AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 375; The CRG, *Submission to the Australian Energy Regulator – response to the rate of return draft decision*, September 2018, p. 35.

¹⁰³ AER, *Rate of return instrument, Explanatory Statement*, December 2018, pp. 318, 355; The CRG, *Submission to the Australian Energy Regulator – response to the rate of return draft decision*, September 2018, p. 33.

¹⁰⁴ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 329.

¹⁰⁵ AER, *Rate of return instrument, Explanatory Statement*, December 2018, pp. 357–358.

¹⁰⁶ AER, *Rate of return annual update*, December 2019, p. 26; Dr Martin Lally (Capital Financial Consultants), *Estimating the distribution rate of imputation credits for the top 50 ASX companies*, 24 June 2021, p. 4.

out in the 2018 Instrument explanatory statement. We are investigating potentially greater use of the third.¹⁰⁷

Question 7: should the data used to inform gamma in the 2018 Instrument continue to be used?

9.3 December 2018 ATO data

9.3.1 2018 Instrument

The ATO provided a note in December 2018 containing two estimates (both were based on confidential data, which spanned the period 2012–16):¹⁰⁸

- Net franking credit usage
- Imputation credits distributed to resident vs. non-residents as a percentage of imputation credits distributed

We placed limited weight on this information from the ATO for several reasons:¹⁰⁹

- This was a new analysis that was undertaken in a relatively short timeframe.
- The ATO did not provide any estimates on the likely error bounds in its estimates.
- We had limited time to consider the information prior to our final decision. In particular, we did not have an ability to check the underlying data or calculations, nor give stakeholders an opportunity to comment.

However, we committed to exploring this data further during the course of future reviews.

9.3.2 Development since the 2018 Instrument

As part of our commitment to explore the December 2018 ATO estimates, in March 2021 we requested further assistance from the ATO on the analysis provided in 2018. We asked for its analysis to be extended to cover more income years, if there has been any change in the underlying methodology it used, and whether it could provide a public document on the underlying methodology for consultation.

We are waiting for the ATO's response to this request.

9.3.3 Preliminary views

In this draft working paper, we seek stakeholder's views on the information provided by the ATO in December 2018. We seek comment from stakeholders on whether placing greater weight on these tax statistics is appropriate.

¹⁰⁷ AER, *Rate of return instrument, Explanatory Statement*, December 2018, pp. 309, 311.

¹⁰⁸ AER, *Rate of return instrument, Explanatory Statement*, December 2018, pp. 312, 336; The ATO, *note to the AER: Franking account reconciliation*, 11 December 2018; The ATO, *Confidential attachment to ATO note to the AER*, 11 Dec 2018.

¹⁰⁹ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 313.

We note that the ATO defined the two measures as follows:

- Net franking credit usage: defined as the proportion of franking offset used by individuals, superannuation funds, Self-Managed Super Funds and charities compared to the net franking credits distributed. We consider this measure would take into account the imputation credits that are recycled within companies.
- Assumed imputation credits distributed to residents as a percentage of imputation credits distributed: defined as the proportion of franking credits received by individuals, superannuation funds, self-managed super funds, charities and companies to the total franking credits distributed. We consider this measure would not take into account the imputation credits that are recycled within companies.

Our initial assessment is that the utilisation rate should take into account the imputation credits that are recycled within companies. When estimating the utilisation rate we need to determine what proportion of investors can use imputation credit (resident investors) vs investors that cannot use imputation credits (non-resident investors). Effectively assuming investors in a company can use 100 per cent of the imputation credits it receives may therefore result in an upward biased utilisation rate estimate.

As a result, out of the two measures proposed by the ATO for the utilisation rate, we consider the ‘net franking credit usage’ measure would be more consistent with our assessment. Table 6 compares the utilisation rate estimates from ABS and ATO’s statistics.

Table 6: Comparison of ABS and December 2018 ATO estimates

	2012	2013	2014	2015	2016	2017	2018
ATO: assumed imputation credits distributed	61%	62%	62%	65%	63%		
ATO: net franking credit usage	50%	56%	53%	59%	51%		
ABS: total equity	63%	64%	65%	65%	65%	65%	65%

Note: Annual ABS data is a simple average of quarterly ABS data.

As is evident in Table 6, the ABS equity ownership estimate is higher than the ATO’s net franking credit usage rate. Given the ABS and ATO use different methodologies, the fact that the two estimates differ is not unexpected.

A number of factors could be driving the differences including:

- The total firms in the ABS listed and unlisted sample being different to all the firms considered by the ATO.
- The ATO data accounting for some residents not being able to redeem imputation credits, whereas the ABS data does not.
- The ATO data recognising that the imputation distribution rate for the average firm held by resident investors may differ from the average firm held by non-resident investors.

We are currently assessing the appropriateness of placing more weight on the ATO's data (from its December 2018 note) when estimating the utilisation rate. We seek stakeholder's views on whether it is appropriate to place greater weight on these ATO tax statistics when estimating the utilisation rate.

Question 8: is the data in the ATO's December 2018 note suitable for informing the utilisation rate?

9.4 Foreign investors' valuation of imputation credits

The utilisation rate in the 2018 Instrument was estimated primarily using the equity ownership approach based on ABS wealth data. This assumes one dollar of distributed imputation credits is valued at one dollar by Australian resident investors and at zero by non-residents of Australia.¹¹⁰ Further, for all investors, including non-residents, we assume undistributed imputation credit are worthless.

This assumes non-resident investors cannot use any franking credits attached to franked dividends to reduce the amount of tax payable on other Australian income and they cannot get a refund of the franking credit.

We are currently considering if non-resident investors assign a material value to imputation credits. This is likely to be a complex task and requires examining a number of matters including the following key issues:

- What countries non-resident investors principally come from, and
- What tax treaties these countries have with Australia and how their local tax laws operate.

To our knowledge, there is no publicly available information on the geographical distribution of non-resident investors. This makes continuing the investigation difficult. We have also requested the ATO provide assistance with these tasks to the extent they can.

In any event, we note the ABS wealth data is a reliable, transparent and timely source of information for estimating the utilisation rate. In the absence of alternative information, the assumption that non-resident investors assign no value to imputation credits is conservative and can remain reasonable. The Full Federal Court and the Independent Panel also did not found error with this assumption in 2017 and 2018 respectively.

Question 9: should non-resident investors be assumed to derive no value from imputation credits?

¹¹⁰ The tax statistics approach also assumes non-resident investors do not value imputation credits.

10 Possible Cross checks

10.1 Overall cross checks

Cross checks involve comparing estimates against other relevant information sources. They may provide a sense check that the calculated estimates are reasonable and consistent with other sources of information.

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

Return on equity cross checks assess the return on equity estimate to other information sources. These cross checks are examined in the Equity Omnibus paper.

10.1.1 2018 Instrument

In 2018, we considered the following cross checks:¹¹¹

- RAB multiples
- Historical profitability measures
- Investment trends
- Financeability

At that time, we did not give cross checks a role in informing the overall rate of return.¹¹² We considered that the appropriateness of rate of return parameters should continue to be based on the evidence examined in determining these parameters.¹¹³

10.1.2 Developments since the 2018 Instrument

In response to our 2020 *International regulatory approaches to rate of return* draft working paper,¹¹⁴ all stakeholders suggested conducting further work into the use of cross checks.¹¹⁵

- Networks highlighted the importance of cross checks and suggested:
 - Identifying a set of potential cross checks
 - Establishing a clear framework for how cross checks will apply and the consequences if one was breached
- The CRG recommended identifying useful cross checks for assessing rate of return decisions

¹¹¹ AER, *Rate of return instrument, Explanatory Statement*, December 2018, pp. 382–405.

¹¹² AER, *Rate of return instrument, Explanatory Statement*, December 2018, pp. 388, 392, 405.

¹¹³ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 393.

¹¹⁴ AER, *Rate of return, International regulatory approaches to rate of return, Draft working paper*, August 2020.

¹¹⁵ AER, *Rate of return, International regulatory approaches to rate of return, Final working paper*, December 2020, p. 40.

- The Network Shareholders' Group indicated the need to undertake and respond to independent cross checks to ensure a reasonable allowed rate of return

After reviewing stakeholders' submissions on cross checks in the *International regulatory approaches to rate of return* working paper, we stated that cross checks may provide information that indicates the suitability of our rate of return estimates.¹¹⁶ However, we also noted that cross checks faced limitations such as:

- Comparability
- Timeliness
- Adjustments made to suit a different objective
- Not necessarily indicating how much the regulatory rate of return is different to that required by investors

At the time, we noted that we will conduct further work on cross checks to assess their suitability in informing the 2022 Instrument.

10.1.3 Preliminary views

We are exploring if, and how, cross checks can be used to inform the rate of return at the overall level. In particular, we are considering whether cross checks could inform the choices we make when exercising our judgement. We discuss their strengths, limitations, their suitability for our regulatory task and seek submissions. We discuss each of the cross checks in their respective sections below.

10.2 Historical profitability and RAB multiples

Both profitability measures and RAB multiples are measures of a firm's returns. However, profitability measures are backward-looking measures of actual returns whereas RAB multiples are forward-looking measures of expected returns.

RAB multiples are the enterprise value of a firm divided by its Regulatory Asset Base (RAB).¹¹⁷ Subject to satisfying several conditions, a RAB multiple of one may indicate that the present value of the future stream of expected cash-flows of the firm is equal to its RAB. This means that investors are compensated exactly at a level to encourage efficient investment.

When the RAB multiple is more than one it can indicate that abnormal returns (that is, above the regulatory rate of return) are being earned or are expected to be earned on the RAB.

10.2.1 2018 Instrument

Stakeholders submitted differing views in 2018 on the use of RAB multiples and historical profitability as cross checks on the overall rate of return.¹¹⁸

¹¹⁶ AER, *Rate of return, International regulatory approaches to rate of return, Final working paper*, December 2020, p. 40.

¹¹⁷ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 382.

¹¹⁸ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 385.

- The NSG, ENA, and AEC opposed the use of RAB multiples and historical profitability measures.
- The CCP explained that information such as RAB multiples should be used as a cross check or constraint on the overall rate of return.
- NERA noted that the difficulty in separating realised returns into allowed returns and other returns makes it difficult to conclude that the allowed return is sufficient.
- The CRG outlined that the AER needs to make better use of actual returns data and finds ways to uncover this data if currently not available.

We also considered a report from Darryl Biggar which noted the strengths and limitations of RAB multiples.¹¹⁹ This report recognised that RAB multiples provide the most direct information available on the relativity of expected cash-flows and market discount rates to the cash-flows needed to just compensate investors.¹²⁰ The analysis suggested that there is scope for the regulator to consider RAB multiples (as one amongst a range of factors) when setting the regulatory-allowed cost of capital.¹²¹ However, RAB multiples do not provide information about the relativity of allowed and expected returns on capital or equity. The report noted that the regulatory-allowed cost of capital could also perfectly reflect the firm's true cost of capital and the RAB multiple could still be above one.

In addition, the report pointed out that a RAB multiple that is different from one could be a sign of a flaw or defect in the regulatory framework.¹²² In this context, the RAB multiple could therefore play a role as a trigger for further investigation.

Ultimately, our decision was that RAB multiples and historical profitability were not appropriate to inform the overall rate of return based on the following considerations:¹²³

- A number of non-rate of return factors affect these measures. There is significant subjectivity and no agreement from experts on the appropriate assumptions used to disaggregate historical profitability and RAB multiples.¹²⁴
- RAB multiples can also include possibility of over-optimism in assumptions and control premiums.¹²⁵
- Transactions that provide data on acquisition RAB multiples are relatively infrequent and there is a risk of inappropriately applying circumstances from one transaction generally across all the service providers.¹²⁶
- For RAB multiples, the data on private acquisition multiples may not be reflecting the same factors as trading multiples.¹²⁷ Trading multiples are likely to include shareholders'

¹¹⁹ Darryl Biggar, *Understanding the role of RAB multiples in the regulatory processes*, February 2018, pp. 1, 3, 4–5.

¹²⁰ Darryl Biggar, *Understanding the role of RAB multiples in the regulatory processes*, February 2018, p. 12.

¹²¹ Darryl Biggar, *Understanding the role of RAB multiples in the regulatory processes*, February 2018, p. 16.

¹²² Darryl Biggar, *Understanding the role of RAB multiples in the regulatory processes*, February 2018, p. 13.

¹²³ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 388.

¹²⁴ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 386.

¹²⁵ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 386.

¹²⁶ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 387.

¹²⁷ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 387.

views of managements' ability to deliver outperformance, whereas with acquisition multiples the purchaser would be assessing their own ability to deliver outperformance.

Although cross checks were not used in the 2018 Instrument, we acknowledged that trends in RAB multiples and historical profitability may provide useful contextual information about the allowed rate of return.¹²⁸ We considered that the size of recent RAB multiples and historical profitability measures combined with a continued ability of service providers to raise capital suggest that realised returns have been at least sufficient.

Further, we noted that it was important to collect information on the actual profitability of the network businesses that we regulate. We also stated that we would monitor trading multiples and acquisition multiples that may occur from time to time.¹²⁹

10.2.2 Development since the 2018 Instrument

In 2019, we published a report, which reviewed profitability measures for electricity and gas network businesses (2019 Profitability report).¹³⁰

We considered that the information should provide all parties with an additional source of information with which to review the overall effectiveness of the regulatory regime. This report should also assist stakeholders in making submissions on regulated businesses' regulatory proposals and to other regulatory processes. However, we did not expect profitability measures to be a direct input to individual regulatory determinations.

In 2020, we released our Network Performance report, which included analysis of key outcomes and trends in the operational and financial performance data we collected from regulated electricity businesses.¹³¹ This report discussed trends in both trading and transaction RAB multiples.¹³²

We have also investigated other regulators' use of RAB multiples:

- Australian regulators do not appear to make use of RAB multiples. The ERAWA has explicitly noted that it is inappropriate to directly link an energy network business's RAB multiple to its WACC.¹³³ It noted that there are multiple factors that drive a RAB multiple to be greater than one which is consistent with our observation.
- From the Brattle report, international regulators outside the UK generally do not use RAB multiples with the exception of the NZCC.
 - The NZCC has acknowledged the limitations with using RAB multiples but considered that they provide a useful indicator of the overall reasonableness of the

¹²⁸ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 387.

¹²⁹ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 387.

¹³⁰ AER, *Final position paper, Profitability measures for electricity and gas network businesses*, December 2019, p. 2.

¹³¹ AER, *Electricity network performance report 2020*, September 2020, p. 2.

¹³² AER, *Electricity network performance report 2020*, September 2020, pp. 48–49.

¹³³ ERAWA, *Final Decision on Proposed Revisions to the Access Arrangement for the Western Power Network – Appendix 5 – Rate of Return, Attachment 1 – Energy network profitability and the regulatory asset base*, September 2018, p. 3.

regulatory settings (including the allowed WACC).¹³⁴ It noted that the available RAB multiples supported its rate of return being at least sufficient.¹³⁵ We also note that the NZCC has previously considered RAB multiples as one factor in lowering its WACC decision to select, within its estimated range, the 67th percentile value (from the 75th percentile) in 2014.¹³⁶

- UK regulators differ in how their view of RAB multiples but do not appear to make substantive, if any, adjustments for RAB multiples.
 - The Civil Aviation Authority (CAA) noted that market-to-asset ratios (MARs)¹³⁷ should be interpreted with caution.¹³⁸ It appeared to consider that the MAR should be slightly above one. Due to some historical transactions at or below a MAR of one, the CAA increased the WACC for Gatwick airport slightly (by six basis points) so the WACC differential between Heathrow and Gatwick airport was 35 basis points.
 - Ofgem considered MARs for UK utility stocks as a strong piece of evidence for cross checks at the return on the equity level.¹³⁹ It noted that MARs (in combination with other checks) generally supported a lower return on equity. However, it did not implement any adjustments. This appears to be after regulated businesses' submissions that the cross checks were not as strong as Ofgem believed and lowering the WACC was not a justified use of regulatory discretion.¹⁴⁰ Regulated businesses also generally argued against the use of cross checks.¹⁴¹
 - Ofwat does not use MARs as a cross check at the overall rate of return level. It previously considered, but did not use, MARs to inform the return on equity in its 2019 price review (PR19) final decision.¹⁴² It noted that there was a circularity issue since the indicative returns published during the review process would have informed market expectations and consequently the MARs. The Chairman of Ofwat has also previously referred to high RAB multiples for UK water utilities as evidence that the regulator's allowed WACC is too high, and noted that the continuing trend for water companies is for them to be sold at prices around 130 per cent of regulated asset value.¹⁴³

¹³⁴ NZCC, *Input methodologies review decisions Topic paper 4: Cost of capital issues*, December 2016, p. 206; AER, *Discussion paper – Financial performance measures*, February 2018, p. 18; NZCC, *Input methodologies review draft decisions Topic paper 4: Cost of capital issues*, June 2016, p. 167.

¹³⁵ NZCC, *Input methodologies review decisions Topic paper 4: Cost of capital issues*, December 2016, p. 201.

¹³⁶ NZCC, *Input methodologies review draft decisions Topic paper 4: Cost of capital issues*, June 2016, p. 19; NZCC, *Amendment to the WACC percentile for price-quality regulation for electricity lines services and gas pipeline services Reasons paper*, 2014, p. 13.

¹³⁷ This appears to be the UK regulators' terminology for RAB multiples.

¹³⁸ Consumer Challenge Panel (CCP), *Submission to the AER on its Rate of Return Guideline Issues Paper*, December 2017, p. 118; Civil Aviation Authority, *Estimating the cost of capital: a technical appendix to the CAA's Final Proposal for economic regulation of Heathrow and Gatwick after April 2014 CAP 1115*, October 2013, p. 78.

¹³⁹ Ofgem, *Decision, RIIO-2 Final determinations, Finance Annex (Revised)*, February 2021, pp. 53–55.

¹⁴⁰ Ofgem, *Decision, RIIO-2 Final determinations, Finance Annex (Revised)*, February 2021, pp. 51, 55.

¹⁴¹ Ofgem, *Decision, RIIO-2 Final determinations, Finance Annex (Revised)*, February 2021, p. 50.

¹⁴² Ofwat, *PR19 final determinations, Allowed return on capital technical appendix*, December 2019, p. 50.

¹⁴³ AER, *Draft rate of return guidelines, Explanatory Statement*, July 2018, pp. 135–136; Consumer Challenge Panel, *Submission to the AER on its Rate of Return Guideline Issues Paper*, December 2017, pp. 118–119; Ofwat, *Observations*

10.2.3 Preliminary views

We consider it is important to collect information on profitability measures and RAB multiples. They may provide useful contextual information about the allowed rate of return.

In our subsequent reports in 2019 and 2020, we found that this information could act as an additional source of information with which to review the overall effectiveness of the regulatory regime. This information can also assist stakeholders in making submissions on regulated businesses' regulatory proposals and to other regulatory processes.

We acknowledge there are challenges in using measures of profitability and RAB multiples for informing the level of the rate of return. For example, a number of factors affect profitability measures and RAB multiples. It is difficult to disaggregate and distil the impact of the rate of return.¹⁴⁴

Further, profitability measures are not directly related to expected returns. For example, regulated businesses' actual returns may be low in absolute terms but—in an environment where investors do not expect high returns, either from regulated businesses specifically or in financial markets more generally—they may nonetheless be sufficient to attract investment. Equally, actual returns may be high in absolute terms but fall below the requirements investors would require to invest.

However, we previously noted that, if disaggregation of profitability measures can be reliably undertaken then historical profitability may provide information on efficient gearing levels and efficient capital, operating, debt, and tax expenditure, but it cannot provide information on the required return on equity.¹⁴⁵ This is because, after accounting for outperformance of regulatory allowances, a service provider's return is set by regulation.

Darryl Biggar's 2018 report also concluded that there is scope for the regulator to take into account RAB multiples (as one amongst a range of factors) when setting the regulatory-allowed cost of capital despite the circularity issue.¹⁴⁶

He noted that RAB multiples carry two key strengths:

- They are relatively easy to compute and are often cited in the financial press.¹⁴⁷
- They are an objective, market-based, measure of the present value of the expected future cash-flows of the firm relative to the amount required to fully compensate investors in the firm.¹⁴⁸ They therefore are sometimes taken as a measure of whether the regulatory framework is achieving this objective.

He also stated that if careful analysis can 'isolate and adjust for the effect of other factors ... the resulting RAB multiple can be a useful sanity check on the operation of the regulatory regime'.¹⁴⁹

on the regulation of the water sector, A lecture by Johnson Cox, March 2013, p. 9.

¹⁴⁴ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 386.

¹⁴⁵ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 386.

¹⁴⁶ Darryl Biggar, *Understanding the role of RAB multiples in the regulatory processes*, February 2018, p. 16.

¹⁴⁷ Darryl Biggar, *Understanding the role of RAB multiples in the regulatory processes*, February 2018, p. 1.

¹⁴⁸ Darryl Biggar, *Understanding the role of RAB multiples in the regulatory processes*, February 2018, p. 1.

¹⁴⁹ Darryl Biggar, *Understanding the role of RAB multiples in the regulatory processes*, February 2018, p. 16.

If we do give cross checks a greater role in setting the 2022 Instrument, we think measures of profitability and RAB multiples should be included in a suite of cross checks considered. Therefore, we seek submissions on the use of profitability measures and RAB multiples. We want to explore if, and how, they can be used to reliably inform the rate of return at the overall level.

Question 10: how can profitability measures be used as a possible cross check for informing the overall rate of return?

Question 11: how can RAB multiples be used as a possible cross check for informing the overall rate of return?

10.3 Investment trends

Stakeholders have previously submitted that investment trends can provide some indication of the rate of return in past regulatory determinations. The rationale is that:

- An allowed rate of return that is too high may encourage inefficient overinvestment.
- An allowed rate of return that is too low may discourage efficient investment.

10.3.1 2018 Instrument

In 2018, we noted that investment trends may provide some indication if the allowed rate of return in past regulatory determinations was too high or too low.¹⁵⁰ However, we concluded that the currently available evidence on investment trends could not reliably be used to inform the allowed rate of return in any deterministic way.¹⁵¹

This was because a number of non-rate of return factors can contribute to investment trends with conflicting impact. The influence of these factors, and the difficulty disentangling their impacts, complicates using investment trends as an indicator of the rate of return.

We also noted that it was difficult to compare investment trends over time to discern the extent of any impact from the rate of return.¹⁵² A comparison between pre-2013 and post-2013 RABs would need to consider the network reliability standard changes in New South Wales and Queensland in 2005, and the rollout of mandatory smart metering in Victoria, over this period.

Furthermore, there were also changes to the regulatory regime, including the AER gaining greater remit in 2012 to assess costs proposed by providers and the introduction of incentive schemes.

At the time, we noted that investment trends may provide contextual information that can assist our investigation of other evidence and our risk-cost trade-off assessment.

¹⁵⁰ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 391.

¹⁵¹ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 392.

¹⁵² AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 392.

10.3.2 Development since the 2018 Instrument

We have not received substantive material to support the use of investment trends as a possible cross check when estimating the rate of return.

However, we have published information on investment trends in other regulatory reports. Our 2020 Network Performance report included analysis on the RAB and capital expenditure.¹⁵³ We also provided high-level analysis on investment trends in our annual State of the Energy Market report with the most recent report for 2021.¹⁵⁴

10.3.3 Preliminary views

We continue to take the view that investment trends may provide some indication that the allowed rate of return in past regulatory determinations was too high or too low.

This is because:

- An allowed rate of return that is too high may encourage inefficient overinvestment that can be reflected in unusually high capital expenditure and thus RAB growth, and
- An allowed rate of return that is too low may discourage efficient investment, unusually low capital expenditure and thus RAB growth.

However, this assessment requires evidence that:

- Historical investments have not been efficient, and
- Inefficiency of historical investments was, at least in part, driven by the allowed rate of return.

A number of non-rate of return factors can contribute to investment trends with conflicting impact. Their influence and the difficulty disentangling their impacts complicates using investment trends as an indicator of the rate of return. This was also noted in the 2018 NERA report jointly commissioned by the CRG and ENA.¹⁵⁵

Therefore, our preliminary view is it is unclear if investment trends can be used to reliably inform the allowed rate of return in any deterministic way. However, we are not closed to the use of investment trends as a possible cross check. We seek submissions on the use of investment trends and explore if, and how, they can be used to inform the rate of return at the overall level.

Question 12: how can investment trends be used as a possible cross check to inform the overall rate of return?

¹⁵³ AER, *Electricity network performance report 2020*, September 2020, p. 18.

¹⁵⁴ AER, *State of the Energy Market 2021*, 2 July 2021.

¹⁵⁵ NERA Economic Consulting (NERA), *RAB growth since the AER's 2013 Rate of Return Guideline*, September 2018, p. 25.

10.4 Financeability metrics

Financeability refers to a service provider's ability to meet its financing requirements and to efficiently raise new capital.¹⁵⁶

In the regulatory context, it often refers to the service provider's ability to achieve the benchmark credit rating applied in the estimation of the rate of return. This is typically assessed through examining the key financial ratios used by credit rating agencies and testing if these ratios support the benchmark credit rating, based on a service provider's allowed cash flows.

10.4.1 2018 Instrument

Regulated businesses supported using financeability tests in 2018.¹⁵⁷ However, we determined that they should not be used to inform our rate of return for the following reasons:¹⁵⁸

- There was no clear guidance on the assumptions that should be used in any financeability assessment as a cross check on the benchmark parameters in the Sharpe-Linter CAPM.
- Regulated firms under financial metric pressure would be expected to take countermeasures to protect their credit profiles.

10.4.2 Developments since the 2018 Instrument

The topic of financeability metrics has been raised in a number of processes since the 2018 Instrument.

Regulated businesses submitted that financeability tests should be used when estimating the rate of return in submissions to the 2020 *International regulatory approaches to rate of return* working paper.¹⁵⁹

Financeability was raised during the 2020 Inflation Review:

- The ENA and Queensland Treasury Corporation (QTC) identified problems regarding financeability.¹⁶⁰ They were concerned about how our treatment of inflation would result in negative cash returns to equity holders and negative net profit after tax (NPAT) for the benchmark firm.
- The CRG submitted that there were no financeability issues.¹⁶¹ It stated that there was no indication of networks experiencing financial distress, and the observed trends in real returns on assets are consistent with the declining cost of funds.

¹⁵⁶ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 392.

¹⁵⁷ AER, *Rate of return instrument, Explanatory Statement*, December 2018, p. 394.

¹⁵⁸ AER, *Rate of return instrument, Explanatory Statement*, December 2018, pp. 393, 405.

¹⁵⁹ AER, *International regulatory approaches to rate of return, Final working paper*, December 2020, p. 19.

¹⁶⁰ ENA, *Review of the regulatory treatment of inflation — response to AER draft position*, 6 November 2020, p. 63; QTC, *Review of the regulatory treatment of inflation — submission to the AER discussion paper*, 29 July 2020, pp. 9–10.

¹⁶¹ CRG, *Submission to AER review of inflation*, 29 July 2020, p. 18.

Financeability was also a topic in TransGrid and ElectraNet's rule change proposal to the AEMC in 2020:

- TransGrid identified features of the regulatory framework that have significant implications for the financeability of large scale projects with long asset lives.¹⁶² The financeability issue is due to the regulatory framework deferring revenue recovery for capital investment costs until later in the asset's life.
- TransGrid outlined that the best option to address the financeability issues that arise for very large projects is to remove indexation of the RAB where there is no change to the other key drivers of financeability such as the rate of return or treatment of inflation.¹⁶³
- ElectraNet explained that its actionable ISP projects are typically large compared to the existing RAB and have longer asset lives, which means that financeability is more likely to be an issue.¹⁶⁴
- ElectraNet's analysis indicates that it also faces financeability issues in relation to Project EnergyConnect.¹⁶⁵ These issues are exacerbated because Project EnergyConnect is superimposed on other significant, committed transmission projects in South Australia.
- ElectraNet stated that the proposed Rule change is a targeted approach that rebalances the profile of ISP project revenue to address the financeability issue, but does not affect the total revenue for ISP projects in present value terms.¹⁶⁶

NERA Economic Consulting (NERA), on behalf of the ENA, submitted a report on 10 December 2020 that was subsequently submitted to the AEMC as part of TransGrid and ElectraNet rule change proposal. The key conclusions of the NERA report were:

- There is no conclusive evidence of 'a systematic financeability problem', but considered further investigation was required – one that considers a wider range of metrics.¹⁶⁷
- Other regulators (British and IPART) have adopted financeability tests and they help protect consumers rather than regulated businesses.¹⁶⁸
- The AER should introduce financeability testing because the benefits of doing so will exceed the cost.¹⁶⁹

Our submission on TransGrid's proposed rule change noted our views and thinking on financeability:

¹⁶² TransGrid, *National Electricity Rules change proposal, Making ISP projects financeable- Participant Derogation*, September 2020, p. 3.

¹⁶³ TransGrid, *National Electricity Rules change proposal, Making ISP projects financeable- Participant Derogation*, September 2020, p. 24.

¹⁶⁴ ElectraNet, *Rule change proposal, Making ISP projects financeable - Participant Derogation*, October 2020, p. 5.

¹⁶⁵ ElectraNet, *Rule change proposal, Making ISP projects financeable - Participant Derogation*, October 2020, p. 6.

¹⁶⁶ ElectraNet, *Rule change proposal, Making ISP projects financeable - Participant Derogation*, October 2020, p. 15.

¹⁶⁷ NERA, *Role of financeability in promoting the long-term interests of energy consumers*, 10 December 2020, p.1.

¹⁶⁸ NERA, *Role of financeability in promoting the long-term interests of energy consumers*, 10 December 2020, p.1.

¹⁶⁹ NERA, *Role of financeability in promoting the long-term interests of energy consumers*, 10 December 2020, p. 9.

- Discussions on financeability tended to focus on the FFO/Net debt metric. FFO/Net debt is an important component of this assessment but a decrease in the metric does not of itself indicate an issue that requires a rule change.¹⁷⁰
- Financeability is substantially impacted by the practices and choices made by the firm itself.¹⁷¹ Regulated firms can, and do, engage in a range of practices specific to managing their own operations.
- The AER does not have a formal obligation to consider financeability under the rules. However, 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.¹⁷²
- Service providers are not required to achieve the benchmark assumptions used in making and applying the Rate of Return Instrument at all times.¹⁷³ The benchmark assumptions used in making and applying the rate of return instrument are for estimating an allowed rate of return that is commensurate with the efficient financing costs of the regulatory investments, but go no further.

As part of our revenue determination process for Victorian electricity distribution businesses, we received a consultant report by Frontier, which discussed the issue of financeability.¹⁷⁴ The Frontier report stated that:

- The current level of regulatory allowances do not produce credit metrics that support an investment grade credit rating.¹⁷⁵
- A lower estimate of regulatory inflation flows through to a higher cash return on equity.¹⁷⁶ This has the effect of reducing the extent of any losses and slightly improves the FFO/Debt metrics. However, although the outcomes are somewhat improved, NPAT remains negative and the FFO/Debt ratio remains in the BB range.

We have recently released a draft working paper on the *Rate of return and cashflows in a low interest rate environment*. The paper noted that measures of financeability should not be used directly when setting the rate of return for reasons including the following:¹⁷⁷

¹⁷⁰ AER, *AER submission - Consultation on TransGrid and ElectraNet participant derogations - Financeability of ISP projects*, December 2020, p. 2.

¹⁷¹ AER, *AER submission - Consultation on TransGrid and ElectraNet participant derogations - Financeability of ISP projects*, December 2020, p. 2.

¹⁷² AER, *AER submission - Consultation on TransGrid and ElectraNet participant derogations - Financeability of ISP projects*, December 2020, p. 2.

¹⁷³ AER, *AER submission - Consultation on TransGrid and ElectraNet participant derogations - Financeability of ISP projects*, December 2020, p. 5.

¹⁷⁴ Frontier economics, *The impact of artificially suppressed government bond yields, Report for AusNet Services, CitiPower, Powercor and United Energy*, November 2020.

¹⁷⁵ Frontier economics, *The impact of artificially suppressed government bond yields, Report for AusNet Services, CitiPower, Powercor and United Energy*, November 2020, p. 5.

¹⁷⁶ Frontier economics, *The impact of artificially suppressed government bond yields, Report for AusNet Services, CitiPower, Powercor and United Energy*, November 2020, p. 12.

¹⁷⁷ AER, *Rate of return and cashflows in a low interest rate environment, Draft working paper*, May 2021, p. 47.

- FFO to net debt is an important component of this assessment but a decrease in the metric does not necessarily indicate an issue with financeability.¹⁷⁸
- We believe transparency and predictability are important considerations, which makes the use of financeability tests difficult. There is a degree of subjectivity in implementing financeability testing because it involves considerable judgement.¹⁷⁹
- We found no evidence that the businesses we regulate cannot efficiently raise capital.¹⁸⁰ There appears to be a range of options businesses take to optimise their overall capital structure and to make regulatory investments financeable
- It appeared the regulated businesses have been able to manage their capital structure and cash flows to maintain investment grade credit ratings. We noted that during the AEMC rule change process, no evidence was presented to show businesses are unable to raise capital in the current low risk free rate environment.
- The current NPAT is low due to a higher proportion of the return of capital being recovered via RAB indexation, then NPATs in future years will be higher due to the higher RAB trajectory.¹⁸¹ Low or negative NPAT is not a reflection of the total return received by investors.

10.4.3 Preliminary views

Our preliminary view is to explore the possibility of using financeability tests as an overall cross check on the rate of return.

The topic of financeability was raised in a number of processes since the 2018 Instrument. Regulated businesses typically proposed that financeability tests should be used to inform the rate of return.¹⁸² However, the Consumer Reference Group (CRG) submitted that there were no financeability-related issues.¹⁸³

We note the post-2018 material submitted in support of financeability tests do not address its long-standing limitations, which were discussed in the *Rate of return and cashflows in a low*

¹⁷⁸ AER, *Rate of return and cashflows in a low interest rate environment, Draft working paper*, May 2021, pp. 36, 47.

¹⁷⁹ AER, *Rate of return and cashflows in a low interest rate environment, Draft working paper*, May 2021, p. 36.

¹⁸⁰ AER, *Rate of return and cashflows in a low interest rate environment, Draft working paper*, May 2021, p. 46.

¹⁸¹ AER, *Rate of return and cashflows in a low interest rate environment, Draft working paper*, May 2021, p. 40; Return on capital building block is determined as the RAB multiplied by the WACC. All else equal, a higher RAB trajectory results in a higher return on capital and return of capital in the future.

¹⁸² ENA, *Best-practice framework for setting the allowed return on equity*, October 2020; SAPN, *Submission on AER draft working paper: Rate of return CAPM and alternative return on equity models*, 7 October 2020; Ausgrid, *Submission International regulatory approaches to rate of return and CAPM*, 9 October 2020; ENA, *Review of the regulatory treatment of inflation — response to AER draft position*, 6 November 2020; QTC, *Review of the regulatory treatment of inflation — submission to the AER discussion paper*, 29 July 2020; TransGrid, *National Electricity Rules change proposal, Making ISP projects financeable- Participant Derogation*, September 2020; ElectraNet, *Rule change proposal, Making ISP projects financeable - Participant Derogation*, October 2020; NERA, *Role of financeability in promoting the long-term interests of energy consumers*, 10 December 2020; Frontier economics, *The impact of artificially suppressed government bond yields, Report for AusNet Services, CitiPower, Powercor and United Energy*, November 2020.

¹⁸³ CRG, *Submission to AER review of inflation*, 29 July 2020, p. 18.

interest rate environment draft working paper and our response to Transgrid's proposed rule change.¹⁸⁴

We also note that the hybrid securities issued by AusNet Services in 2020 do not indicate there is a financeability issue.

In the *Rate of return and cashflows in a low interest rate environment* paper, we noted that bringing forward cash flows may address financeability issues.¹⁸⁵ However, this would result in current consumers paying for more of the regulatory asset than they consume in a present value sense, while future consumers will pay less. This raises intergenerational equity considerations.

We have also considered the financeability analysis undertaken by Ofgem and IPART. Our view is that:¹⁸⁶

- There is a degree of subjectivity in implementing financeability testing because it involves considerable judgement. Transparency and predictability are important considerations.
- Where there appears to be a short term dips in financial metrics, other regulators refer these issues to the regulated businesses to manage in the first instance.
- If adjustments are made, these are made through an NPV-neutral adjustment. That is, networks would not get a higher rate of return.

Our current evidence suggests that financeability tests carry limitations, which makes their use for informing the overall rate of return unclear. However, we are seeking stakeholder feedback on the potential use of financeability metrics as a cross check on the overall rate of return.

Question 13: how can financeability metrics be used as a possible cross check to inform the overall rate of return?

10.5 Scenario testing

During the pathway to the 2022 Instrument, network stakeholders have raised the topic of using cross checks to test the computed rate of return under various scenarios (scenario testing). This was largely on the basis that the instrument being binding and lasting for nine years into the future. It would need to be robust to a range of market conditions and not just those when the instrument is made.

We will consider the merits of scenario testing if a convincing case is put forward to us. We note that financial institutions use scenario testing ('stress testing') as part of their risk

¹⁸⁴ AER, *Rate of return and cashflows in a low interest rate environment, Draft working paper*, May 2021, pp. 36, 40, 46, 47, 62 & 77; AER, *AER submission - Consultation on TransGrid and ElectraNet participant derogations - Financeability of ISP projects*, December 2020, pp. 2 & 5.

¹⁸⁵ AER, *Rate of return and cashflows in a low interest rate environment, Draft working paper*, May 2021, p. 48.

¹⁸⁶ AER, *Rate of return and cashflows in a low interest rate environment, Draft working paper*, May 2021, pp. 36–37.

management.¹⁸⁷ However, a proper implementation of scenario testing may be complex and involve a multi-step process.¹⁸⁸

If we contemplate using scenario testing as part of the 2022 Instrument, a range of questions would need to be considered including:

- What indicators should scenario testing focus on? For example, should we consider financeability metrics or some other indicators?
- Can the impact of the rate of return on those indicators be conclusively isolated from the impacts of other contributing factors?
- What scenarios to test and what the input assumptions would be for these scenarios?
 - Examples of scenarios to test might be: ‘current low rate environment’, ‘negative interest rate’ and ‘reversion to historical long term interest rate’.
- What probabilities to assign to each scenario and should any scenario/s be prioritised? If so, on what basis should they be prioritised (for example, likelihood, some measure of overall impact, etc.)?
- How should the rate of return parameters or the overall rate of return be adjusted in response to the outcome of the chosen scenarios?
- Should scenario testing be applied at the industry-wide level, to a benchmark efficient firm or to individual businesses’ actual financial situation?
- Should the scenario testing be conducted when we make the 2022 Instrument or throughout the term of the 2022 Instrument (i.e. at each determination)?

We welcome submissions on the possible use of scenario testing for informing the overall rate of return.

Question 14: can scenario testing be used to inform the overall rate of return?

¹⁸⁷ APRA, Stress testing assessment: findings and feedback, 21 February 2020. Available at: <https://www.apra.gov.au/stress-testing-assessment-findings-and-feedback>

¹⁸⁸ For example, see: Dr Christian Thun, Best practices in stress testing, February 2021. Available at: <https://www.moodyanalytics.com/articles/2012/best-practices-in-stress-testing>

11 Glossary

Below are accessible explanations of some specialised financial terms used in this paper.

- **Averaging period** – The specified days (or weeks or even months) when we observe market data to inform our estimate of specific rate of return parameters.
- **Benchmark term** – This is the term to maturity of government bonds or debt we set that is used to calculate specific rate of return parameters. The term to maturity at issuance is the time between when an instrument is issued and its maturity date.
- **Capital Asset Pricing Model (CAPM)** – The CAPM is a model that estimates the required return on equity using three parameters: the risk-free rate, beta and the market risk premium. It says that the required return on an investment will be related to the systematic risk of the investment. Here 'systematic risk' means risk that cannot be diversified away (by multiple investments in different companies across the market). An investment with higher risk will have a higher required return.
- **Consumer Price Index (CPI)** – The CPI is a common measure of inflation published by the Australian Bureau of Statistics (ABS). It measures quarterly changes in the price of a 'basket' of goods and services which account for a high proportion of expenditure by the CPI population group (i.e. metropolitan households).¹⁸⁹
- **Consumer Price Index including owner occupiers' housing costs (CPIH)** – The CPIH is a measure of consumer prices and is more comprehensive than the CPI. The CPIH includes owner occupiers' housing costs and council tax, and therefore, their inclusion captures a major component of household spend.¹⁹⁰ Ofgem and Ofwat use the CPIH to determine their real rate of returns.
- **Commonwealth Government Securities (CGS)** – Bonds and notes issued by the Australian federal government to borrow money from investors.
- **Cross checks** – This can be a role assigned to piece of information or a step in the estimation process. It involves comparing estimates against other relevant information sources. It may provide assurance that the calculated estimates are reasonable and consistent with other sources of information.
- **Debt raising costs** - These costs are the transaction costs incurred each time debt is raised or refinanced. These costs may include underwriting fees, legal fees, company credit rating fees and other transaction costs.
- **Dividend Growth Model (DGM)** – The DGM is a valuation model, which uses the share price, dividend (or cash flow) forecasts and the expected growth rate of the dividends to infer the required return on equity.
- **Energy Infrastructure Credit Spread Index (EICSI)** – the EICSI was created jointly between Chairmont and the AER in 2018. It reports unadjusted actual debt costs (as a spread over the swap rate) from networks using a 12 month rolling window. The EICSI dataset also allows calculation of debt term and credit rating.

¹⁸⁹ Australian Bureau of Statistics, *Consumer price index, Australia methodology*, September 2020, <<https://www.abs.gov.au/methodologies/consumer-price-index-australia-methodology/sep-2020>>

¹⁹⁰ Ofgem, *RIO-2 Sector specific methodology Annex: Finance*, December 2018, p. 66

- **Equity beta** – This is a key parameter within the standard (Sharpe- Lintner) CAPM. It measures the 'riskiness' of a firm compared with that of the market and should only reflect the systematic risk. Systematic risk is risk that is inherent to the entire market and cannot be eliminated through holding a well-diversified portfolio (i.e. diversified away).
- **Financeability** – service provider's ability to achieve the benchmark credit rating applied in the estimation of the rate of return.
- **Gearing** – the proportion of debt in total financing
- **Market risk premium (MRP)** – This is the difference between the expected return on a market portfolio and the return on the risk-free asset. It compensates an investor for the systematic risk of investing in the market portfolio or the 'average firm' in the market.
- **Net present value (NPV)** –The difference between the present value of cash inflows and the present value of cash outflows over a period of time at a selected point in time. Depending how it is applied, it can be used in a forward-looking context or a backward looking context.
- **Post-tax revenue model (PTRM)** – The post-tax revenue model is a model used by the AER to estimate the annual revenue requirement for each year of a regulatory control period. It brings together the various building block costs that make up the annual revenue requirement for each regulatory year, including the rate of return on capital.
- **Rate of return (or weighted average cost of capital)** – The rate of return on capital is a forecast of the additional return (above the initial investment amount) required to induce investment in its network. It is a combination of the return on debt and return on equity, weighted according to the proportions of debt and equity investment. In the current rate of return instrument, we estimate a make-up of 60% debt and 40% equity. As such, the weighted average cost of capital is formed of 60% return on debt and 40% return on equity. From the investor's perspective, it is the return on the funds invested, but from the network's perspective, this is the cost of obtaining the funds.
- **Rate of return instrument** – The Instrument is a binding document, which sets out the way the AER will calculate the rate of return in regulatory determinations. Neither the AER nor the regulated businesses have the ability to depart from the instrument. The current instrument was published in December 2018 and its replacement is scheduled for December 2022.
- **Reference groups** – Reference groups are appointed by the AER and consist of representatives from various stakeholders including consumers, investors and retailers. Their role is to allow stakeholders to be involved in the rate of return process and contribute to our consultation.
- **Regulated network (or entity)** – a direct control network service for the purposes of the National Electricity Law or a reference service for the purposes of the National Gas Law. Essentially energy businesses that the AER sets revenue allowances for.
- **Regulated control period** – We set the revenues regulated businesses can earn over a certain timeframe in our regulatory determinations which is typically for a 5 year period. This period is called the 'regulatory control period' under the National Electricity Rules or an 'access arrangement period' under the National Gas Rules.

- **Regulatory determinations** – Regulatory determinations are decisions published by the AER and specify the amount of allowed revenue that network businesses can recover from customers during a regulatory control period.
- **Return on debt** – The return on debt is the AER's forecast of the interest costs of maintaining a debt portfolio for a regulated energy network.
- **Return on equity** – The return on equity is the AER's forecast of the return that equity investors (e.g. shareholders) require in order to induce them to invest in a regulated energy network.
- **Risk-free rate** – This is a parameter within the CAPM which is a model for estimating the return on equity. The risk-free rate measures the return an investor would expect from a 'riskless' investment where there is guaranteed return on the invested capital.
- **Total market return** – The total market return is the overall return expected by investors from investing in a diversified benchmark stock market index.
- **Trailing average** – The trailing average is calculated as the simple average of values over a specified number of estimation period, which is updated over time. For example, the 10 year trailing average for the return on debt for the forthcoming year would be calculated as the simple average of the annual return on debt for that year and the annual return on debt estimates for the nine previous years.
- **Weighted Average Term to Maturity at Issuance (WATMI)** – The WATMI is derived from the EICSI and weighs each debt instrument with regard to the value of that debt as a proportion of total debt.
- **Weighted average cost of capital (WACC)** – See rate of return.

12 Appendix A

