

Rate of Return Annual Update 2025

November 2025

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1 Introduction

This paper provides interested stakeholders with annually updated rate of return information, particularly time series market data. It shows changes in the data since publication of the AER's 2022 Rate of Return Instrument (RORI).¹ In our Explanatory Statement to the 2022 RORI, we committed to continuing the publication of these annual updates – which we have been doing since 2019 – to provide stakeholders with regular data between RORI reviews.²

The RORI, which is binding on network businesses and the AER, specifies how we will determine the allowed rate of return on capital invested in regulated electricity and gas networks during the four-year period following its release. The rate of return is a significant driver of regulated revenue for energy network businesses, and its estimation can be complex and contentious.

Consistent with the approach we have undertaken in previous annual updates, in this paper, we have not attempted to update all data series considered during the 2022 RORI review. Instead, we have selected content based on its importance as well as practical considerations, such as availability of data. The tables and figures have been prepared using our existing calculation approaches, as used to inform the 2022 RORI, so that stakeholders can compare changes in market data on a consistent basis.³ We have not included a justification for our methodological choices or an interpretation of the results. This background information is provided in the 2022 Explanatory Statement, which should be read alongside this update.⁴ To assist stakeholders, Appendix A to this paper includes chapter references to the 2022 Explanatory Statement for each section covered in this paper.

The information presented in this paper supports substantive and constructive discussion with stakeholders in RORI reviews, which the AER undertakes every four years. On 4 August 2025, the AER commenced its 2026 RORI review with the release of an AER discussion paper inviting stakeholder submissions.⁵ In the discussion paper, we noted the RORI has matured over successive review cycles, thereby providing a stable foundation for a more targeted and efficient approach in the development of the 2026 RORI. This approach aims to deliver a less onerous, but more efficient and effective, process for all interested parties. We expect to make the 2026 RORI in December 2026.⁶

¹ AER, *Rate of Return Instrument*, February 2023 (version 1.2 as amended March 2024).

² AER, *Rate of Return annual updates 2019–2022*. See <https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/rate-of-return-annual-updates-2019-2022>

³ AER, *Rate of Return Instrument, Explanatory Statement*, February 2023.

⁴ AER, *Rate of Return Instrument, Explanatory Statement*, February 2023.

⁵ The AER discussion paper is available here: <https://www.aer.gov.au/industry/registers/resources/guidelines/rate-return-instrument-2026/discussion-paper>

⁶ The indicative timeline for the 2026 RORI review is available here: <https://www.aer.gov.au/industry/registers/resources/guidelines/rate-return-instrument-2026>

2 Indicative rate of return

Table 1 presents key rate of return parameters and an indicative rate of return, given the application of the 2022 RORI using current market data. For this paper, we have:

- updated those parameters where the 2022 RORI specifies a method informed by market data at each regulatory determination
- kept those parameters constant where the 2022 RORI specifies that the value is fixed.

Table 1 Key components of the regulated rate of return (2022 to 2025)

Parameter	2022 RORI (data as published in the 2022 RORI Explanatory Statement)	2023 update	2024 update	2025 update
Indicative overall rate of return (nominal vanilla)	6.84%	6.98%	6.41%	6.53%
Gearing ratio	60%	60%	60%	60%
Indicative return on debt (annual estimate)	6.52% (using on-the-day return on debt estimated over Dec 2022)	6.37% (using on-the-day return on debt estimated over Aug 2023)	5.53% (using on-the-day return on debt estimated over Aug 2024)	5.53% (using on-the-day return on debt estimated over Aug 2025)
Market risk premium	6.2%	6.2%	6.2%	6.2%
Equity beta	0.60	0.60	0.60	0.60
Indicative risk- free rate	3.60% (10-year term)	4.19% (10-year term)	4.00% (10-year term)	4.32% (10-year term)
Indicative return on equity	7.32% (using a risk-free rate of return estimated over Dec 2022)	7.91% (using a risk-free rate of return estimated over Aug 2023)	7.72% (using a risk-free rate of return estimated over Aug 2024)	8.04% (using a risk-free rate of return estimated over Aug 2025)
Value of imputation credits (gamma)	0.57	0.57	0.57	0.57
Benchmark credit rating	BBB+	BBB+	BBB+	BBB+

Comparator: Table 0.1 (pp. 10-12) of the 2022 RORI Explanatory Statement.

Notes: Uses indicative averaging period across all business days in December 2022 (2022 RORI), 20 business days to 31 August 2023 (2023 update), 20 business days to 30 August 2024 (2024 update)

update) and 20 business days to 29 August 2025 (this annual update). Indicative rates are based on 'on-the-day' return on debt estimates and do not reflect a trailing average portfolio.

Source: AER, *Rate of Return Instrument*, February 2023 (version 1.2 as amended March 2024).

The indicative return on debt presented in Table 1 is an on-the-day rate, reflecting the annual (spot) cost of debt in the indicative averaging period. As specified in the 2022 RORI, energy networks are in the process of transitioning from an on-the-day approach to a trailing average portfolio that reflects ten years of historical return on debt information. As the transition itself takes ten years, the regulated return on debt for each service provider will, therefore, depend on the date at which it commenced the transition to the trailing average portfolio approach.

3 Gearing

A regulated network service provider's financing is made up of debt and equity capital. The gearing ratio is the proportion of a network service provider's regulatory asset base financed by debt. The gearing ratio is used to weight the expected required returns on debt and equity to derive the weighted average cost of capital.

3.1 Estimation based on market values

Table 2 presents gearing estimates for five comparator businesses over the past five and ten years using market values of equity and debt (with book value of debt used as a proxy for the market value of debt).⁷

Table 2 AER gearing based on market values of equity and book values of debt

Year	ENV	APA	DUE	AST	SKI	Average
2006	66%	51%	79%	56%	60%	62%
2007	65%	59%	67%	55%	57%	61%
2008	77%	73%	76%	59%	70%	71%
2009	75%	68%	80%	70%	70%	73%
2010	74%	61%	80%	64%	65%	69%
2011	66%	53%	79%	64%	62%	65%
2012	63%	47%	72%	59%	59%	60%
2013	53%	46%	71%	57%	62%	58%
2014	47%	45%	64%	58%	55%	54%
2015	—	50%	62%	59%	56%	57%
2016	—	49%	51%	54%	54%	52%
2017	—	49%	—	50%	52%	50%
2018	—	45%	—	53%	57%	52%
2019	—	45%	—	53%	59%	52%
2020	—	45%	—	57%	59%	54%
2021	—	49%	—	49%	58%	52%
2022	—	45%	—	44%	—	45%
2023	—	50%	—	—	—	50%

⁷ Our gearing estimation method is described in AER, *Rate of Return Instrument, Explanatory Statement*, February 2023, pp. 84-94.

Year	ENV	APA	DUE	AST	SKI	Average
2024	–	56%	–	–	–	56%
2025	–	57%	–	–	–	57%
5-year average	–	51%	–	47%	58%	52%
10-year average	–	49%	51%	52%	56%	52%
Average since 2006	65%	52%	71%	57%	60%	57%

Comparator: Table 4.1 (p. 87) of the 2022 RORI Explanatory Statement.

Notes: Spark Infrastructure (SKI) estimates are as at 31 December each year. AusNet Services (AST) estimates are as of 31 March each year. Duet Group (DUE), APA Group (APA) and Envestra (ENV) estimates are as of 30 June each year. The average for all firms in a year does not make any adjustment for these timing differences.

Source: Annual reports, AER analysis; APA, *Annual report 2025*, 20 August 2025, pp. 120, 136, 187; APA, *Annual report 2024*, 28 August 2024, pp. 84, 99, 156; APA, *Annual report 2023*, 23 August 2023, pp. 78, 93, 147; all other data is the same as published with the 2022 RORI Explanatory Statement.

3.2 Estimation based on book values

Table 3 presents gearing estimates for five comparator businesses over the past five and ten years using book values of equity and debt.⁸

Table 3 AER gearing estimates based on book values of equity and debt

Year	ENV	APA	DUE	AST	SKI	Average
2006	91%	67%	82%	57%	81%	76%
2007	90%	69%	75%	57%	80%	74%
2008	82%	71%	76%	58%	89%	75%
2009	80%	70%	79%	67%	85%	76%
2010	79%	68%	79%	62%	66%	71%
2011	78%	63%	77%	60%	69%	70%
2012	78%	64%	77%	61%	68%	70%
2013	71%	63%	79%	61%	68%	68%
2014	71%	65%	76%	64%	67%	69%
2015	–	68%	74%	69%	66%	69%
2016	–	71%	65%	64%	69%	67%
2017	–	71%	–	62%	69%	67%

⁸ Our gearing estimation method is described in AER, *Rate of Return Instrument, Explanatory Statement*, February 2023, pp. 84-94.

Year	ENV	APA	DUE	AST	SKI	Average
2018	–	70%	–	66%	73%	70%
2019	–	74%	–	69%	76%	73%
2020	–	77%	–	74%	77%	76%
2021	–	77%	–	66%	76%	73%
2022	–	81%	–	81%	–	81%
2023	–	86%	–	–	–	86%
2024	–	80%	–	–	–	80%
2025	–	84%	–	–	–	84%
5-year average	–	81%	–	74%	76%	81%
10-year average	–	77%	65%	69%	73%	76%
Average since 2006	80%	72%	76%	65%	74%	74%

Comparator: Table 4.2 (pp. 87-88) of the 2022 RORI Explanatory Statement.

Notes: Spark Infrastructure (SKI) estimates are as at 31 December each year. AusNet Services (AST) estimates are as of 31 March each year. Duet Group (DUE), APA Group (APA) and Envestra (ENV) estimates are as of 30 June each year. The average for all firms in a year does not make any adjustment for these timing differences.

Source: As per Table 2. Annual reports, AER analysis; APA, *Annual report 2025*, 20 August 2024, pp. 120, 136, 187; APA, *Annual report 2024*, 28 August 2024, pp. 84, 99, 156; APA, *Annual report 2023*, 23 August 2023, pp. 78, 93, 147; all other data is the same as published with the 2022 RORI Explanatory Statement.

4 Risk-free rate

The risk-free rate is a key parameter in the Sharpe-Lintner capital asset pricing model (SL CAPM), which we use to estimate the return on equity.

The risk-free rate measures the return an investor would expect from a 'riskless' investment. We then add the returns on this riskless asset to the equity risk premium to estimate the return on equity.

We estimate the risk-free rate using the yield on Commonwealth Government Securities (CGS).⁹ Figure 1 compares the 10-year interpolated CGS yields against the 20 day and 60 day rolling averages.

Figure 1 10-year interpolated CGS yields (January 2013 to August 2025)



Comparator: Figure 6.4 (p. 125) of the 2022 RORI Explanatory Statement.

Source: RBA interest rate statistics, F16, AER analysis.

⁹ Our use of the risk-free rate is described in AER, *Rate of Return Instrument, Explanatory Statement*, February 2023, pp. 105-128.

5 Equity beta

Equity beta is a key parameter in the Sharpe-Lintner capital asset pricing model (SL CAPM), which we use to estimate the return on equity.

Equity beta measures the ‘riskiness’ of a firm’s returns compared with that of the market. Specifically, it measures the sensitivity of the returns on an individual asset or firm to that of the overall market.¹⁰

In determining a value for equity beta in the 2022 RORI, we considered empirical estimates of equity beta from relevant Australian (domestic estimates) and international (international estimates) energy network businesses.¹¹ We present the results of our update in the sections below.

5.1 Domestic estimates

Table 4 lists our domestic comparator firms used for equity beta estimates.

Table 4 List of our comparator firms

Firm (ASX ticker)	Time/trading period	Sectors
AGL Energy Limited (AGK)	January 1990 – October 2006	Electricity, gas
Alinta (AAN)	October 2000 – August 2007	Gas
APA Group (APA)	June 2000 – present	Gas, minority interest in other energy infrastructure
DUET Group (DUE)	August 2004 – April/May 2017	Electricity, gas
Envestra Ltd (ENV)	August 1997 – October 2014	Gas
GasNet (GAS)	December 2001 – November 2006	Gas
Hastings Diversified Utilities Fund (HDF)	December 2004 – November 2012	Gas
Spark Infrastructure Group (SKI)	March 2007 ¹² – November 2021	Electricity, gas
AusNet Services (AST), formerly SP AusNet (SPN)	December 2005 – February 2022	Electricity, gas

Comparator: Table 8.1 (p. 178) of the 2022 RORI Explanatory Statement.

The delisting of SKI and AST in recent years means that 8 of the 9 firms in our comparator set have now been delisted, with only APA remaining. Consequently, as foreshadowed in our 2022 RORI Explanatory Statement, we are reviewing the information available to inform our beta estimate for the 2026 RORI review.

¹⁰ R. Brealey, S. Myers, G. Partington and D. Robinson, *Principles of corporate finance*, McGraw-Hill: First Australian edition, 2000, pp. 186-188 (Brealey et al, *Principles of corporate finance*, 2000).

¹¹ AER, *Rate of Return Instrument, Explanatory Statement*, February 2023, p. 171.

¹² The SKI data is available from December 2005, but the data prior to March 2007 reflects stapled securities traded as instalment receipts—these instalments require further leverage adjustment and makes beta estimation difficult.

There are eight portfolios (labelled P1 to P8) with differing constituent firms and differing time periods. Table 5 presents the re-levered weekly equity beta estimates for these portfolios using ordinary least squares (OLS) regression.

Table 5 Re-levered weekly beta estimates (OLS, data to August 2025)

Portfolios	Average of firm estimates	P1	P2	P3	P4	P5	P6	P7	P8	APA
Firms	All firms	APA, ENV	AAN, AGL, APA, ENV, HDF, GAS	APA, DUE, ENV, HDF, AST	APA, DUE, ENV, HDF, SKI, AST	APA, DUE, ENV, SKI, AST	APA, DUE, SKI, AST	APA, SKI, AST	SKI, AST	APA
Start	Various	23 Jun 2000	28 Dec 2001	23 Dec 2005	9 Mar 2007	9 Mar 2007	9 Mar 2007	9 Mar 2007	9 Mar 2007	23 Jun 2000
End	Various	12 Sep 2014	6 Oct 2006	23 Nov 2012	23 Nov 2012	12 Sep 2014	28 Apr 2017	26 Nov 2021	26 Nov 2021	29 Aug 2025
Equal weighted										
Longest available period	0.56	0.49	0.50	0.54	0.52	0.43	0.46	0.52	0.41	0.67
Post tech boom and excl. GFC	0.59	0.53	0.51	0.59	0.58	0.50	0.54	0.58	0.47	0.72
Recent 5 years	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.50
Value weighted										
Longest available period	n/a	0.53	0.68	0.47	0.47	0.44	0.49	0.56	0.40	n/a
Post tech boom and excl. GFC	n/a	0.58	0.69	0.56	0.55	0.53	0.58	0.63	0.48	n/a
Recent 5 years	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Comparator: Table 8.4 (p. 187) of the 2022 RORI Explanatory Statement.

Note: We have excluded the recent 5-year estimates due to insufficient data. Our comparator firms include AusNet Services (AST). This firm was included in the 2013 Rate of Return Guidelines under its former name of SP Ausnet (SPN). It was renamed in 2014. Portfolio estimates for a scenario reflect beta estimates available over that scenario. Portfolio estimates can start and end on different dates. Please refer to Tables 8.1 and 8.2 (pp. 178-179) of the 2022 RORI Explanatory Statement for more information on our comparator firms.

Source: AER analysis; Bloomberg.

Set out in the tables below, Table 6 summarises the historical ranges of beta estimates, Table 7 shows the historical average firm beta estimates, and Table 8 shows the historical beta estimates for APA.

Table 6 Historical ranges of re-levered weekly beta estimates (OLS, data to Sep2018/Aug 2019/Aug 2021/Dec 2022/Aug 2023/Aug 2024/Aug 2025)

Equal and value weighted portfolio estimates	Whole comparator set [P1 to P8]	Still listed and recently delisted firms (APA, SKI, AST) [P7]	Recently delisted majority regulated firms (SKI, AST) [P8]
Longest period			
2018 RORI	0.42 - 0.67	0.52 - 0.55	0.42 - 0.43
2019 update	0.42 - 0.68	0.53 - 0.56	0.42 - 0.43
2020 update	0.40 - 0.68	0.51 - 0.54	0.40 - 0.41
2021 update	0.40 - 0.68	0.51 - 0.55	0.40 - 0.41
2022 RORI	0.40 - 0.68	0.52 - 0.56	0.40 - 0.41
2023 update	0.40 - 0.68	0.52 - 0.56	0.40 - 0.41
2024 update	0.40 - 0.68	0.52 - 0.56	0.40 - 0.41
2025 update	0.40 - 0.68	0.52 - 0.56	0.40 - 0.41
Post tech boom and excluding GFC			
2018 RORI	0.50 - 0.67	0.64 - 0.67	0.52 - 0.53
2019 update	0.50 - 0.69	0.64 - 0.68	0.54 - 0.55
2020 update	0.47 - 0.69	0.60 - 0.62	0.47 - 0.47
2021 update	0.47 - 0.69	0.59 - 0.62	0.47 - 0.47
2022 RORI	0.47 - 0.69	0.58 - 0.63	0.47 - 0.48
2023 update	0.47 - 0.69	0.58 - 0.63	0.47 - 0.48
2024 update	0.47 - 0.69	0.58 - 0.63	0.47 - 0.48
2025 update	0.47 - 0.69	0.58 - 0.63	0.47 - 0.48
Recent 5 years			
2018 RORI	0.49 - 0.88	0.81 - 0.88	0.70 - 0.72
2019 update	0.69 - 0.89	0.83 - 0.89	0.73 - 0.74
2020 update	0.44 - 0.69	0.59 - 0.68	0.44 - 0.44
2021 update	0.37 - 0.70	0.53 - 0.59	0.37 - 0.38
2022 RORI	0.35 - 0.57	0.51 - 0.57	0.35 - 0.36
2023 update	0.32 - 0.53	0.47 - 0.53	0.32 - 0.34
2024 update	n/a	n/a	n/a

Equal and value weighted portfolio estimates	Whole comparator set [P1 to P8]	Still listed and recently delisted firms (APA, SKI, AST) [P7]	Recently delisted majority regulated firms (SKI, AST) [P8]
2025 update	n/a	n/a	n/a

Comparator: Table 8.5 (pp. 187-188) of the 2022 RORI Explanatory Statement.

Notes: We have excluded the recent 5-year estimates from 2024 onwards due to insufficient data.
The results for the 2020 update have been revised since its original publication due to an anomaly in SKI data.

Source: AER analysis; Bloomberg.

Table 7 Historical re-levered weekly average firm beta estimates (OLS, data to Sep 2018/Aug 2019/Aug 2021/Dec 2022/Aug 2023/Aug 2024/Aug 2025)

Period	Apr 2014	Sep 2018	Aug 2019	Aug 2020	Aug 2021	Dec 2022	Aug 2023	Aug 2024	Aug 2025
Longest period	0.52	0.57	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Post tech boom and excluding GFC	0.56	0.61	0.61	0.59	0.59	0.59	0.59	0.59	0.59
Recent 5 years	0.46	0.72	0.72	0.56	0.59	0.51	0.46	n/a	n/a

Comparator: Table 8.6 (p. 188) of the 2022 RORI Explanatory Statement.

Notes: We have excluded the recent 5-year estimates in 2024 due to insufficient data.
The results for the 2020 update have been revised since its original publication due to an anomaly in SKI data.

Source: Bloomberg; AER analysis; Olan Henry, *Estimating beta: An update*, April 2014.

Table 8 Historical re-levered weekly beta estimates for APA (OLS, data to Sep 2018/Aug 2019/Aug 2021/Dec 2022/Aug 2023/Aug 2024/Aug 2025)

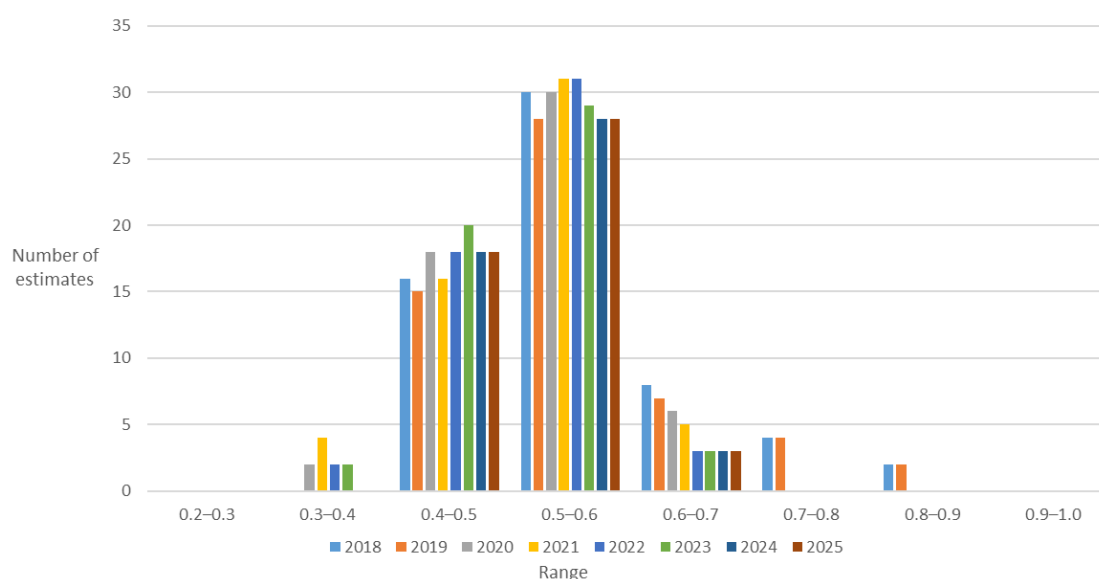
Period	Apr 2014	Sep 2018	Aug 2019	Aug 2020	Aug 2021	Dec 2022	Aug 2023	Aug 2024	Aug 2025
Longest period	0.59	0.68	0.69	0.70	0.69	0.69	0.69	0.69	0.67
Post tech boom and excluding GFC	0.64	0.75	0.75	0.77	0.75	0.75	0.74	0.74	0.72
Recent 5 years	0.54	1.06	1.06	0.93	0.87	0.82	0.74	0.70	0.50

Comparator: Table 8.7 (p. 189) of the 2022 RORI Explanatory Statement.

Source: Bloomberg; AER analysis; Olan Henry, *Estimating beta: An update*, April 2014.

Figure 2 shows the distribution of beta estimates.

Figure 2 Distribution of re-levered weekly beta by range (OLS, data to Sep 2018/Aug 2019/Aug 2021/Dec 2022/Aug 2023/Aug 2024/Aug 2025)



Comparator: Figure 8.1 (p. 189) of the 2022 RORI Explanatory Statement.

Notes: There are fewer total estimates from 2019 onwards because the 'Recent 5 years' category no longer includes portfolios ending in 2014 (P1 and P5). Similarly, the 'Recent 5 years' category in 2022 excluded P6, which ended in 2017. We have updated the chart to include P8. We have excluded the "Recent 5 years" estimates from 2024 onwards due to insufficient data.

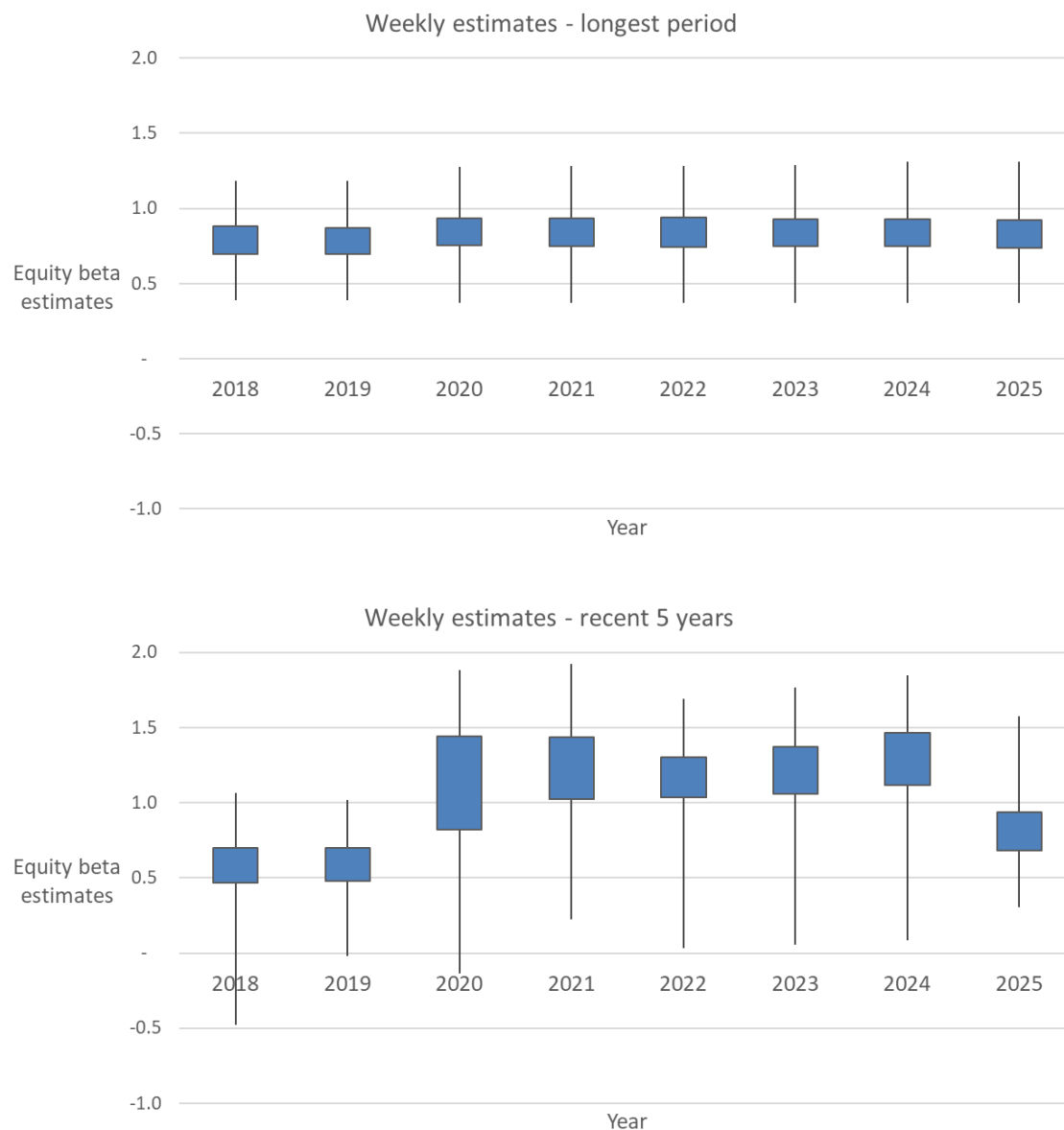
Source: AER analysis; Bloomberg.

5.2 International estimates

Our international beta estimates are based on a comparator set of 56 US firms. Figure 3 summarises the range of results of our updated international estimates and compares them against estimates from the 2022 RORI.¹³

¹³ Our use of international estimates for equity beta is described in AER, *Rate of Return Instrument, Explanatory Statement*, February 2023, pp. 180-182. We have used total return data and have recalculated our 2025 update using this data.

Figure 3 Summary of re-levered weekly international estimates (OLS, data to Sep 2018/Aug 2019/Aug 2021/Dec 2022/Aug 2023/Aug 2024/Aug 2025)



Comparator: Figure 8.2 (p. 190) of the 2022 RORI Explanatory Statement.

Note: This figure shows the quartile distribution of estimates by charting the minimum, first quartile, third quartile and maximum of the relevant estimates. The top of the top line indicates the maximum and bottom of the bottom line indicate the minimum. The bottom of the rectangle represents the first quartile. The top of the rectangle represents the third quartile.

Source: AER analysis; Bloomberg.

6 Market risk premium

The market risk premium (MRP) is the difference between the expected return on a market portfolio and the return on the risk-free asset. It compensates an investor for the systematic risk of investing in the market portfolio. Systematic risk affects all firms in the market (such as macroeconomic conditions and interest rate risk) and cannot be eliminated or diversified away through investing in a wide pool of firms.

In estimating the MRP, we have considered all relevant evidence available to us including evidence from historical excess return (HER) data and other methods of estimating a forward-looking MRP (such as dividend growth models, surveys and conditioning variables).

6.1 Historical excess returns

We have calculated the historical excess return (HER), updated to the end of calendar year 2024, and the annual market returns above the risk-free rate for different time periods.¹⁴ The arithmetic, geometric and weighted averages for five sampling periods are presented in Table 9.¹⁵

Table 9 Historical excess returns using a 10-year term as of 31 December 2024

Sampling Period	Arithmetic average (%)	Geometric average (%)	Weighted average (%)
1883-2024	6.4%	5.1%	6.3%
1937-2024	6.2%	4.5%	6.0%
1958-2024	6.7%	4.6%	6.4%
1980-2024	6.7%	4.7%	6.3%
1988-2024	6.4%	5.1%	6.0%

Comparator: Table 7.3 (p. 159) of the 2022 RORI Explanatory Statement.

Notes: Calculated using an assumed imputation utilisation value (or theta value) of 0.65.

Source: Handley, *An estimate of the historical equity risk premium for the period 1883 to 2011*, April 2012, p. 6; AER update for 2012–2024 market data.

¹⁴ Our historical excess returns estimations method is described in AER, *Rate of Return Instrument, Explanatory Statement*, February 2022, pp. 139–145.

¹⁵ AER, *Rate of Return Instrument, Explanatory Statement*, February 2023, p. 159.

6.2 Dividend growth model

The Dividend Growth Model (DGM) uses analyst forecasts of current dividends, combined with estimates of dividend growth and the current share price, to estimate an implied MRP. We use the two-stage and three-stage DGM to observe the trend of the implied MRP, as set out in Table 10 and Table 11, respectively.¹⁶

Table 10 Two-stage DGM estimates

Averaging period	2023	2024	2025
2-month average ending August	5.2	4.6	3.7
6-month average ending August	5.6	4.5	4.1
12-month average ending August	5.8	4.6	4.0

Comparator: Table 7.4 (p. 160) of the 2022 RORI Explanatory Statement.

Notes: The growth rates used for the two-stage DGM for 2023, 2024 and 2025 were 3.85%, 3.75% and 3.67%, respectively.

Source: Bloomberg, AER analysis, Consensus Economics.

Table 11 Three-stage DGM estimates

Averaging period	2023	2024	2025
2-month average ending August	4.8	4.3	3.9
6-month average ending August	5.1	4.4	4.5
12-month average ending August	5.0	4.4	4.1

Comparator: Table 7.4 (p. 160) of the 2022 RORI Explanatory Statement.

Notes: The growth rates used for the three-stage DGM for 2023, 2024 and 2025 were 3.85%, 3.75% and 3.67%, respectively.

Source: Bloomberg, AER analysis, Consensus Economics.

¹⁶ Our DGM estimation method is described in AER, *Rate of Return Instrument, Explanatory Statement*, February 2023, pp. 145-148.

6.3 MRP survey results

MRP survey evidence comes from market practitioners who are asked what they expect the MRP to be in the Australian market. These surveys take on different forms and can vary in different ways, including questions asked, type of participants and number of participants.

In the approach to date, we have used survey evidence to inform our MRP estimate, as set out in Table 12. It informs us about investors' and market practitioners' expectations and/or what they apply in practice.¹⁷ In reporting the results for the MRP, we note that the survey results indicate some market participants adjust the risk-free rate, rather than the MRP.¹⁸

Table 12 MRP survey results (2012 to 2025)

Survey	Number of responses	Mean (%)	Median (%)	Mode (%)
Fernandez et al (2012)	73	5.9	6.0	n/a
Fernandez et al (2013)	17	6.8	5.8	n/a
Fernandez et al (2014)	93	5.9	6.0	n/a
Fernandez et al (2015)	40	6.0	5.1	n/a
Fernandez et al (2016)	87	6.0	6.0	n/a
Fernandez et al (2017)	26	7.3	7.6	n/a
Fernandez et al (2018)	74	6.6	7.1	n/a
Fernandez et al (2019)	54	6.5	6.1	n/a
Fernandez et al (2020)	37	7.9	6.2	n/a
Fernandez et al (2021)	31	6.4	6.3	n/a
Fernandez et al (2022)	34	6.3	6.0	n/a
Fernandez et al (2023)	39	6.2	6.0	n/a
Fernandez et al (2024)	34	5.5	5.4	n/a
Fernandez et al (2025)	27	6.3	6.0	n/a
KPMG (2013)	19	n/a	6.0	6.0
KPMG (2015)	~27	n/a	6.0	6.0
KPMG (2017)	45	n/a	6.0	6.0
KPMG (2018)	56	5.5	6.0	6.0

¹⁷ Our MRP survey results estimation method is described in AER, *2022 Rate of Return Instrument, Explanatory Statement*, February 2023, p. 162.

¹⁸ AER, *Overall rate of return, equity and debt omnibus – Final working paper*, December 2021, p. 44.

Survey	Number of responses	Mean (%)	Median (%)	Mode (%)
KPMG (2019)	59	5.9	6.0	6.0
Asher and Hickling (2013)	46	4.8	5.0	6.0
Asher and Hickling (2014)	27	4.4	4.6	6.0
Asher and Carruther (2015)	29	4.9	n/a	n/a
Carruther (2016)	24	5.3	n/a	n/a

Comparator: Table 7.5 (p. 162) of the 2022 RORI Explanatory Statement.

Source: Fernandez et al, *Survey: Market Risk Premium and Risk-Free Rate used for 88 countries in 2023*, June 2023; Fernandez et al, *Survey: Market Risk Premium and Risk-Free Rate used for 96 countries in 2024*, March 2024; Fernandez et al, *Survey: Market Risk Premium and Risk-Free Rate used for 54 countries in 2025*, May 2025. All other data is the same as published with the 2022 RORI Explanatory Statement.

6.4 Conditioning variables

Conditioning variables are market data and indicators that provide information on the potential risk in the market.¹⁹ These include dividend yields, volatility index and credit spreads, as described below.

Dividend Yields

Dividend yields can be measured over time to give a signal of potential risk, as shown in Figure 4 for the ASX200.

Figure 4 Dividend yields from ASX200 (August 2001 to August 2025)



Comparator: Figure 7.5 (p. 164) of the 2022 RORI Explanatory Statement.

Notes: Long run average taken from the start of the data series in 2000.

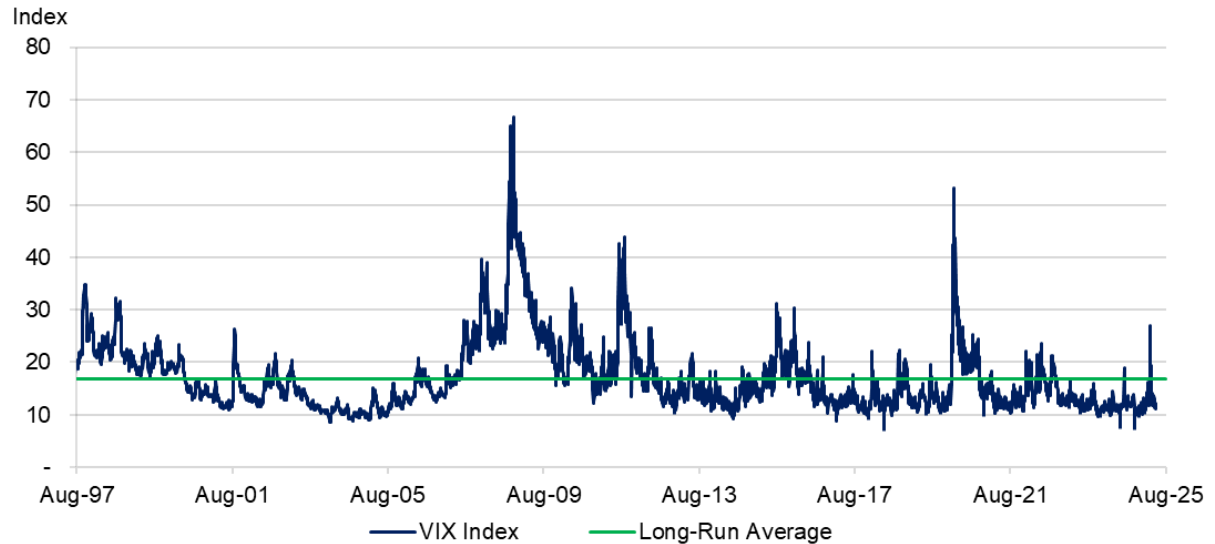
Source: AER analysis; sourced via Bloomberg code AS51.

¹⁹ Our use of conditioning variables is described in AER, *2022 Rate of Return Instrument, Explanatory Statement*, February 2023, p. 155.

Volatility index

The ASX200 volatility index (VIX) uses year ahead option prices to arrive at a measure of market volatility over time, as shown in Figure 5.

Figure 5 Implied volatility of ASX200 (August 1997 to August 2025)



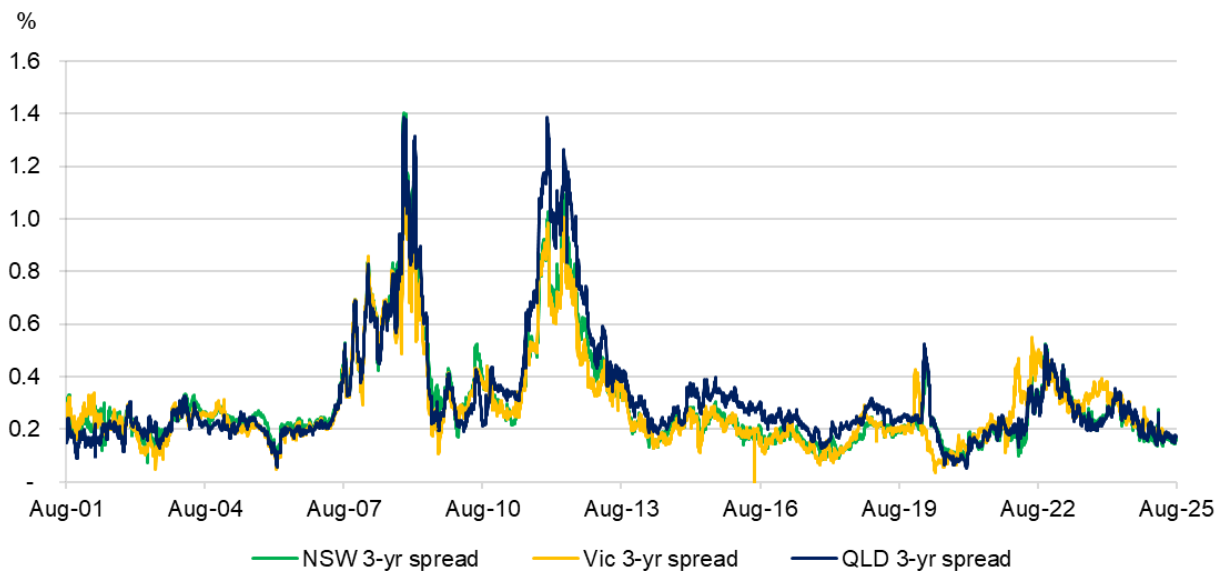
Comparator: Figure 7.4 (p. 163) of the 2022 RORI Explanatory Statement.

Source: AER analysis; ASX200 VIX volatility index, sourced via Bloomberg code AS51VIX from 2 January 2008 and code CITJAVIX prior to 2 January 2008. Long run average taken from the start of the data series in 1997.

Credit Spreads

Credit spreads from state governments and corporate debt can indicate risk in the market, as shown in Figure 6 and Figure 7, respectively.

Figure 6 Credit spreads from state government debt (August 2001 to August 2025)

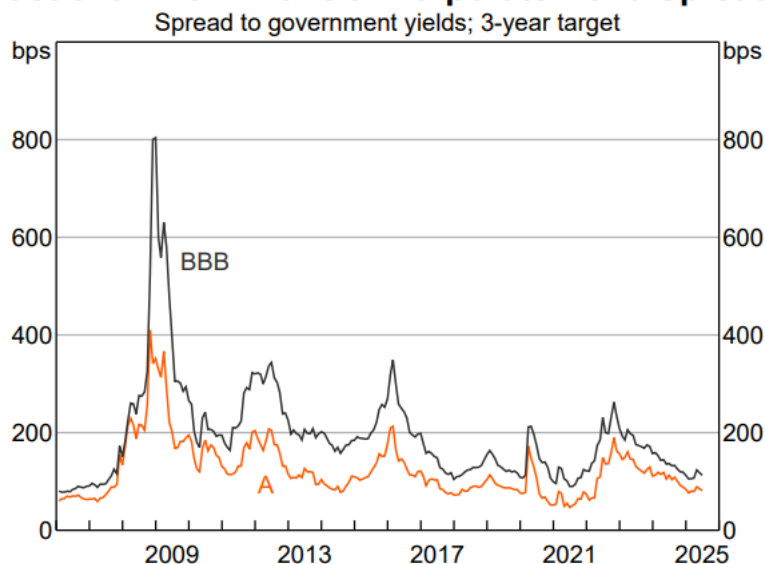


Comparator: Figure 7.6 (p. 164) of the 2022 RORI Explanatory Statement.

Source: AER analysis; Spreads between the Australian Sovereign 3 Year Index and the state government bonds with a term to maturity of 3 years, sourced via Bloomberg interest rate statistics.

Figure 7 Credit spread of corporate debt

Australian Non-financial Corporate Bond Spreads



Sources: Bloomberg; RBA.

Notes: Data updated to 7 August 2025.

Source: RBA, *Chart Pack*, downloaded September 2025.

7 Return on debt

7.1 Benchmark credit rating

Table 13 presents the historical credit ratings for Australian energy network businesses from 2018 to 2025.²⁰

Table 13 Credit ratings

Issuer	2018	2019	2020	2021	2022	2023	2024	2025
APA Infrastructure Ltd	BBB	BBB	BBB	BBB	BBB	BBB	BBB	BBB
ATCO Gas Australia LP	BBB+	BBB+	BBB+	BBB+	BBB+	BBB+	BBB+	BBB+
DBNGP Trust	BBB	BBB	BBB	NR	NR	NR	NR	NR
DBNGP Finance Co P/L	BBB	BBB	BBB	A-	A-	A-	A-	A-
DUET Group	NR	NR	NR	NR	NR	NR	NR	NR
ElectraNet P/L	BBB+	BBB+	BBB	NR	BBB	BBB	BBB	BBB
Energy Partnership (Gas) P/L	BBB+	BBB+	BBB+	A-	A-	A-	A-	A-
Australian Gas Networks Ltd	BBB+	A-	A-	A-	A-	A-	A-	A-
ETSA Utilities	NR	A-	NR	NR	NR	NR	NR	NR
ETSA Utilities Finance P/L	A-	A-	A-	A-	A-	A-	A-	A-
Powercor Australia LLC	NR	NR	NR	NR	NR	NR	NR	NR
AusNet Services (Distribution) Pty Ltd	NR	NR	NR	NR	NR	NR	NR	NR
AusNet Services Ltd	A-	A-	A-	A-	BBB+	BBB+	BBB+	BBB+

²⁰ Our benchmark credit rating estimation method is described in AER, *Rate of Return Instrument, Explanatory Statement*, February 2023, pp. 222-225.

Issuer	2018	2019	2020	2021	2022	2023	2024	2025
AusNet Service Holdings P/L	A-	A-	A-	A-	BBB+	BBB+	BBB+	BBB+
AusNet Transmission Group P/L	A-	A-	A-	A-	BBB+	BBB+	BBB+	BBB+
SGSP (Australia) Assets Pty Ltd	A-	A-	A-	A-	A-	A-	A-	A-
The CitiPower Trust / CitiPower I	NR	NR	NR	NR	NR	NR	NR	NR
United Energy Distribution P/L	A-	A-	A-	A-	A-	A-	A-	A-
Victoria Power Networks Pt/L	BBB+	BBB+	A-	BBB+	BBB+	BBB+	BBB+	BBB+
Victoria Power Networks (Finance) P/L	A-	BBB+	A-	A-	A-	A-	A-	A-
NSW Electricity Networks Finance P/ L	BBB	BBB	BBB	BBB	BBB	BBB	BBB	BBB
Ausgrid Finance P/ L	BBB	BBB	BBB	BBB	BBB	BBB	BBB	BBB
Network Finance Company P/L	BBB+	BBB+	BBB+	BBB+	BBB+	BBB+	BBB+	BBB+
Industry Median	BBB+	BBB+	BBB+	A-	BBB+	BBB+	BBB+	BBB+

Comparator: Table 9.6 (pp. 222-223) of the 2022 RORI Explanatory Statement.

Source: Bloomberg, Standard & Poor's, Moody's. All other data is the same as published with the 2022 RORI Explanatory Statement

7.2 Return on debt from third-party yield curves

We use third-party yield curve data to estimate the return on debt. We source this data from a number of independent third-party providers.

In the 2013 Rate of Return Guideline, we relied on yield curve data from two data providers – Reserve Bank of Australia (RBA) and Bloomberg. In the 2018 RORI, we added a third data provider – Refinitiv – to expand the number of data providers and, therefore, reduce the impact of outliers or missing observations on our cost of debt estimation.²¹ We retained this approach in the 2022 RORI. However, we note that during implementation of the 2022 RORI, we were required to discontinue the use of the RBA's F3 statistical table as a yield curve data source, as the RBA ceased publishing spread to swap data that the RORI relied upon for using the RBA yield curve data. In the 2026 RORI review, we intend to consider reintroducing the RBA yield curve data using alternative swap data.

Figure 8 displays a time series of the debt yield curve using the benchmark return on debt methodology outlined in the 2022 RORI (10-year term and BBB+ credit rating).²²

Figure 8 Debt yield curve time series (January 2014 to August 2025)



Source: Bloomberg, RBA, Refinitiv, AER analysis.

Notes: From 3 October 2023, the debt yield curve only contains data from Bloomberg and Refinitiv as the RBA ceased the publication of Spread to Australian Government Securities and Spread to Bank Swap Rates.

²¹ Prior to the 2022 RORI, this series was referred to as 'Thomson Reuters'. After the 2018 sale of its finance and risk unit, the business was renamed Refinitiv. The 2022 RORI updated the name to 'Refinitiv', noting the two names may be used interchangeably, with no change to the underlying information from the 2018 RORI.

²² Our return on debt estimation method is described in AER, *Rate of Return Instrument, Explanatory Statement*, February 2023 pp. 195-239 (choice of third party providers is discussed on pp. 225-228). We have not reported the yield curves by individual provider because this data is proprietary.

7.3 Trailing average

The simple trailing average approach estimates the return on debt as the cost of debt that would be incurred by a benchmark business for debt raised over 10 regulatory years in equal increments.²³

Table 14 presents an indicative trailing portfolio return on debt for a regulated network that commenced the transition in 2016. In that year, the portfolio was set using the on-the-day rate (the annual estimate). In each subsequent year, the most recent annual estimate is added to the portfolio with a 10% weight and the weight on the first year decreases by 10%.

We note that 2025 represents the first year that a network business would have fully transitioned its return on debt portfolio had it started transitioning in 2016.

Table 14 Indicative trailing average portfolio return on debt (2016 to 2025)

Year	Annual estimate	Trailing average portfolio	Portfolio composition (weight x return on debt year)
2016	4.15%*	4.15%	100% x 2016
2017	4.45%*	4.18%	90% x 2016, 10% x 2017
2018	4.42%*	4.21%	80% x 2016, 10% x 2017, 10% x 2018
2019	2.69%	4.06%	70% x 2016, 10% x 2017, 10% x 2018, 10% x 2019
2020	2.40%	3.89%	60% x 2016, 10% x 2017, 10% x 2018, 10% x 2019, 10% x 2020
2021	2.49%	3.72%	50% x 2016, 10% x 2017, 10% x 2018, 10% x 2019, 10% x 2020, 10% x 2021
2022	6.14%	3.92%	40% x 2016, 10% x 2017, 10% x 2018, 10% x 2019, 10% x 2020, 10% x 2021, 10% x 2022
2023	6.37%	4.14%	30% x 2016, 10% x 2017, 10% x 2018, 10% x 2019, 10% x 2020, 10% x 2021, 10% x 2022, 10% x 2023
2024	5.53%	4.28%	20% x 2016, 10% x 2017, 10% x 2018, 10% x 2019, 10% x 2020, 10% x 2021, 10% x 2022, 10% x 2023, 10% x 2024
2025	5.53%	4.42%	10% x 2016, 10% x 2017, 10% x 2018, 10% x 2019, 10% x 2020, 10% x 2021, 10% x 2022, 10% x 2023, 10% x 2024, 10% x 2025

Notes: Indicative averaging periods were chosen in August each year. Calculations prior to 2019 (marked with*) use the return on debt calculation method specified in the 2013 Rate of Return Guideline. The 2022 figure in the above table (6.14%) differs from the 2022 figure in Table 1 (6.52%) because they reflect different averaging periods (August 2022 vs December 2022).

Source: Bloomberg, RBA, Thomson Reuters, AER analysis.

²³ We assume the benchmark efficient entity refinances an equal share of debt each year. That is, refinancing 10% of total debt each year with new 10-year fixed rate debt. This results in us applying a weight of 1/10 for each year in the trailing average.

7.4 Energy infrastructure credit spread index

The energy infrastructure credit spread index (EICSI) was developed by Chairmont during the 2018 RORI review, using data on actual debt costs collected from regulated networks.²⁴ It reports a rolling 12-month historical average of all new debt instruments issued by privately-owned energy networks.²⁵

The primary EICSI metric is the spread over the swap rate (broadly equivalent to the debt risk premium), but the EICSI dataset is also used to report the average debt term and credit rating. It was used as a 'sense check' on our proposed regulated return on debt approach, as implemented in the finalised 2022 RORI.²⁶

Figures 9 to 12 below present the updated EICSI incorporating updated information on the average term to maturity of actual debt issuance by regulated networks. The average term is reported on a rolling 12-month window based on new debt issued (green squares). For comparison purposes, the spread on the AER's regulated return on debt is also presented (orange line).

The base analysis uses the same approach used by Chairmont in its 2018 report and considered in the 2018 and 2022 RORI reviews.

Figure 9 displays the unweighted EICSI incorporating updated actual cost of debt information and revisions to historical data.²⁷

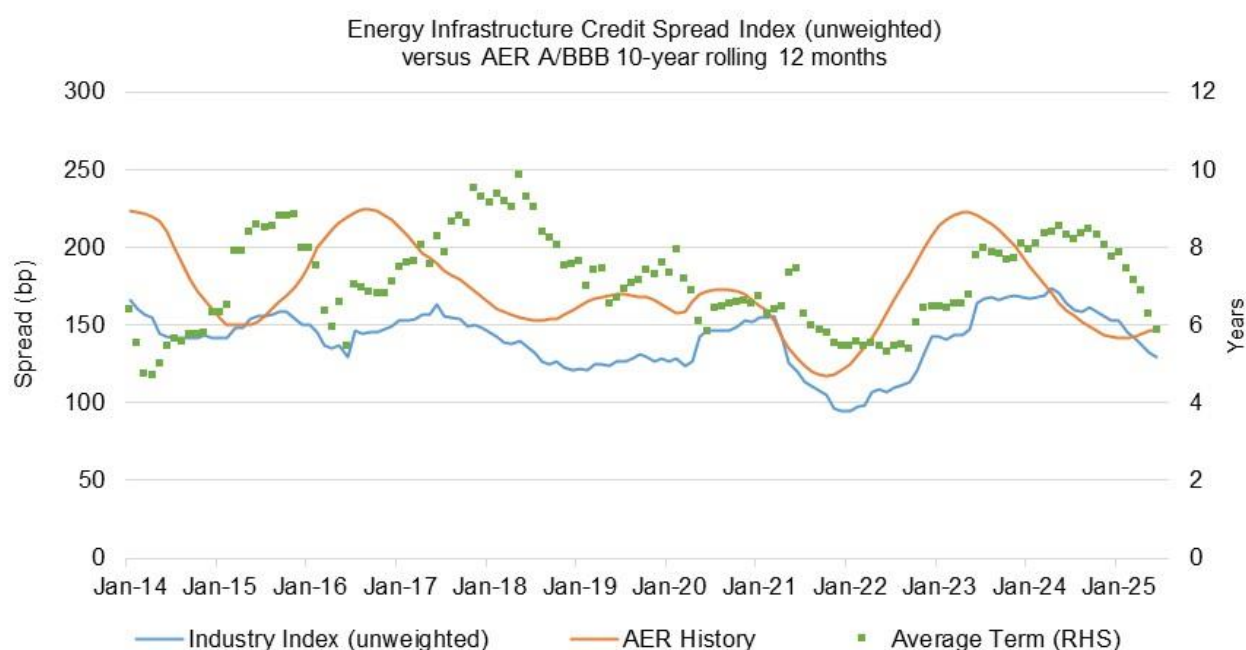
²⁴ Chairmont, *Aggregation of return on debt data*, 28 April 2018.

²⁵ AER, *Discussion paper, Estimating the allowed return on debt*, May 2018, pp. 27-35.

²⁶ Our use of the EICSI is described in AER, *2022 Rate of Return Instrument, Explanatory Statement*, February 2023, pp. 198-203.

²⁷ In 2023, we collected actual debt costs from private-sector regulated networks through a Regulatory Information Notice (RIN). This information was received on 15 September 2023 and included new debt issued between 1 July 2022 and 30 June 2023 as well as resubmission of all old debt issued back to 1 July 2013.

Figure 9 Comparing the EICSI (unweighted) over AER's benchmark estimate (January 2014 to June 2025)



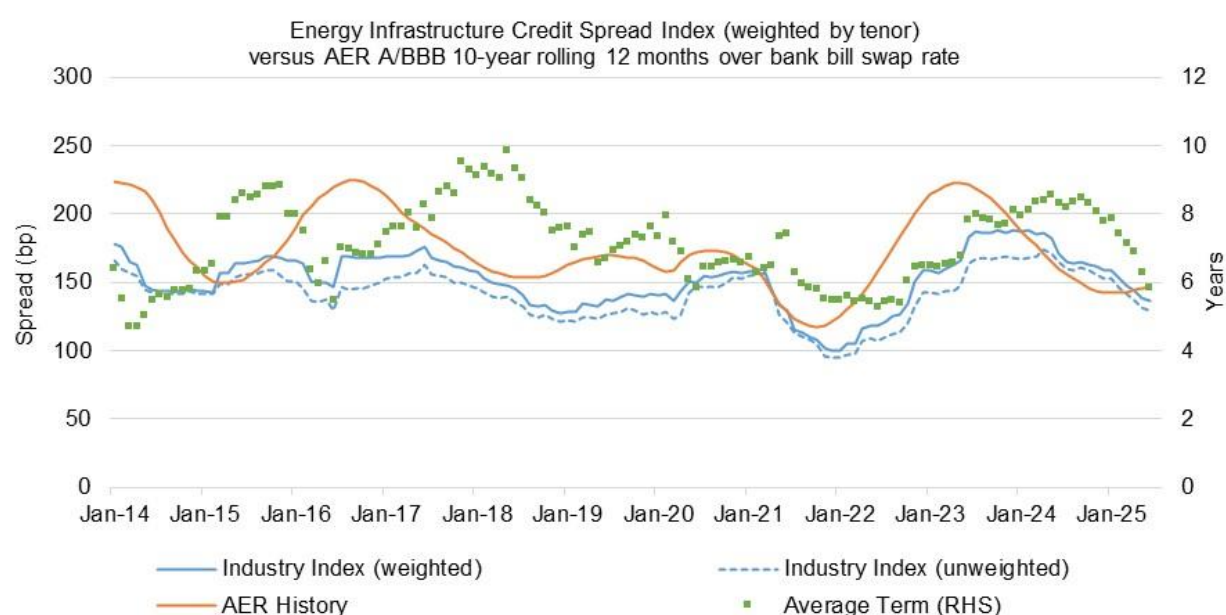
Comparator: Graph 3 (p. 10) of the 2018 Chairmont report.

Notes: The spread is reported in basis points above the variable 3-month bank bill swap rate.

Source: AER analysis; Chairmont, Aggregation of return on debt data, 28 April 2018.

Figure 10 displays the EICSI reweighted by tenor to account for the difference in issuing long term debt compared to short term debt. This means the spread of longer-term debt in the rolling data window (12 months) is given more weight than the spread of shorter-term debt.

Figure 10 Comparing the EICSI (weighted by tenor) over AER's benchmark estimate (January 2014 to June 2025)

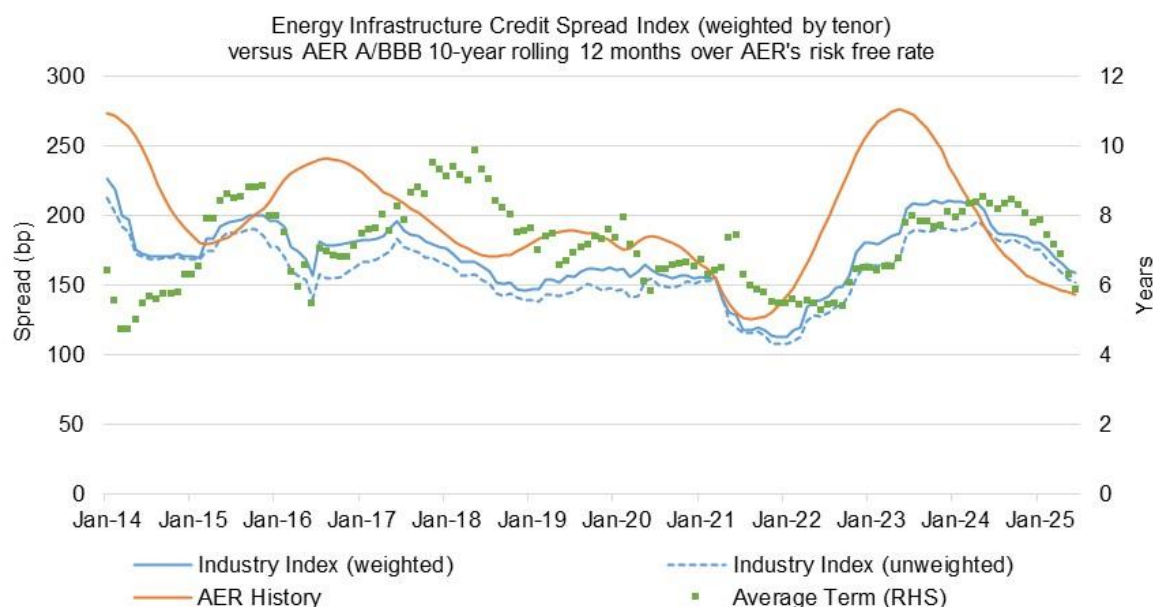


Notes: Spread is reported in basis points above the variable 3-month bank bill swap rate.

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

Figure 11 presents the recalculated EICSI as a spread over the AER risk-free rate (from 10-year Commonwealth Government Securities) instead of AER's benchmark estimate (bank bill swap rate).

Figure 11 Comparing the EICSI (weighted by tenor) over AER's risk-free rate (January 2014 to June 2025)



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

Figure 12 presents the comparison between the EICSI (tenor weighted) and AER history with a matched term (matched to the EICSI term and not to the 10-year benchmark).

Figure 12 Comparison of EICSI 12-month rolling average (tenor weighted) against AER's A/BBB (matched-term) estimate (Jan 2015 to June 2025)



Comparator: Figure 9.6 (p. 214) of the 2022 RORI Explanatory Statement.

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

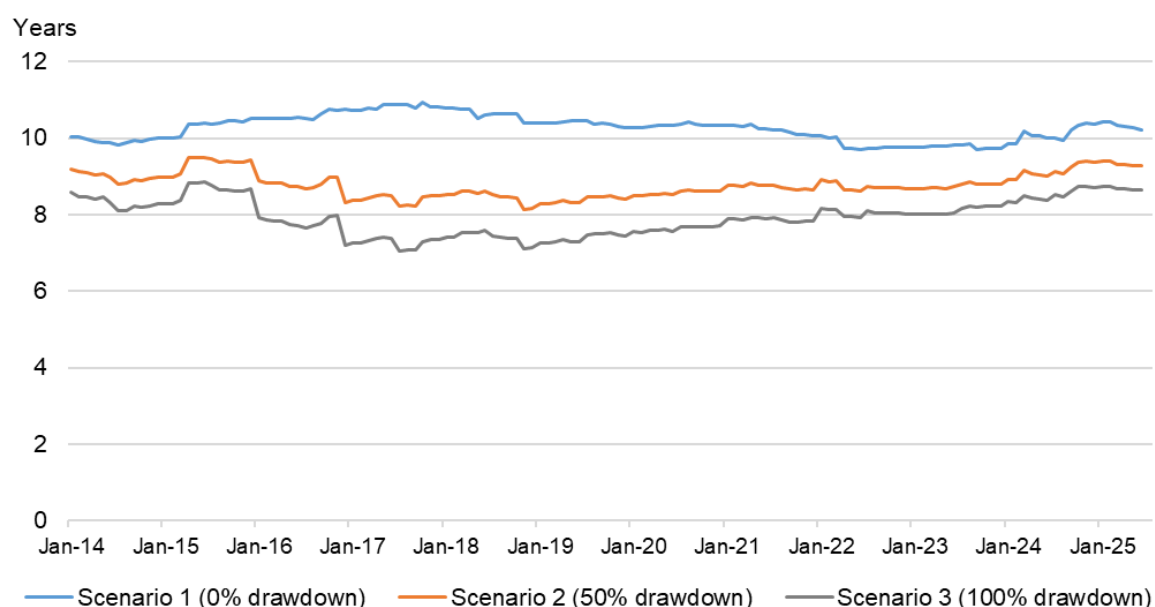
7.5 Debt term to maturity

Figure 13 shows the graphical representation of the weighted average term to maturity at issuance (WATMI) and number of debt issuances in the period of 2014–2025. WATMI is dependent on three parameters:

- term to maturity
- face value of issuance
- number of debt issuances.

To obtain the industry WATMI, the drawdown sensitivity is taken as 100% (i.e. all debt instruments are fully drawn) and the term of each issuance is weighted by its face value. Debt is included in the WATMI from issuance until its maturity date. This analysis uses the same approach used by Chairmont in its 2019 report.²⁸

Figure 13 WATMI and number of debt instrument issued (January 2014 to June 2025)

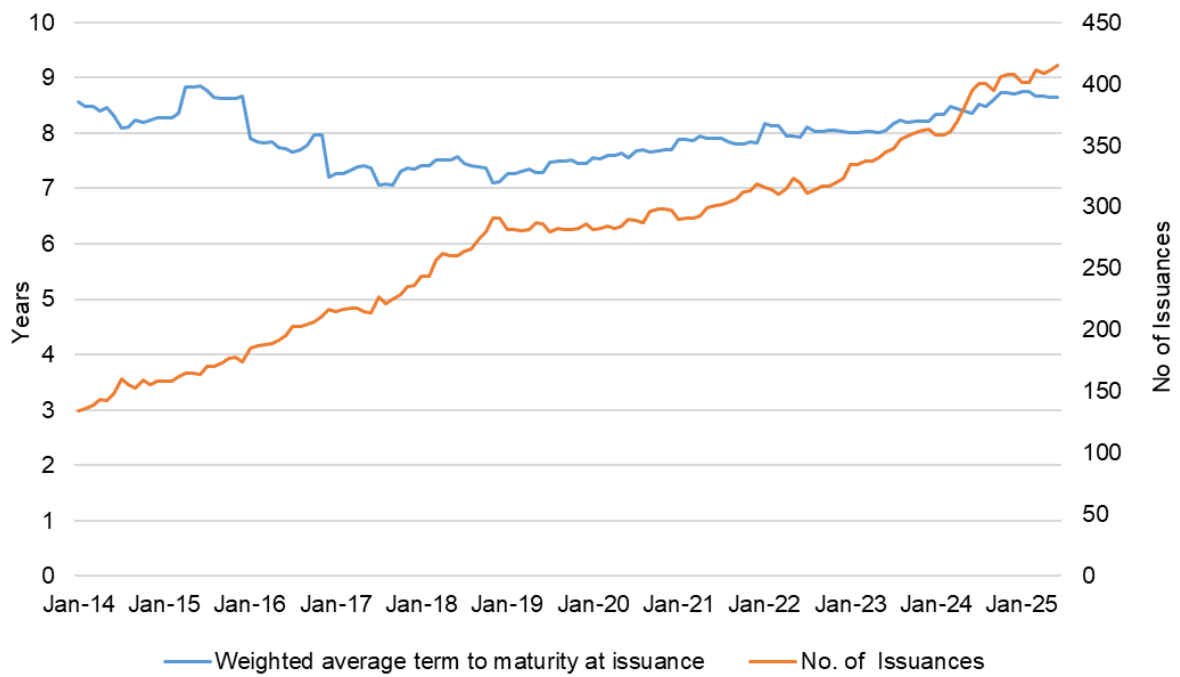


Source: AER analysis; Chairmont, Aggregation of debt data for portfolio term to maturity, 28 June 2019.

Figure 14 is a comparison of WATMI at different drawdown sensitivities on a month-to-month basis. Scenarios 1, 2 and 3 represent drawdowns of 0%, 50% and 100%, respectively.

²⁸ Chairmont, *Aggregation of debt data for portfolio term to maturity*, 28 June 2019.

Figure 14 WATMI – comparison of drawdown scenarios (January 2014 to June 2025)



Comparator: Figure 9.2 (p. 200) of the 2022 RORI Explanatory Statement.

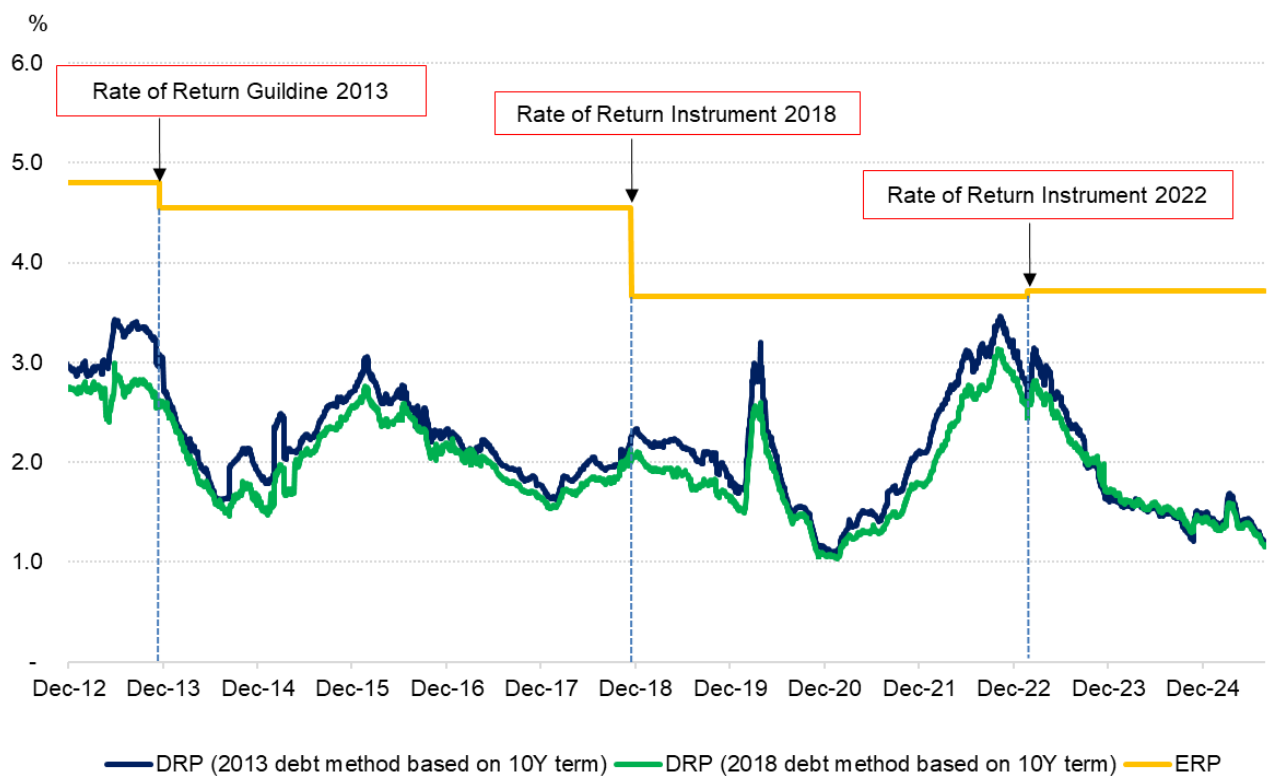
Source: AER analysis; Chairmont, Aggregation of debt data for portfolio term to maturity, 28 June 2019.

8 Return on equity cross-check

8.1 Equity risk premium versus debt risk premium

Figure 15 provides an indication of the spread between the on-the-day equity risk premium (ERP) and the on-the-day debt risk premium (DRP). The chart informs us of the comparative and relative positions of the ERP and DRP since the 2013 Rate of Return Guideline.

Figure 15 Comparison of ERP and DRP (December 2012 to August 2025)



Comparator: Figure 11.17 (p. 294) of the 2022 RORI Explanatory Statement. We adopted the same DRP method in the 2018 and 2022 RORI.

Source: AER analysis; Bloomberg; Thomson Reuters; RBA.

9 Value of imputation credits

9.1 Distribution rate from ASX top 50

One component of our estimate of the value of imputation credits (gamma) is the distribution rate (or payout ratio).²⁹ This is the proportion of imputation credits generated that are distributed to investors.

Dr Martin Lally estimated the distribution rate for the top 50 ASX companies as part of the 2018 RORI review, and we have updated these estimates annually since then.³⁰ The latest update applies the same methodology used by Dr Lally.

Table 15 shows the overall distribution rate with updated data.

Table 15 Distribution rates for the ASX top 50 (2000 to 2024)

ASX top 50	2018 RORI (2000–2017)	2022 RORI (2000–2021)	2023 update (2000–2022)	2024 update (2000–2023)	2025 update (2000–2024)
Imputation distribution (\$m)	235,970	346,008	388,612	401,816	453,306
Tax payments (\$m)	265,770	393,786	428,659	446,315	502,637
Distribution rate	0.888	0.879	0.907	0.900	0.902

Comparator: Table 10.3 (p. 248) of the 2022 RORI Explanatory Statement provided more detail on previous updates.

Notes: The top 50 ASX companies were determined at 1 August 2018, consistent with the 2018 report.

Source: AER analysis; Lally, *Estimating the distribution rate for imputation credits for the top 50 ASX companies*, 17 October 2018, p. 3; 2021, 2022, 2023 and 2024 annual reports for the top 50 ASX companies as determined by Dr Lally in his report on 1 August 2018.

9.2 Utilisation rate from equity ownership

A component of our estimate of the value of imputation credits is the utilisation rate. This is the utilisation value to investors in the market per dollar of imputation credits distributed.

Our approach to estimating the utilisation rate is informed by the Monkhouse framework, where the utilisation value is equal to the weighted average, by wealth and risk aversion, of the utilisation rates of individual investors.³¹

We updated our estimates using Australian Bureau of Statistics (ABS) finance and wealth data. Table 16 shows the utilisation rates with the updated data.

²⁹ Our approach to gamma is discussed in AER, *2022 Rate of Return Instrument, Explanatory Statement*, February 2023, pp. 240-249.

³⁰ Lally, *Estimating the distribution rate for imputation credits for the top 50 ASX companies*, 17 October 2018; Table 10.3 (p. 248) of the 2022 RORI Explanatory Statement.

³¹ J. Handley, *Report prepared for the Australian Energy Regulator: Advice on the value of imputation credits*, 29 September 2014, pp.18–20; Our use of equity ownership to estimate the utilisation rate is described in AER, *Rate of Return Instrument, Explanatory Statement*, February 2023, pp. 248-249.

Table 16 Utilisation rates from the equity ownership approach (2000 to 2025)

Estimates	2018 RORI (2000–2018)	2022 RORI (2000–2022 Sep)	2023 update (2000–2023)	2024 update (2000–2024)	2025 update (2000–2025)
Range of annual results	0.612 - 0.697	0.618 - 0.702	0.618 - 0.702	0.618 - 0.702	0.618 - 0.702
Most recent point estimate	0.638	0.625	0.628	0.635	0.640
Average over the last 5 years	0.646	0.642	0.637	0.635	0.636
Average over the last 10 years	0.643	0.647	0.646	0.644	0.642

Comparator: Table 10.4 (p. 249) of the 2022 RORI Explanatory Statement provided more detail on previous updates.

Notes: ABS data commences in September 2000 and runs to June 2018 (2018 RORI), September 2022 (2022 RORI), June 2023 (2023 update), June 2024 (2024 update) and June 2025 (2025 update).

Source: AER analysis; ABS, *Australian National Accounts: Finance and Wealth (June 2025)*, 25 September 2025.

Appendix A

Table 17 Cross-reference to 2022 RORI Explanatory Statement

Section	AER, 2022 Rate of Return, Final Explanatory Statement – Final decision
Benchmark gearing ratio	Section 4.3, pp. 85-88
Risk-free rate	Section 6.3.3, pp. 124-126
Market risk premium	
Historical excess returns	Section 7.3.2.1, pp. 139-145 Section 7.3.3.1, p. 159
Dividend growth model	Section 7.3.2.2, pp. 145-154 Section 7.3.3.2, p. 160
MRP surveys	Section 7.3.2.3, p. 154 Section 7.3.3.3, p. 162
Conditioning variables	Section 7.3.2.4, p. 155 Section 7.3.3.4, pp. 163-165
Equity beta	
Domestic estimates	Section 8.3.1, pp. 174-175 Section 8.3.8, pp. 186-190
International estimates	Section 8.3.8, pp. 189-191
Return on debt approach	
Debt term to maturity	Section 9.3.1, pp. 195-203
Energy infrastructure credit spread index	Section 9.3.2, pp. 205-221
Benchmark credit rating	Section 9.3.3, pp. 222-225
Third-party yield curves	Section 9.3.4, pp. 225-228
Imputation tax credits	
Distribution rate	Section 10.3.4.1, pp. 247-248
Utilisation rate	Section 10.3.4.2, pp. 248-249
Equity risk vs debt risk premium	Section 11.3.1.8.3, pp. 293-295