Rate of return

Energy network debt data

Final working paper

November 2020

AUSTRALIAN ENERGY REGULATOR

Inquiries about this publication should be addressed to:

Mr Warwick Anderson
General Manager
Network Finance and Reporting
Australian Energy Regulator
GPO Box 520
Melbourne Vic 3001

Tel: 1300 585 165

Email: RateOfReturn@aer.gov.au
AER Reference: 65402

Amendment Record

Version	Date	Pages
1.0	November 2020	51

Contents

1 Overview

This is the first topic in a series of working papers that we will produce as part of our pathway to the 2022 rate of return instrument. The outcomes from these working papers will feed into the active phase of our 2022 rate of return instrument review. This information will assist us to develop a 2022 rate of return instrument that sets a rate of return in line with efficient financing costs, such that consumers pay no more than is necessary for the safe and reliable delivery of electricity and gas.

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

The aim of this working paper series is to consider technical aspects of the rate of return ahead of the active phase. It is important for stakeholders and ourselves that we make progress toward settling positions through the working papers. Clearly we cannot bind ourselves ahead of our decision on the 2022 rate of return instrument, but we have an opportunity now to narrow and focus the issues in play. In this paper, we present options for how we might treat the return on debt in the 2022 rate of return instrument. From these options we identify a preferred option and other options that we do not propose to pursue.

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.

An accurate estimate of the rate of return is necessary to promote efficient prices in the long-term interests of consumers. If the rate of return is set too low, the network business may not be able to attract sufficient funds to be able to make the required investments in the network and reliability may decline. Conversely, if the rate of return is set too high, the network business may seek to spend too much and consumers will pay inefficiently high tariffs.

Therefore there is a need to evaluate the two sources of funds for investment, to determine what return investors expect to receive, and to set a regulated rate of return that is sufficient to attract capital investment.

1.3 Why this topic?

The AER and Chairmont undertook work in 2018 to develop an understanding of the actual debt instruments issued by energy networks. This included consideration of the actual cost of debt incurred by the networks, as well as the term and credit rating. Chairmont developed a simple index of actual debt costs, labelled the Energy Infrastructure Credit Spread Index

(EICSI). We used aspects of the EICSI as a 'sense check' when making the 2018 rate of return instrument. In particular it allowed us to:

- test actual cost of debt against the regulated estimate
- check if BBB+ was an appropriate benchmark for our regulated energy networks
- review the debt term set in the instrument against issued debt.

Prior to this working paper, we:

- Commissioned a new report from Chairmont.[1] This report provided expert advice on some outstanding methodological questions raised in the 2018 review, including how to best measure the average term of debt for the EICSI sample.
- Collected debt data from all private sector regulated networks. All of these energy networks voluntarily provided data on their debt instruments, extending the earlier data series.

The latest tranche of debt data collected from networks and included in the EICSI runs through to August 2019. We are currently in the process of collecting further debt information to extend the EICSI and will do so again in 2021.

The estimate of the return on debt is a critical element of the rate of return. In this paper, we explore whether we can make greater use of the EICSI in determining the return on debt and the improvements we might make to improve the index.

1.4 How do we currently set the return on debt?

Our framework for estimating the allowed return on debt as outlined in the 2018 rate of return instrument is based on the following key elements:[2]

- A benchmarking approach based on debt yield data from third party data providers (Thomson Reuters, Bloomberg and the Reserve Bank of Australia (RBA))
- Benchmarks of 10-years for term of debt and a BBB+ credit rating;
- A 10-year trailing average approach with an annual update; and
- A 10-year transition into the adoption of the 10-year trailing average approach
- Return on debt calculated over confidential averaging periods nominated by each regulated network. Averaging periods can be between 10 days and 12 months in length within set windows.

We apply a benchmark incentive approach, where a network retains the benefit if it is able to keep costs (in this case, the interest payments on the debt it has issued) below our forecast of efficient costs.[3] Equally, the networks bears the detriment if their actual costs exceed the efficient benchmark.

---

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

2 AER, *Rate of return instrument*, December 2018, clauses 9–26, 29–31, 33–35; AER, *Rate of return instrument, Explanatory statement*, December 2018, pp. 276–280.

3 Interest costs are reset to the efficient level at each regulatory determination (usually every five years).

1.5 Should we continue to calculate the EICSI?

After considering the material put to us, we consider the EICSI is valuable for informing our decision. Submissions from service providers and investors have posed concerns about the EICSI and suggested it should play little role in our decision. We agree with some of those concerns and they have influenced our views on improving the EICSI and how it should be used.

We propose to improve the EICSI by specifying criteria for inclusion of debt instruments and to calculate a version of the index that is weighted by term to maturity. Our consideration of potential improvements to the index is in section 5.

We also agree that at this time we should not abandon our current approach to instead rely solely on the EICSI to estimate of the return on debt. There are practical and incentive considerations that preclude its use in this manner.

However, we do not agree that the EICSI's role should be minimal. We agree with consumer submissions that the index provides useful information on the actual costs incurred by service providers and that information should have a meaningful role in our decision. We also have more confidence in the index through the longer time series and the improvements we are proposing. We are therefore proposing to increase the influence of the index in our decision.

1.6 What options have we considered for 2022?

After conducting our own analysis and going through submissions we have tested six options for utilising the EICSI in the 2022 rate of return instrument. These options are:

- Option 1 - The EICSI should not be used at all.
- Option 2 - The EICSI should be given the same use and significance it was in the 2018 instrument.
- Option 3 - We will use the EICSI to adjust the blend of A and BBB debt data from third party debt providers (Bloomberg, Thomson Reuters and the RBA)
- Option 4 - The gap between the EICSI and the AER's benchmark estimate over a fixed observation window is used to shift the benchmark in the future.
- Option 5 - The EICSI is used as a fourth curve to estimate the benchmark debt (alongside estimates from Bloomberg, Thomson Reuters and the RBA).
- Option 6 - The EICSI is used as the sole input to determine the benchmark debt.

Of these options, we have excluded options 1 and 6 early in our consideration. Option 1 does not give credit to the valuable information available in the EICSI. Option 6 suffers from practical issues and is a major step away from our current approach. From the remaining options we have arrived at preferred option which we are considering taking forward into the rate of return instrument. A full discussion of the options is included in section 6.

1.6.1 Preferred option

Our preferred option is option 3. This option operates within the broad structure of our current approach but also utilises the information available in the EICSI.

- Option 3. Use the EICSI to directly inform the benchmark blend of A and BBB debt estimates in our return on debt.
    - First, calculate the blend that corresponds to the average yield in the EICSI over the four years from 1 July 2018 to 30 June 2022.
    - Second, apply that blend to the average A and BBB debt estimates we obtain from our selected data providers (currently Thomson Reuters, Bloomberg and the Reserve Bank of Australia).

1.7 Next steps

1.7.1 Timelines/Process steps

This working paper marks the end of the formal working paper process for this topic, and there will not be a round of stakeholder submissions for this paper. There are aspects of this paper that we will consult on further as we extend our analysis and approach the 2022 rate of return instrument review.

There are other working papers being progressed by us at this time. These focus on return on equity models as well as decisions by international regulators. A timeline for their progress is included below.

Table 1 Topics and timeline for 2020 working papers

Topic	Energy Network Debt Data	CAPM and Alternative Return on Equity Models	International Regulatory Approaches to Rate of Return
Draft Paper	26 June 2020	27 August 2020	27 August 2020
Stakeholder Forum	29 July 2020	16 September 2020	16 September 2020
Submissions Due	14 August 2020	9 October 2020	9 October 2020
Final Paper	18 November 2020	December 2020	December 2020

We will undertake consultation on debt data implementation later in the 2022 rate of return instrument process and so we are not inviting submissions on this paper at this time.

1.7.2 Data Collection and Annual Update

As part of updating the data for use in the EICSI, we have issued another request for data to relevant networks. This request will cover data on debt issued in the 2019-20 financial year. An updated EICSI will be published in the end of year annual rate of return update, and will

incorporate changes made to the base calculation in this paper. The updated data has not been included in this paper.

In future rounds of data collection, we are proposing to move to regulatory information notices.

2 Process background

2.1 What is the rate of return instrument?

The rate of return instrument specifies 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 specifies some inputs (fixed for the duration of the instrument) and for others specifies 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.

Estimating the rate of return is a complex task. We estimate the returns required by investors in view of the risks associated with 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. We consulted with stakeholders about what steps should be included and what role various groups should play.[4] We issued a position paper in May 2020 setting out our high level plan.[5]

The active phase of the 2022 review will commence in mid-2021. Prior to this, our pathway to 2022 includes:

- Rate of return annual updates—to provide information on rate of return data in the years between reviews; particularly updated times series data used in the 2018 instrument (or used to inform the development of the 2018 Instrument).
- Establishing reference groups—to allow us to hear stakeholder perspectives from consumers, investors and retailers.
- Working papers—such as this paper.

Outcomes from our 2020 Inflation review will also flow into the development of the 2022 Instrument.[6]

---

4 AER, *Consultation paper, Pathway to the 2022 rate of return instrument*, November 2019; see also The Brattle Group, *Stakeholder feedback on the AER's process for the 2018 rate of return instrument*, 27 June 2019.

5 AER, *Position paper, Pathway to the 2022 rate of return instrument*, 29 May 2020.

6 AER, *Initiation notice, 2020 review of inflation approach*, 7 April 2020; AER, *Discussion paper, Regulatory treatment of inflation*, 25 May 2020, p. 14.

We will consult further on the process for the active phase of the review, including lower-level details not addressed in our May 2020 position paper, as we get closer to 2022.

2.3 What is the intent of the working papers series?

Our rate of return working papers discuss issues and evidence on key rate of return topics, and allow us to hear from stakeholders in response.

On each topic, we expect to release a consultation paper, before allowing a submission period. We will facilitate discussion with stakeholders within the restrictions arising from the COVID-19 pandemic, such as by hosting a virtual seminar or online meeting. We will then release a final working paper for that topic with our response to submissions.

In selecting topics for working papers, we have had regard to whether topics could be constructively considered as discrete issues in advance of the active phase of the review.[7] We have also taken into account stakeholder feedback on the topics of interest or importance.[8]

We intend that all this material will feed in to the main phase of the review, providing a foundation for constructive discussion and helping alleviate time pressure in the active phase.

The topic of this paper (on industry debt data) was selected because it flowed from questions about the EICSI raised during the 2018 review. We considered that these matters could be appropriately addressed ahead of the active phase of the review.

2.4 How does this interact with other working papers?

This paper is one of three working paper topics currently being worked on ahead of the 2022 Instrument review. We are scheduled to publish final working papers on *International regulatory approaches to the rate of return* and on the *Capital asset pricing model (CAPM) and alternative return on equity models* around the end of 2020.

There is minor overlap between this paper and the paper on *International regulatory approaches to the rate of return*.[9] This paper focuses on one particular aspect of the return on debt, whilst the international comparison paper looks at overall approaches (across both debt and equity) from a number of different overseas regulators.

There is no material overlap between this paper and the paper on *CAPM and alternative return on equity models*.[10]

---

7 AER, *Position paper, Pathway to the 2022 rate of return instrument*, 29 May 2020, pp. 9–10.

8 AER, *Position paper, Pathway to the 2022 rate of return instrument*, 29 May 2020, p. 22.

9 Full details of this working paper are available on our website at https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/international-regulatory-approaches-to-rate-of-return-pathway-to-rate-of-return-2022.

10 Full details of this working paper are available on our website at https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/capm-and-alternative-return-on-equity-models-pathway-to-rate-of-return-2022.

3 Previous work

3.1 Background to the 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. The AER currently estimates the allowed rate of return for regulated businesses using the approach set out in the 2018 Instrument. The rate of return instrument is binding under the National Electricity Law and National Gas Law. This means that the AER and network businesses are required to set the rate of return according to the current Instrument.

The 2018 Instrument applies the following key characteristics when estimating a businesses' allowed rate of return:[11]

1. It use a nominal vanilla weighted average cost of capital (WACC) formulation.[12]
2. It assumes a 40% equity and 60% debt capital structure.
3. It uses a domestic CAPM to estimate the return on equity. This is implemented as:
   (a) The risk free rate (RFR) is estimated from the yield on 10 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 of 6.1 per cent (also fixed for the life of the 2018 Instrument).
   (d) The return on equity is therefore the risk free rate plus a fixed equity risk premium of 3.66%.[13]
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.

---

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

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

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

3.2 Return on debt framework

We provide energy networks with an allowed return on debt to cover the efficient borrowing costs they are expected to incur funding capital investments in their network. We set the allowed return on debt by observing market data on the cost of debt. In setting the allowed return on debt, we provide efficient compensation for the risks that an investor in the service provider's debt faces.

Our framework for estimating the allowed return on debt as outlined in the 2018 rate of return instrument is based on the following key elements:[14]

- A benchmarking approach based on debt yield data from third party data providers and benchmarks of 10-years for term of debt and a BBB+ credit rating;
- A 10-year trailing average portfolio approach with an annual update; and
- A 10-year transition into the adoption of the 10-year trailing average approach.

We apply a benchmark incentive approach, where a network retains the benefit if it is able to keep costs (in this case, the interest payments on the debt it has issued) below our forecast of efficient costs.[15] Equally, the networks bears the detriment if its actual costs exceed the efficient benchmark.

3.3 Development of the energy networks debt costs index

In 2018 we obtained data on actual debt costs from privately owned (i.e. non-government owned) service providers for the period 2013–17.[16] We engaged Chairmont to assist us with the collection and analysis of this debt data, and the development of the Energy Infrastructure Credit Spread Index (EICSI). The purpose of collecting actual debt information (and the development of the EICSI) was to provide a 'sense check' of reasonableness of outcomes under our benchmark approach.

The characteristics of the initial EICSI were that it was:

- Based on the spread which companies pay on their debt above a market benchmark rate, interpreted as the swap rate or the floating Bank Bill Swap Rate (BBSW). This spread can be loosely considered as the credit spread or Debt Risk Premium (DRP);
- An unadjusted index, except interest rates are all re-calibrated to quarterly. EICSI does not apply weights for differences such as term to maturity, credit rating or size of debt issuance; and
- Measured as a 12-month rolling average, meaning that the first index value calculated is January 2014, using the data from the prior 12 months.[17]

---

14 AER, *Rate of return instrument*, December 2018, clauses 9–26, 29–31, 33–35; AER, *Rate of return instrument, Explanatory statement*, December 2018, pp. 276–280.

15 Interest costs are reset to the efficient level at each regulatory determination (usually every five years).

16 We asked for details of all outstanding debt and financial instruments held as at 1 January 2013, and then details of all debt and financial instruments issued between January 2013 and December 2017 (though some networks provided data through to February 2018). AER, *Discussion paper, Estimating the allowed return on debt*, May 2018, p. 27.

17 Chairmont, *Aggregation of Return on Debt Data*, April 2018, p. 3.

The EICSI is deliberately constructed without model adjustments, as described by Chairmont:[18]

> *It does not weight or adjust the raw data from the companies. The purpose is to produce a 'pure' unadjusted index which reflects actual debt raising costs[19] without modelling adjustments to target a theoretical benchmark.*

It is important to note that the EICSI is based on a 12-month rolling average—in broad terms, the 'current' return on debt. When we apply the 2018 Instrument we use a 10-year trailing average portfolio return on debt, built up from the historical return on debt across the previous 10 years.[20] Changes in the current return on debt each year will flow through to the trailing portfolio, but only at 10 per cent of the overall value.

3.4 Use of the EICSI

There were three key outputs of the EICSI analysis considered in the 2018 process:

- the average cost of debt (the core EICSI itself)
- the average term of debt issuance
- the average credit rating.

Cost of debt

The EICSI itself was used as a sense check when assessing our overall return on debt approach, reflecting the final outcome after consideration of benchmark characteristics (term, credit rating) and implementation decisions.[21] The EICSI cost of debt was not determinative.

In general terms, the EICSI suggested that the return on debt set under the 2018 Instrument would be slightly above the actual debt costs incurred by energy networks. However, we had regard to stakeholder submissions about the assumptions and limitations underlying the construction of the EICSI.[22] We considered that additional analysis would be necessary on several of these points. We also noted that several of these limitations could be overcome with the collection of data over a longer time period. The Independent Panel also recommended that we collect additional data.[23]

---

18 Chairmont, *Aggregation of Return on Debt Data*, April 2018, p. 3.

19 In this quote, Chairmont uses the term 'debt raising costs' to refer to the ongoing costs of issued debt (effectively interest payments every year). The AER reserves the term 'debt raising costs' for one-off transactional costs incurred when debt is first raised, and uses the terms 'cost of debt' and 'return on debt' for the ongoing interest costs. The AER provides a separate debt raising costs allowance (as part of operating expenditure).

20 The full 10 year historical window is only used after the transition to the trailing average portfolio approach is complete.

21 AER, *Explanatory statement, Rate of return instrument*, December 2018, pp. 276–280.

22 AER, *Draft rate of return guidelines, Explanatory statement,* July 2018, pp. 451–459 (appendix B); AER, *Explanatory statement, Rate of return instrument*, December 2018, pp. 302–303.

23 Independent Panel, *Review of the Australian Energy Regulator's draft rate of return guidelines*, 7 September 2018, p. VII.

This was consistent with the draft 2018 explanatory statement which described the EICSI 'sense check' in this way:[24]

> *That is, we are not undertaking a reconciliation of NSPs [network service providers] actual revenues and costs. Rather, we are reviewing the overall reasonableness of our benchmark allowance consistent with the principles of incentive regulation.*

Term of debt at issuance

The EICSI dataset also allows calculation of the average term of debt issued by the energy networks.[25]

In 2018, we calculated the average debt term at issuance across the sample period, which resulted in an average term of 7.4 years. This was a simple average of all debt instruments included in the EICSI, making no adjustments for the size or term of that debt.[26]

However, we agreed with stakeholder submissions that the simple average across instruments in the sample might understate the 'true' observed term of debt over 2013–17.[27] We also noted that the EICSI sample period was not long, and included the period where we implemented the transition to a trailing average debt approach. We considered the strength of conclusions about the benchmark term would be improved by a longer series of actual debt information in the EICSI.

Our final decision for the 2018 rate of return instrument was to maintain the current benchmark debt term of 10 years.[28] The EICSI data had little direct impact on this decision, because of the limitations noted above. We considered that it indicated the 'true' debt term was above 7.4 years, but did not indicate a more precise figure.

At the time, we considered that the ongoing collection of actual cost of debt information would allow us to develop a longer-term EICSI portfolio which would avoid the tendency of a simple average estimate to understate the benchmark return on debt. Collection of a consistent time-series of actual debt data should allow us to form conclusions about the benchmark term which are not materially impacted by particular market circumstances.[29] This forms the basis of this working paper.

Credit rating

The EICSI dataset also allows calculation of the average credit rating from each debt instrument issued by the energy networks.[30]

---

24 AER, *Draft rate of return guidelines, Explanatory statement,* July 2018, p. 452.
25 Chairmont, *Aggregation of return on debt data*, April 2018, p. 10.
26 AER, *Explanatory statement, Rate of return instrument*, December 2018, p. 299.
27 AER, *Explanatory statement, Rate of return instrument*, December 2018, p. 299.
28 AER, *Explanatory statement, Rate of return instrument*, December 2018, pp. 278–9, 300.
29 AER, *Explanatory statement, Rate of return instrument*, December 2018, p. 300.
30 Chairmont, *Aggregation of return on debt data*, April 2018, p. 10.

Our final decision for the 2018 rate of return instrument was to maintain a benchmark credit rating of BBB+.[31] This was based on assessment of annual credit ratings (from Standard and Poor's, and Moody's) for Australian energy network businesses over the period 2007 to 2018).[32] EICSI credit rating analysis was noted, but only as a sense check on the primary approach.

The EICSI analysis also played a role in the implementation of this benchmark. We decided to implement our BBB+ benchmark through a weighted average of A rated and BBB rated fair yield curves (as no data provider publishes a BBB+ specific curve).[33] We considered this was supported by our EICSI cost of debt 'sense check', which suggested that the cost of debt set in this way would better align with actual debt costs (reducing the overestimation if the BBB-rated curve was used in isolation).[34]

3.5 The 2019 Chairmont report

When Chairmont created the EICSI in 2018, it was recognised that the index was a basis that should be built upon for future analysis. As such, the purpose of this updated report in 2019 was to:

> *- Conduct a comparative analysis between portfolio level original Term to Maturity and AER's current 10-year benchmark. This is weighted by the face value of debt to ensure that the smaller providers do not overweigh the average;*
>
> *- Calculate a simple average of the providers' Term to Maturity at issuance for each month;*
>
> *- Update the EICSI analysis to include data unavailable in 2018; and*
>
> *- Enhance the functionality of the existing debt aggregation model.* [35]

Cost of debt

Chairmont updated the core EICSI to include a small amount of additional debt data. This was from the 2013–17 period. It was not initially included in the 2018 analysis because it was not provided to us in time.

Chairmont found that the inclusion of additional data did not result in any significant changes to the average cost of debt previous report.[36] The average credit spread was now 141.3 basis points, compared to 142.4 basis points in the 2018 report.

Term of debt at issuance

In the 2019 report, Chairmont recalculated the debt term:

---

31 AER, *Explanatory statement, Rate of return instrument*, December 2018, p. 289.
32 AER, *Explanatory statement, Rate of return instrument*, December 2018, pp. 284–289.
33 Specifically, the weighted average is one-third weight on the A rated curve and two-thirds weight on the BBB-rated curve.
34 AER, *Explanatory statement, Rate of return instrument*, December 2018, p. 291.
35 Chairmont, *Aggregation of Debt Data for Portfolio Term to Maturity*, June 2019, p. 3.
36 Chairmont, *Aggregation of Debt Data for Portfolio Term to Maturity*, June 2019, p. 11.

- using a Weighted Average Term to Maturity at Issuance analysis (WATMI). This weighted each debt instrument with regard to the value of that debt as a proportion of total debt. This is in contrast to the simple average used previously to calculate an average debt term of 7.4 years.
- with various assumptions for the drawdown of bank debt (0%, 50% and 100% drawdown scenarios).
- both on a month-to-month basis (that is, debt issued that month) and as an aggregate portfolio (that is, including all outstanding debt each month) across the sample period.

The WATMI for the industry ranged from a minimum of 7.4 years to a maximum of 10.7 year across all scenarios. When compared against our 10-year benchmark, Chairmont observed that the WATMI was on par with the benchmark for most of 2013-17.[37]

Credit rating

Chairmont found that the inclusion of additional data did not result in any significant changes to the average credit rating (BBB+) in its previous report.[38]

3.6 Updated debt data

In September 2019 we contacted all private sector regulated networks and asked them to provide information on any debt instruments issued since January 2018, extending the series which had previously been provided.[39] All networks voluntarily provided this information by December 2019, though we were still clarifying some aspects of the data with networks until March 2020.

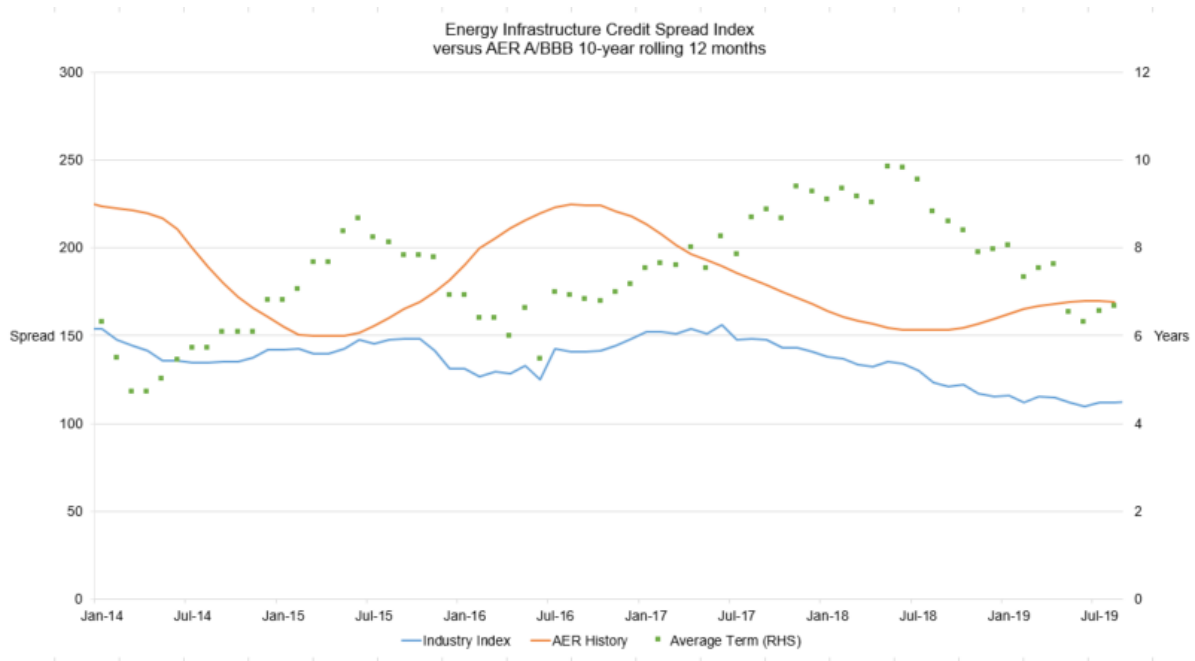
We have used this data to update the EICSI through to August 2019. Figure 1 presents the key results of this analysis in a format consistent with the original 2018 Chairmont report.

37 Chairmont, *Aggregation of Debt Data for Portfolio Term to Maturity*, June 2019, p. 4.

38 Chairmont, *Aggregation of Debt Data for Portfolio Term to Maturity*, June 2019, p. 11.

39 At the same time, we asked for information on financial instruments and the transaction costs incurred when raising debt back to 2013. This allowed us to attempt a matched assessment of the ongoing debt interest costs paid to the lenders of capital (which we refer to as the cost of debt or return on debt) and the transaction costs paid to other entities (which we refer to as debt raising costs).

Figure 1 Unadjusted Energy Infrastructure Credit Spread Index versus AER A/BBB 10 year rolling 12 month and average term



Source: AER analysis, based on method in Chairmont, *Aggregation of return on debt data*, April 2018.

In Figure 1 the blue line labelled 'Industry index' is the EICSI cost of debt, noting that this is expressed as a spread over the swap rate (left hand axis, expressed in basis points). The orange line labelled 'AER History' reflects the equivalent measure (spread to swap) for the allowed cost of debt if the 2018 Instrument was applied to the entire period from 2013 to 2019.[40] This means it applies a weighted average of A-rated (one-third weight) and BBB-rated (two-thirds weight) benchmark yield curves from Bloomberg, RBA and Thomson Reuters data.[41] Both the EICSI and AER cost of debt figures are calculated using rolling 12 month windows.

The average term of debt issuance is presented as a green dot each month. This is the simple average term across all debt instruments issued in the previous year.

As part of our analysis we have identified a number of improvements that can be made on the original Index that ensure it better reflects costs faced by networks. These changes are

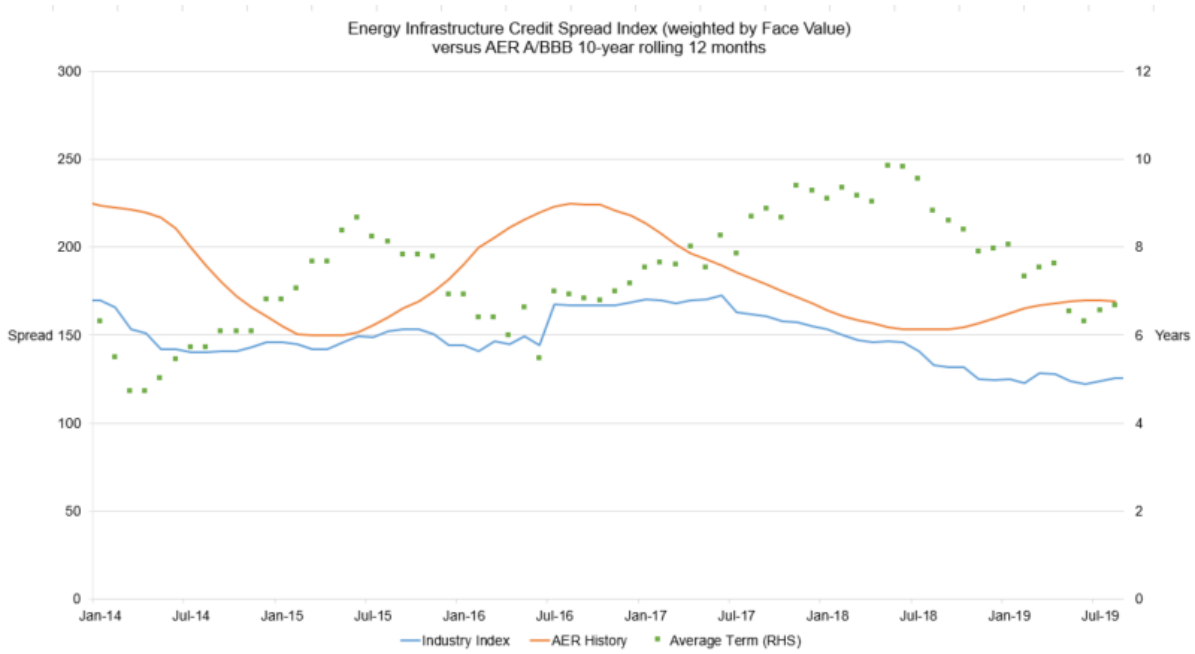
- re-weighting of costs by term to maturity at issuance
- refinement to criteria on instruments to be included in the EICSI.

40 More specifically, the spread to swap is calculated as the nominal return on debt calculated as per the 2018 Instrument less the AUD swap rate with a 10 year maturity.

41 In the original 2018 report, the 'AER History' line is calculated using the BBB-rated yield curve published by Bloomberg and RBA (but not Thomson Reuters). Our May 2018 discussion paper adjusts this graph to reflect the use of weighted average A-rated (one-third weight) and BBB-rated (two-thirds weight) curves. Our June 2018 draft explanatory statement further adjusts the figure to incorporate the RBA's restatement of some historical data. Chairmont, *Aggregation of return on debt data*, April 2018, p. 10. AER, Discussion paper, *Estimating the allowed return on debt*, May 2018, p. 39; AER, *Draft rate of return guidelines, Explanatory statement,* July 2018, p. 61.

Figure 2 below presents the EICSI after these improvements are made. We do not present the benchmark after an inflation adjustment, as suggested by the ENA in its presentation at the stakeholder forum.[42] A separate regulatory process is currently underway on inflation (our 2020 review of treatment of inflation) and in our view, the issues around debt estimation are best addressed separately to any inflation issues.[43] Additionally, this is an on the day estimation, and does not reflect the trailing average. As such, we think comparing the EICSI to a 12 month rolling average of the on the day benchmark estimate is appropriate.

Figure 2 Energy Infrastructure Credit Spread Index adjusted for term to maturity at issuance versus AER A/BBB 10 year rolling 12 month and average term



It is clear to see that the re-adjustment of weighting and criteria has altered the shape of the Industry Index, but two key points remain:

- The EICSI is relatively stable across time, and sits below our regulated return on debt. The margin between the EICSI and AER cost of debt varies across time.
- The (simple) average term varies across time, and is negatively correlated with our regulated return on debt. This suggests that when there are higher (lower) credit spreads in the market, networks issue shorter (longer) term debt, so that their overall spreads stay relatively constant.

We explore these findings further below.

3.7 What does this reveal about cost of debt?

42 ENA, *Presentation to AER Energy Network Debt Data forum*, 29 July 2020.

43 Full details of the inflation review are available on our website at https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/review-of-treatment-of-inflation-2020.

The updated EICSI has gradually decreased since early 2017 before beginning to level out in 2019 between 120-130 basis points. This is the lowest we have seen the index and it compares to highs of around 170 basis points seen in 2017.

Our debt allowance, now using the A/BBB weighted average, cycles over time. Prior to January 2018 we had seen peaks around 225 basis points and lows just above 150 basis points, with the data taking around 18 months to 2 years to move between highs and lows. With the data updated to mid-2019, the allowance appears to have levelled off around 165 basis points in the first eight months of 2019.

The EICSI has remained below the AER's cost of debt for the entirety of the series. On average the gap has been 33 basis points, but has been as high as 75 basis points in June 2016 and as low as 2 basis points in June 2015. Since April 2017 the gap has remained between 10 and 30 basis points.

3.8 Term of debt issuance

The average term at issuance has continued to change in negative correlation with our cost of debt calculation. Most recently there has been a decline from an average term at issuance of 10 years in April 2018 down to around 6.5 years in mid-2019. Summary statistics are shown in Table 2.

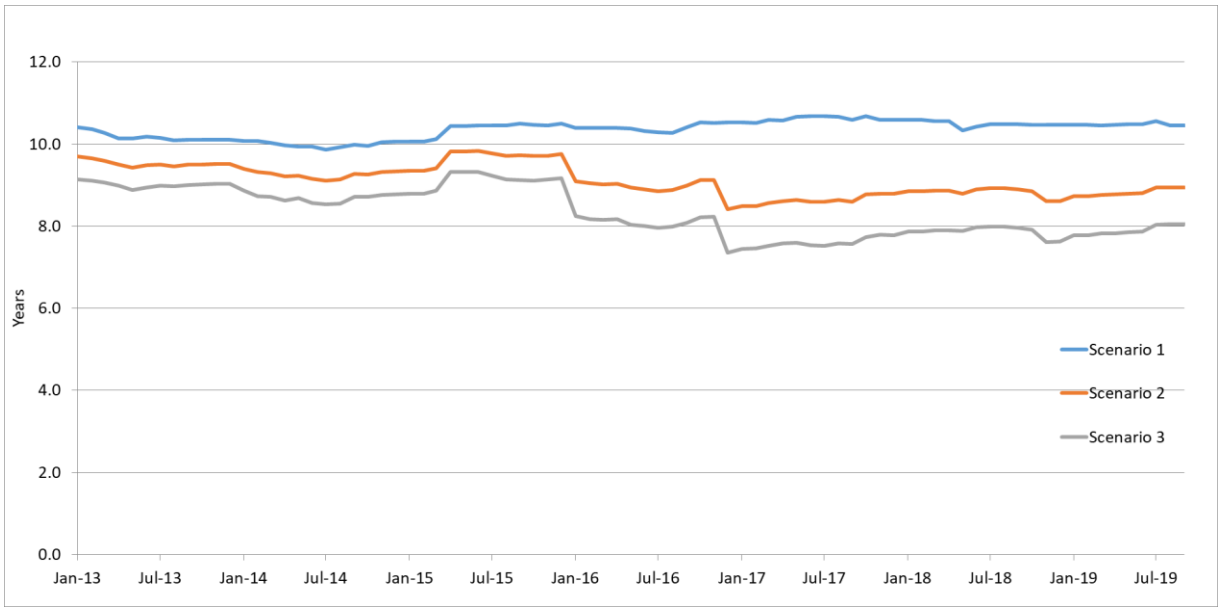
Table 2 Comparison of term at issuance (unweighted average) before and after 1 Jan 2018

	Overall	2013–17	2018– Aug 2019
Mean	7.53	7.44	7.71
Median	7.01	7.01	7.01
Standard Deviation	4.22	4.09	4.53
Range	24.52	16.01	24.52

The mean and median term in the post January 2018 period remain equivalent to the term in the original dataset (2013–17).

However, these figures are calculated as simple averages and the 2019 Chairmont report provides an alternative method to calculate the average term, using weighted average term to maturity at issuance (WATMI). This is presented in Figure 3, updated with data through to August 2019.

Figure 3 Weighted average term to maturity at issuance for the EICSI dataset – comparison of drawdown sensitivities



Source: AER analysis, based on method in Chairmont, *Aggregation of Debt Data for Portfolio Term to Maturity*, June 2019.

In Figure 3, scenario 1 (blue line) reflects 0 per cent drawdown of bank debt (that is, funds are not drawn for any of the bank debt reported by the energy networks). Scenario 2 (orange line) reflects 50 per cent drawdown of bank debt, and scenario 3 reflects 100 per cent draw down (that is, all bank facilities are fully utilised). When bank facilities are used, the weighted average term drops because the bank facilities used by the energy networks have shorter term than other debt instruments (i.e. bond issuance).

The 0 per cent drawdown scenario results in the weighted average debt term at issuance being relatively stable between 10 and 11 years. The 50 per cent and 100 per cent drawdown scenarios show lower average terms, and some evidence of decline in the period from January 2016 on. The 100 per cent drawdown scenario is around 8 years for the period from January 2016 to August 2019.

The different scenarios presented here reflect the maximum possible range for the impact of undrawn debt on the WATMI. In the datasets used for the figures above, we had not requested details on drawdown percentages from networks. However, in the recent round of additional debt data (extending the dataset to cover the 2019-20 financial year), we requested some limited information on debt drawdowns. It would have been a large increase in the regulatory burden to require networks to report a time series of drawdown amounts for every debt facility, and particularly difficult for historical debt.[44] Instead, we asked networks to report the amount of debt drawn for relevant facilities across the most recent year, with a monthly reporting frequency.

44 We understand that in some cases there is significant intra-month variation in drawdown amounts, which means the observation frequency would need to be weekly or daily.

This data will allow us to better refine our estimate of drawdown percentages, particularly if we collect this information over subsequent years. At present, our current assessment remains:

- Scenario 1 (with 0 per cent drawdown) and scenario 3 (with 100 per cent drawdown) are conservative upper and lower bounds.
- We consider that overall drawdown likely sits between scenario 2 and 3, and potentially closer to scenario 3.

3.9 Debt Credit Rating

With this data we are also able to analyse the credit ratings given to issued debt and whether this changes over time. We used a numerical rating with BBB- as a 1 and an A rating as a 5, with each integer representing a step in the rating system. This way we can track ratings through time and assess whether the A/BBB rating used to estimate the return on debt is a fair rating to assign in our Instrument.

Table 3 Comparison of rating of issued debt before and after 1 Jan 2018

	Overall	2013–17	2018–Aug 2019
Mean	3.14	3.01	3.44
Median	3 [BBB+]	3 [BBB+]	4 [A-]
Standard Deviation	0.90	0.86	0.93
Range	3.5	2.5	3.5

The mean credit rating in the post January 2018 period (3.44) has increased relative to the rating in the original dataset (3.01 for 2013–17), and the median rating has increased one notch (to A-).

4 What did stakeholders say about the draft paper?

This section summarises key feedback from stakeholder submissions on the draft working paper. Additional feedback raised in these submissions can be found in Section 8. In total 14 submissions were received from network, consumer and investor groups.

4.1 Construction of the EICSI

4.1.1 Network feedback

The network submissions outlined several deficiencies with the construction of the EICSI. These have been summarised and categorised by the AER in Table 4.

Table 4 - Feedback on EICSI

Category	EICSI deficiencies outlined in network submissions
Construction and Calculation Methodology	AER hasn't outlined a risk free rate
	Debt instrument inclusion/exclusion criteria is unclear
	Doesn't consider debt raising costs
	Over-weighting short term debt
	Over-weighting smaller size instruments
Credibility	The data isn't transparent
	Calculation lacks independence

Construction and Calculation Methodology

APGA outlined that there were many areas of the EICSI that required additional clarity from the AER. One example they provided was that the AER hadn't selected a risk-free rate to be used in conjunction with the EICSI spread.[45]

ENA stated that they did not understand how the EICSI had been constructed, highlighting that the inclusion and exclusion of certain debt instruments was unclear. There was confusion as to whether callable or subordinated debt had been included.[46] This was echoed in most of the individual network submissions.

45 APGA, *APGA Submission to the AER*, August 2020, p. 4.
46 ENA, *Effective regard to network debt data*, August 2020, p. 25.

There were conflicting views between some of the network submissions on what types of debt instruments should be included in the EICSI. APGA submitted that all debt instruments and fees which go towards the total debt package used by networks to provide regulatory services should be included. Whereas ENA submitted that only debt that was used to fund the RAB should be included.[47]

Ausgrid highlighted that there was an interaction between debt raising costs and spreads that may influence the EICSI. Some networks (or debt instruments) may have lower spreads and higher debt raising costs (or vice versa) and it was not clear how this relationship would be captured if the EICSI was used to set the debt allowance.[48]

ENA and individual network submissions stated that the EICSI currently over-weights short term and lower face value debt instruments. ENA considered that this issue was also compounded by the underestimating of fees of short-term debt.[49]

Credibility

ENA were concerned about the lack of transparency of the EICSI for regulatory decision-making. To use the EICSI as an input to cost of debt, a higher degree of scrutiny, review and replicability of the data was required. However, this transparency was not possible due to the confidential nature of the network debt data that feeds into the EICSI.[50]

ENA also suggested that the EICSI lacked independence compared to impartial third-party data sources (such as Bloomberg).[51]

4.1.2 Consumer feedback

The consumer submissions also noted some issues with the construction and methodology of the EICSI, however they were generally more optimistic that they could be solved.[52]

The CRG also raised the issue of transparency and that consumers (and their representatives) had no way of replicating or predicting the EICSI due to the confidential input data. Consumers will be required to place a higher degree of trust in the AER's decisions as a result.[53]

4.2 Using EICSI to Set the Benchmark Cost of Debt

4.2.1 Network submissions

The network submissions did not support any of the options proposed by the AER for increased use of the EICSI. Their views were that the EICSI should be limited to cross-

---

47 APGA, *APGA Submission to the AER*, August 2020, p. 3; ENA, *Effective regard to network debt data,* August 2020, p. 26.
48 Ausgrid, D*ebt working paper submission,* August 2020, p. 3.
49 ENA, *Effective regard to network debt data*, August 2020, pp. 26–30.
50 ENA, *Effective regard to network debt data*, August 2020, p. 22.
51 ENA, *Effective regard to network debt data*, August 2020, pp. 22–23.
52 PIAC, *Energy network debt data draft working paper,* August 2020, p. 1; MEU, *Energy network debt data draft working paper,* August 2020, p. 4.
53 CRG, *Submission to AER Rate of Return Review: Debt Data Working Paper,* August 2020, pp. 1–2.

checking/monitoring only, as it was used in the 2018 Instrument. Key points raised for why the EICSI should not be used to set benchmark cost of debt, completely or as a fourth curve, have been summarised and categorised in Table 5.

Process

ENA stated that as the EICSI is calculated in arrears it is not consistent with any implementable debt strategy. This would make it impossible for the networks to replicate the AER benchmark, which many currently do. ENA also raised that networks take decisions on managing risks based on real-time benchmark data available during averaging periods. Using the EICSI will not allow networks to align their averaging periods and debt issuances due to being calculated in arrears, resulting in increased financing risk compared to current practice.[54]

Table 5 - Feedback on EICSI to Set Benchmark Cost of Debt

Category	EICSI implementation deficiencies outlined in network submissions
Process	EICSI is calculated in arrears and therefore cannot be replicated
	Can't align averaging periods with market conditions and debt issuances
Incentives	Unfair on networks who match the current benchmarks
	Shifts behaviour towards uncompensated risk
	Networks could change debt characteristics to influence EICSI outcomes

Incentives

AusNet submitted that by using the EICSI to inform cost of debt, actual debt practices that were different to the benchmark will impact debt compensation for networks who do finance consistent with the benchmark, which was not appropriate.[55]

AusNet also stated that networks moving to reduce their debt risk premium (to try and outperform the EICSI) will take on additional risk (i.e. refinancing risk if issuing shorter term debt), which could have adverse consequences for consumers.[56]

ENA raised that changing aspects of debt issuance (e.g. overall gearing) can change the debt risk premium, but not change the overall cost of capital (if Miller-Modigliani theorem is correct). The direct use of the EICSI would result in an increased debt risk premium needing a higher benchmark, allowing a perverse manipulation of EICSI.[57]

54 ENA, *Effective regard to network debt data*, August 2020, pp. 5, 35.
55 AusNet, *Energy Network Debt Data,* August 2020, *p.* 2.
56 AusNet, *Energy Network Debt Data,* August 2020, *p.* 2.
57 ENA, *Effective regard to network debt data*, August 2020, pp. 16–20.

4.2.2 Consumer submissions

In contrast, the consumer advocacy groups all supported the use of the EICSI to inform the cost of debt in some capacity.

MEU and PIAC supported the AER placing greater reliance on the EICSI in the direct calculation of the return on debt benchmark as they considered it more accurately reflected the cost of debt for regulated networks and would streamline the current process. They did not consider that the challenges proposed by AER in the implementation of the EICSI were insurmountable.[58]

While ECA supported the use of EICSI, they noted potential incentive issues that might arise. One such effect was that networks understanding the link between EICSI and the regulated return on debt may promote volatility as a device to periodically procure higher allowed returns.[59]

The CRG supported the AER using the EICSI as a material input into the estimation of the cost of debt and encouraged the AER to continue the development of this index. However, the CRG did note that while the EICSI appears to have the potential to reduce efficient costs for energy consumers, depending on how the AER uses it, it did not perform as well against other principles to evaluate the effectiveness of the regulatory model, such as consumer confidence and risk allocation.[60]

4.3 Using EICSI to Inform Benchmark Credit Rating

In addition to the feedback outlined above, network and investor submissions outlined additional reasons why the EICSI should not be used to inform the benchmark credit rating:

- Insufficient time has passed since the 2018 Instrument for impact on credit ratings to show (most of the dataset is therefore irrelevant);
- Use of credit ratings on historic debt may be misleading and a forward looking measure was required; and
- A financeability assessment should be used to inform credit rating instead.[61]

4.4 Using EICSI to Set Benchmark Debt Term

In addition to the feedback outlined above, AusNet outlined three reasons why the EICSI should not be used to inform the benchmark debt term:

- The networks are still in the 10-year transition period, which the AER has previously committed to;

---

58 PIAC, *Energy network debt data draft working paper,* August 2020, p. 1; MEU, *Energy network debt data draft working paper,* August 2020, pp. 4–5.

59 ECA, *Return on Debt,* August 2020, p. 4.

60 CRG, *Submission to AER Rate of Return Review: Debt Data Working Paper,* August 2020, pp. 1, 14–18.

61 AusNet, *Energy Network Debt Data,* p. 3; Spark Infrastructure, *Energy network debt draft working paper,* August 2020, pp. 1–3.

- Chairmont's most recent analysis supports a 10-year benchmark; and
- The current dataset is insufficiently long, and will be contaminated by COVID-19 effects in 2020.[62]

4.5 Other Feedback

ENA and Spark Infrastructure stated in their submissions that due to the AER deducting forecast inflation from the cost of debt and then adding back actual inflation, the networks have been undercompensated for their actual (efficient) cost of debt.[63]

AusNet stated that the AER uses inconsistent thresholds for the evidence required to make changes to rate of return parameters, citing the ongoing inflation review as an example.[64]

62 AusNet, *Energy Network Debt Data,* August 2020, p. 3.

63 ENA, *Effective regard to network debt data,* August 2020, pp. 37–38; Spark Infrastructure, *Energy network debt draft working paper,* August 2020, p. 2.

64 AusNet, *Energy Network Debt Data,* August 2020, p. 4.

5 What are our responses to submissions on the EICSI?

In this section we outline the key submissions about the EICSI and our responses.

5.1 Construction or calculation issues

5.1.1 Comparing the EICSI with the risk free rate

We present the EICSI as a gap to the BBSW as this is common practice with market issued debt. As such, our return on debt benchmark is presented consistently with the EICSI in this paper.

However, APGA noted that our current debt methodology adds a margin to the estimated 10 year risk free rate based on RBA data. As such, the return on debt and EICSI presented in Figures 1 and 2 are not directly comparable with our debt allowance. In response, we will specify the risk free rate and debt estimation methodology used in our regulatory determinations so that the calculation is transparent and replicable. Any data that will be used in the final calculation of networks' return on debt will use our current estimate of the risk free rate. In our annual update we will provide an EICSI that is based on our risk free rate estimate as well as the current BBSW measure.

5.1.2 Debt instrument inclusion/exclusion criteria

When creating the EICSI in 2018, Chairmont took the lead on deciding which instruments would be included and which were not. Chairmont stated that its approach to inclusion/exclusion was based on broad criteria and the exercise of its professional judgement. A number of submissions, including those from ENA and AusNet, have identified this approach as a weakness of the EICSI and recommended that we should develop criteria that are transparent to produce a replicable methodology.

We agree with these submissions and have drawn on the previous advice from Chairmont to develop criteria to guide our decisions about which debt instruments should be included.

While these criteria will promote transparency and replicability, they are not automatic. There will be occasions when we will need to exercise judgement because there may be novel instruments not previously employed or instruments that combine a range of features. We think the criteria we are proposing will provide clear guidance in the majority of cases. However, it may still be necessary to exercise judgement in some cases and therefore we do not think it is possible to adopt the options for EICSI use that require us to set criteria to be automatically applied in the instrument.

We propose one overarching criteria for the inclusions of debt instruments in the EICSI:

- Any instrument that has the purpose of financing the RAB and has the characteristics of debt and does not meet one of the exclusion criteria. Types of instruments that are included are simple bond issuances, bank loans, USPP (US private placement) or MTN (Medium Term Note).

We propose to exclude instruments that do not have simple debt characteristics or are issued for other purposes:

- Commercial papers, non-convertible subordinated notes, hybrids and short term capex facilities will be excluded
- Bridges, working capital and overdrafts will all be excluded
- Anything with a term under 12 months will be excluded.

We are excluding 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 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.

We will consult on this list at a later stage of the 2022 Instrument review.

5.1.3 Debt raising costs are not included in the EICSI

Networks have submitted that only including interest costs does not lead to an appropriate comparison with our benchmark return.[65] Networks submitted that the variable nature of debt instruments mean that there are various ongoing costs with some debt that needs to be incorporated in our index.

Networks further submitted that these ongoing costs are not factored into our current debt raising cost allowance. Without consideration of these extra costs, networks submitted they would be undercompensated. Networks stated that because the current benchmark approach focused on a credit rating and term these costs could be recovered, but using an EICSI which focuses purely on interest cost could leave a gap.

We agree this point requires further consideration. We have also collected data on debt raising costs from networks, but we have not been able to reconcile or employ this data. Each network employs a unique approach to the categorisation and allocation of debt raising costs. As such, we are concerned that the data provided so far may lead to double counting or costs being incorrectly allocated. We have commenced work to develop a consistent approach to debt raising cost, but are at the early stages. In broad terms, we are considering collecting costs on bank debt issuances where they are

(a) Not covered by debt or equity raising forecasts or opex and capex forecasts elsewhere

(b) Are direct costs associated with the debt issuance and are not indirect cost such as a portion of the CFO or finance team salary

(c) Can be expressed as a directly incurred margin above the interest rate

(d) Can be expressed as a commencement or annual fee that can then be expressed as a margin above the interest rate.

We will consider this issue further as our work progresses.

65 AusNet, *Energy Network Debt Data*, August 2020, p. 3; ENA, *Effective regard to network debt data*, August 2020, p. 5.

5.1.4 Short term debt is overweighted

Network stakeholders have raised the issue that short term debt is currently given the same weight per issuance in the EICSI as long term debt.[66] Using this method a network issuing 10 year debt and 1 year debt at the same time will have the same impact on the EICSI.

We consider that there may be merit re-weighting the debt by tenor to account for the difference in issuing long term debt compared to short term debt, given that long term debt will be held on the network's debt books for longer. We can recalculate the EICSI weighting it by tenor using data we already have so we will not lose our historic series.

However, we also consider there is merit in using a simple average as this provides an insight into the active debt management practices of the networks we regulate which is useful for informing the development of regulatory practice.

We therefore propose to publish two versions of the EICSI, one weighted by term and one based on the simple average. To the extent that we use the EICSI in directly estimating our return on debt we will use the version weighted by term as it is a better match for our trailing average by recognising that debt is held over multiple years.

5.1.5 Small issue debt is overweighted

Similar to the issue with short term debt, stakeholders put forward that the EICSI should also be re-weighted by the size of issuance.[67] Reweighting in this way would mean that larger debt tranches would have greater impact on the EICSI.

At this time, we are not persuaded we should make this change. We understand the reasoning behind requesting this potential change, however we note that some networks are limited by their size. As such re-weighting by size would give more significance of debt issued by larger networks than smaller ones, creating an imbalance to the EICSI. We have done some simulations which suggest re-weighting by size has a small impact on the EICSI if it has already been re-weighted by term at issuance.

5.1.6 The EICSI incorporates instruments that do not match benchmark characteristics

Networks noted that the EICSI would show any variance in debt characteristics as a change in debt costs. Depending on circumstances networks may find it efficient to issue debt that does not match the benchmark assumptions.

It is notable that a change in characteristics of debt changes the cost of the issuance. Both term and rating, as well as size, can have this impact, so networks varying from the 10 year issuance or a BBB+ rating will see a variation in the cost of issuance.

---

66 Ausgrid, *Debt working paper submission*, August 2020, p. 2; ENA, *Effective regard to network debt data*, August 2020, pp. 29–30.

67 Ausgrid, *Debt working paper submission*, August 2020, p. 2; ENA, *Effective regard to network debt data*, August 2020, p. 30.

We think this is an important point. Our regulatory framework is an incentive framework. We do not specify the manner in which regulated networks should operate or finance themselves. As such, regulated networks have an incentive to seek out better and cheaper ways to operate. The key point is that consumers should ultimately benefit where efficiencies are identified. In some aspects of our regulatory approach this happens quite directly, such as our opex forecast and the application of our efficiency benefit sharing scheme (EBSS). In other cases, we review aspects of our framework from time to time and make adjustments based on the revealed practices of the networks. This was the case with our review of tax in 2018.

In the same way, now that we have a better measure of actual debt costs, we think it is timely to consider whether consumers can benefit from the efficiencies that networks may have been able to achieve through their active management of their debt.

The EICSI reflects the revealed debt practices of networks, and so the characteristics of those debt issuances are relevant to our regulated return on debt and the evaluation of our benchmark approach. One clear example is that networks issue different forms of debt at different times, as shown by the varying terms in figures 1 and 2. Incorporating these revealed debt practices into our consideration of benchmark debt costs seems appropriate. We consider options for using the EICSI in section 6.

5.2 Regulatory principle Issues

5.2.1 The data is not transparent

Data used in the EICSI is confidential to individual networks and we ensure at all steps that confidentiality is preserved. As such it is not possible to publish the full range of data that is included. However we have taken steps where possible to ensure stakeholders are afforded any possible transparency.

We have published a spreadsheet of the underlying EICSI model for all stakeholders to examine the calculation used. We also returned data, along with any corrections we had made, to networks for them to pass on to their own consultant so they would be able to check how we had used the data.

Whilst we cannot make this data completely transparent due to confidentiality issues, we have taken steps to minimise this issue. Transparency where possible in our regulatory regime is desirable and we consider that these steps promote sufficient transparency.

5.2.2 The calculation lacks independence

Some networks stakeholders outlined in their submissions that the calculation for the EICSI was not independent, given that it had been developed in house by us and updates had not been overseen by a consultant.

We do not accept this submission. We are an independent regulator guided by our legislative framework and objectives. We do not come to issues with a leaning. We seek the correct outcomes.

5.3 Process issues

5.3.1 Use of the EICSI does not align with averaging period methodology

Currently, as part of the trailing average framework for debt estimation, networks nominate a debt averaging period for each year of their regulatory decision. Networks can then choose to align their debt issuances with these periods or not, depending on their debt raising practice. We update our debt estimate for the network once data is available for the period, usually the middle of the month after the period has finished. The method set out in the 2018 Instrument requires no consideration on each update and once data is available it can be prepared under a tight deadline.

If we require continuous updating of the Index and therefore continuous disclosure from networks there are a number of potential issues that may arise:

(a) Timing of debt issuances may see step changes in debt estimations - Because the EICSI works on a 12 month rolling window if a cheaper than average instrument rolls out as a more expensive instrument rolls in, or vice versa, the EICSI could shift significantly. If this was to happen across an averaging period it could lead to a step in value that make the choice of averaging period significant.

(b) Continuous disclosure requirements may cause delays in the calculation of debt estimates - To use the EICSI as a direct input into the return on debt networks may need to continuously disclose any issuances. Given our update procedures there would need to be a quick turnaround, including any clarification over data or instrument type. This may take more time than is available.

We consider these issues further in section 6.

5.4 Incentive issues

5.4.1 Use of the EICSI unfairly impacts networks issuing benchmark debt

Currently we assume a benchmark debt of 10 year tenor and a BBB+ credit rating. Networks are compensated assuming these parameters no matter what debt they issue or interest they are paying on that debt.

If we were to alter the methodology to utilise the EICSI, networks submitted that those undertaking more risky debt issuances would pass some of that risk onto other networks and consumers, because their issuance would impact the index and potentially the return to networks.[68] Submissions indicated this could have a significant impact to those raising benchmark debt if non-benchmark debt is issued during their averaging period, altering their return.

68 Endeavour Energy, *Submission to the AER on Energy Network Debt Data*, August 2020, p. 2; ENA, *Effective regard to network debt data*, August 2020, p. 8.

As with any change of method we want to be sure that we do not create issues that outweigh the benefits. Given that the EICSI works on a 12 month rolling basis it is unlikely that a single issuance will impact it significantly. Again, this is an issue we consider further in section 6.

5.4.2 Networks may be able to influence the EICSI with issuances

Both consumer and network stakeholders have noted that there are potential issues with the networks being able have influence over movements on the EICSI. Submissions stated that networks may be able to issue debt on a different schedule or plan to ensure that they can influence the Index consistently or at key times.[69]

We consider that networks still have strong incentives to issue efficient debt and, given that they cannot know how other networks will issue debt. Trying to game the system may lead to negative consequences for the individual network. It remains the role of any CFO to issue efficient debt for their business and attempting to game a regulatory system may lead to serious consequences.

Whilst we understand that in pure number form it may be possible to influence the EICSI with issuances at certain times, we consider that other costs around debt issuances will ensure that networks will strive to issue debt in the most efficient way. Whilst the Index will be influenced by any issuance by a network, issuances by other networks mean that it is unlikely any single network will be able to issue debt to alter the index to benefit itself in a manner that outweighs the risks from issuing debt differently to its most efficient plan.

We consider the risk of adverse incentives in this case are minimal and therefore do not materially factor into our consideration of options in section 6.

5.4.3 Using the EICSI will see debt prices rise or fall rapidly

Networks have submitted that use of the EICSI will lead to a clustering of network behaviour, either seeing a rapid increase or decrease in observed network costs.

In their presentations at our stakeholder forum both the APGA and ENA put forward that using the EICSI in any significant manner would cause a significant shift in observed debt costs. The ENA stated that networks would increase observed debt costs as they would be compensated for the upward shift in the EICSI.[70] The APGA raised the possibility of the opposite happening, with networks seeking to cut costs to remain below the average represented by the EICSI, ending in an unsustainably low benchmark cost of debt for the networks.[71]

If all networks act in the same way, then there is a possibility we could see a step change in the observed debt costs for energy networks. This is also most likely if the EICSI is used directly as an input without mitigating factors. However we consider that the predominant incentive for networks is to efficiently raise debt to finance their operations.

---

69 TransGrid, *Submission to the AER on Energy Network Debt Data*, August 2020, p. 1.

70 ENA, *Presentation to AER Energy Network Debt Data forum*, 29 July 2020.

71 APGA, *Presentation to AER Energy Network Debt Data forum*, 29 July 2020.

Given that networks raise debt independently and have strong incentives to raise efficient debt, we consider the likelihood that these extreme scenarios for debt issuances are unlikely.

6 How could updated data be used in the 2022 Instrument review?

In this section we set out how we propose to employ the EICSI in the 2022 Instrument. Having been through this consultation and engagement process we have advanced our thinking and have formed views on how our current approach might be improved. We recognise that we cannot predetermine or bind our ultimate decision in the 2022 Instrument and we will consider all relevant material in that process. Nevertheless, we think there is value in setting out our thinking at this stage to take advantage of the submissions we have received and to guide future submissions.

6.1 Cost of debt

The collection of additional actual debt data and extension of the EICSI provides evidence for us to consider when developing the 2022 Instrument. It provides a relevant real-world test of whether our regulated return on debt reflects actual debt costs incurred by networks. When interpreting this evidence, we will have appropriate regard to the limitations of the approach.

When we first introduced the EICSI we acknowledged that a number of factors might impact our analysis, and could potentially explain the difference between our regulated return on debt and the EICSI. This includes:

- The reported debt is for businesses with differing compositions of regulated and unregulated assets. We set our return for regulated assets only.
- The reported cost of debt might also reflect upstream ownership (parental support) of some network entities, which also is not reflected in our regulated return.
- Debt raised overseas may have different characteristics to domestic debt. Data obtained from Bloomberg, Thomson Reuters and the RBA does not necessarily match the makeup of debt instruments raised by regulated networks.
- Not all entities raised the same amount of debt or issued the same number of instruments, which may alter the industry average.
- The benchmark credit rating used to derive our regulated return on debt (BBB+) might not reflect the risk of investment in energy networks, either because these networks have less risk than a typical BBB+ business or because credit rating bands are crude indicators of the cost of debt.
- The term of debt issued by networks is below the benchmark term (10 years) used in our regulated return on debt, and shorter term debt has a lower cost.

On these factors:

- For the first three issues (inclusion of unregulated assets, upstream ownership and overseas debt issuance), these are relevant reasons that go to our decision not to place full weight on the EICSI (as discussed further below). However, the evidence does not suggest that these are dominant effects in the EICSI dataset, such that the revealed costs are not relevant to the regulated return on debt. As such they do not preclude

placing material weight on the EICSI as we propose to do (see our discussion on option 3 below).

- We have given consideration to the next factor (different amounts of debt between networks) in our examination of whether to weight issuance by size when constructing the EICSI.
- For the next two factors (credit rating not fully reflective of risk, or variation in term), while these describe possible reasons for a difference between the EICSI and the regulated return on debt, this does not mean that the current benchmark is correct. Rather, it suggests that changes to our approach could allow it to better align with actual interest costs.

We see some important advantages in placing greater reliance on the EICSI. These include:

- It could more accurately reflect the cost of debt for regulated networks, directly addressing the difference between our historic estimation of return on debt and the observed cost of debt incurred by networks. It might assist in narrowing the gap presented in Figure 1.
- It could streamline the current process whereby we observe network debt to inform our decision on debt benchmark characteristics (i.e. 10 year, BBB+ rating) then determine the cost of debt that is consistent with those benchmarks. Instead, we could move more directly to the observed benchmark cost of debt for the utilities we regulate. This would be more reflective of an active debt management strategy, rather than passively purchasing our determination of benchmark debt.
- A regulated return on debt set using the EICSI (in whole or in part) would still be a benchmark approach, because the EICSI reflects costs across all networks rather than any network individually.
    - A firm would have no incentive to issue debt at higher than efficient costs if the resulting upward shift in the EICSI was insufficient to compensate for the higher costs directly incurred by that network.
    - The desirable properties of the incentive regime are preserved. That is, networks have an incentive to pursue efficiency gains across time, and consumers benefit in the long term when these efficient costs are revealed.
- We currently use actual industry data for other relevant parameters such as beta.[72] Extending this to debt would help us to assess an efficient and consistent estimate of the overall rate of return.

It would be important to preserve internal consistency with other areas of the rate of return calculation, so that the overall assessment appropriately reflects efficient costs.

6.2 How could we use the EICSI in the 2022 Instrument?

[72] We have also collected information on debt raising costs (that is, transaction costs associated with raising debt) at the same time as collecting information on the cost of debt (interest costs). This then will be used to inform our assessment of benchmark debt raising costs as part of operating expenditure (i.e. separately to the return on capital). This should allow us to assess the overall efficient costs of providing regulated energy services.

Through the draft working paper and our consultation we have considered a range of options for how we should use the index in the 2022 Instrument. The options we considered were:

- One – We do not use the EICSI at all.
- Two – Maintain 2018 use of the EICSI as a benchmark
- Three – Use third party data series to create the benchmark, but use the EICSI to determine the blend of A and BBB data
- Four – Adjust the debt benchmark by a fixed amount which is determined by the gap between the benchmark and the EICSI over a fixed window.
- Five – Use the EICSI as the fourth curve alongside our other third party data providers (currently Bloomberg, Thomson Reuters and the RBA).
- Six – Use the EICSI the benchmark cost of debt

6.3 What options are we not proposing to employ?

6.3.1 Not using the EICSI at all

There are a number of stakeholders who consider the Index is not fit for inclusion in our estimation of benchmark debt data. With our current methodology relying on data from external providers that stakeholders can also access, there are concerns that placing reliance on a dataset that some stakeholders believe lacks transparency would not be appropriate as a regulatory method.

We do not accept these submissions. The EICSI provides an insight to actual costs incurred by networks that our methodology currently does not take into account. We do not want to exclude relevant information without good reason, and we consider that the information the Index provides outweighs concerns over its inclusion.

We have made improvements to the EICSI since 2018 and we are working on further improvements. To not include the Index in the 2022 Rate of Return Instrument when it was included in 2018 would be a backward step.

6.3.2 Maintain the same use of the EICSI as we had in the 2018 instrument

In the 2018 rate of return instrument we used the EICSI as a cross check to assess reasonableness of the benchmark implementation. We considered the entire dataset in this cross check and have regard to both credit rating and benchmark term as well as cost. This approach was taken because the EICSI and dataset as a whole was new, and we did not want to place too much weight on data we had not been able to examine in detail.

Using the EICSI as a crosscheck reduces the impact of any drawbacks of the data, but also limits the positive uses. By noting its use as a cross check in the Instrument it would not be directly used as part of the ongoing estimation process, but could be used to make changes to the calculation in the Instrument itself, for example altering the benchmark credit rating if the Index departed significantly from the benchmark allowance.

With our greater experience with the EICSI, its longer time series and the improvements we are making we think the EICSI has more to offer. We therefore, are looking to options that give the EICSI greater influence going forward. Importantly, as noted in section 5 we think the index is able to provide us with insight to the active debt management practices of the networks we regulated and that these revealed active practices should have a greater role in setting our return on debt. To the extent that the networks are undertaking practices that reveal more efficient approaches, then using the EICSI more directly will enable consumers to benefit from these practices over time.

6.3.3 Using the EICSI as a fourth curve in the estimation of the benchmark

If we had constant disclosure from networks we could use the Index as a fourth curve, alongside data from Thomson Reuters, Bloomberg and the RBA, to form our benchmark.

This would not change our estimation process for the third party providers, but would simply add the EICSI as an equal weight into the calculation. Once networks have disclosed instruments that have been issued we would add the data into the EICSI and extend the curve.

We think there are a number of Issues with this option that would make it impractical at this time. First, we think there are material issues with a continuous disclosure approach. Our experience is there have been delays in obtaining and checking information provided to us. In recent collection rounds extra clarification meetings have been required. Second, at this time we expect some judgment will need to be exercised in calculating the EICSI, although our proposed inclusion/exclusion criteria will reduce current levels. This means the construction of the EICSI would not be automatic. Third, there are practical issues around averaging periods. Under the rate of return instrument there is an option for networks to specify averaging periods as short as 10 days. We would need to develop approaches for calculating the EICSI if no debt was issued during the averaging period. Fourth, continuous disclosure and calculation of the EICSI would require additional resources for the networks and ourselves and we would need to assess whether this additional effort was warranted.

In view of these issues we are not proposing to pursue this option at this time.

6.3.4 Use the EICSI to directly set the return on debt

Using the EICSI directly to estimate the return on debt could provide an appropriate benchmark for the return on debt. Given it is an average of actual costs incurred by networks, it is reasonable to suppose that this could be used to set the return on debt.

We consider the issues with using the EICSI as 4th curve also apply here to an even higher degree. Issues raised around adverse incentives raised in Section 5 could be significant under this option. We are therefore not proposing to pursue this option at this time.

6.4 What is our preferred use of the EICSI?

6.4.1 Using the EICSI to directly determine the benchmark blend of A and BBB bonds

We currently use a blend between A and BBB rated debt curves from 3 data providers. In the 2018 Instrument we shifted the weightings to give A data 1/3 weigh and BBB data 2/3 weight to match our benchmark credit rating of BBB+. This benchmark is reflected in Figure 1.

Having considered all of the submissions in this process we are now proposing to adjust the weightings of the A and BBB debt data series we use to align with the blend that is implicit in the EICSI. We consider this would improve our estimation of the return on debt by allowing us to account for the active debt management practices of the networks we regulate. These debt practices reveal important information about the risk profile of the networks that we regulate and the debt margins that are required to match the risk profile. We know that credit ratings of themselves are a relatively crude indicator of risk and debt margin. The information in the EICSI provides a more precise indicator of risk and margin. Adopting this approach would also allow us to account for choices around term and risk. We know that at any point in time there are differences in the margins that apply to different terms. Networks make active choices about the terms they issue based on margins and their risk management profiles. Using the EICSI more directly will give us a better insight into these choices and allow us to reflect their efficient costs in our return on debt.

Importantly, using the EICSI to determine the blend of A and BBB bonds leaves much of our current approach unchanged preserving its familiarity and systems. For example, we would continue to set the return on debt each year using a trailing average approach. The return on debt each year would continue to be calculated over an averaging period nominated by the network using data from the Thomson Reuter, Bloomberg and RBA 10 year debt data series.

This option also avoids many of the potential deficiencies of the other options we have considered. First, it gives a clear role for the valuable information in the EICSI. Second, we do not need a continuous disclosure approach. Third, any judgment or discretion can be exercised at the time of developing the 2022 Instrument.

We provide a worked example in appendix A showing how this approach might apply. In brief, the key components are as follows.

- At the 2022 Instrument we calculate the blend of A and BBB data from the nominated data providers (currently Thomson Reuters, Bloomberg and RBA) that historically matches the spread of the EICSI over a defined observation window.
- This observation window could be the previous 12 months or the period since the commencement of the 2018 Instrument but must be completed prior to the 2022 Instrument formation. This approach would mean we no longer define an explicit target credit rating. Instead we would determine a fixed blend of A and BBB debt derived from the EICSI that would apply over the course of the instrument.
- We set the blend for the 2022 Instrument taking into account this calculation and any other relevant information.
- The return on debt is then calculated going forward using this blend using the same annual update methodology as present.

- The EICSI will be updated and presented each year in the annual update.

One final point, we think that options 3 and 4 are quite similar and in terms of setting the historical adjustment would potentially be mathematically equivalent. We prefer option 3 because we think it is more transparent and requires less adjustment to our current approach, whilst also avoiding the possibility of setting a rate of return outside the bounds of the chosen curves.

6.5 Debt Term

6.5.1 How can WATMI be used in 2022?

We consider that the updated WATMI, combined with the more detailed drawdown data that will be collected in the coming round of data collection, will be useful data in determining a benchmark term, if appropriate.

Our preferred option uses curves from external data providers, and as such we require a term to be set. Under our preferred approach for using the EICSI it would not be necessary to apply the WATMI independently.

6.6 Further EICSI development

As part of our commitment to using the EICSI in the future we want to ensure that the EICSI is fit for regulatory purpose. We therefore want to ensure that we make improvements where possible.

- Criteria - in section 5 we have proposed inclusion/exclusion criteria and welcome comments. A roundtable of stakeholders and experts may be useful to consider further improvements.
- We will continue to collect debt information from networks in future years, and we want to move this from an informal request to a formal information gathering. This may also include requesting more information on previously excluded debt instruments so that they can be included in subsequent EICSI calculations, if the new criteria requires it.
- We are also examining which costs, aside from base interest costs, should be included in the index.

7 Glossary

Below are accessible explanations of the more specialised financial terms used in this final working paper.

- **Bank Debt (or bank facility)** - A type of debt issuance where a bank (or group of banks) lends money to the borrower (the network) at an agreed interest rate. This is broadly similar to a conventional bank loan for a house or car.
- **Basis Points** - This is a common unit of measurement when discussing interest rates, and a single basis point is equal to one hundredth of a percent.
- **Bond** - A type of a debt issuance where an investor (or investors) lend money to the borrower (the network) at an agreed interest rate. The borrower is said to 'issue' the bond; the lender is said to 'buy' the bond. A bond can be traded on the secondary market.
- **Credit Rating** - A value assigned by ratings providers (S&P, Fitch, Moody's) that groups businesses into similar risk bandings. Commonly it takes the form of a letter rating (AAA, A, BBB etc.) with AAA denoting lower risk and CCC the highest risk of default. The plus '+' and minus '-' symbols are also used, so the progression around the AER's current benchmark goes (higher risk) BBB-, BBB, BBB+, A-, A, A+ (lower risk).
- **Credit Spread** - This is a measure of the gap between the agreed interest rate of the debt instrument and the base swap rate available. In this working paper we use the BBSW (Bank Bill Swap rate) provided by Thomson Reuters.
- **Debt Instrument** - A general term for all types of borrowing i.e. bonds, bank facilities or other types of debt.
- **Drawdown** - At issuance it is possible that an entity lending money may not want to lend the entire amount at once, or the borrower will not want access to all the funds immediately. Debt drawdown is the act of subsequently releasing the funds (from the lender's perspective) or obtaining the funds (from the borrower's perspective) after the date the debt facility was first established, to manage risk for the lender or liquidity costs for the borrower. The full interest rate is only paid on funds once they are drawn. The debt balance might move up and down as funds are drawn and then repaid across the life of the debt instrument.
- **Debt Risk Premium** - This is a measure of the gap between the allowed return on debt and the risk free rate. It can be described in percentage terms or raw basis points.
- **EICSI** - The Energy Infrastructure Credit Spread Index was created in joint work 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.
- **Interest** - Denoted in basis points or percentages, the interest is the proportion extra that must be paid back on a loan in addition to the initial amount borrowed (the principal). This can be denoted as a fixed number, or a certain spread above an index rate, such as the swap rate (referred to as floating).

- **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. From the lender's perspective it is the return on the funds invested, but from the borrower'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. The current instrument was published in December 2018 and its replacement is scheduled for December 2022.
- **Return on Debt** - The return on debt is the AER's forecast of the interest costs of maintaining a benchmark efficient debt portfolio for a regulated energy network.
- **Term to maturity** - When debt instruments are issued they have a date by which they must be paid off. This is the maturity date. The term to maturity is the length of time between the current date and the maturity date. After the debt is issued, the term to maturity decreases with time until the debt is repaid.
- **Term to maturity at issuance** - This is the duration between the issuance date and the maturity date. It is set when the debt is issued and does not change.
- **Trailing Average** - we use a 10 year trailing average approach to estimate the cost of a debt portfolio for regulated networks. Each year an estimate of debt cost is taken and added to the networks estimate, with the estimate from 11 years ago removed. Currently all networks are in transition to this approach, as no networks have yet been regulated under this approach for 10 years. In this case, the first year is given larger weighting to make the overall data equivalent to 10 years.
- **Weighted Average Cost of Capital (or rate of return)** - The weighted average cost of capital, or WACC, is the combination of return on debt and return on equity on a percentage basis. In the current instrument, we estimate a make-up of 60% debt and 40% equity, and as such the WACC is formed of 60% return on debt and 40% return on equity. From the borrower's perspective this is the cost of obtaining the funds - but from the lender's perspective it is the return on the funds invested.

8 Table of Stakeholder submissions

This section provides additional feedback from each of the 14 submissions the AER received on the draft working paper. Refer to each submission individually for further information. Page references are supplied.

Category	Feedback	Page No.
APA Group		
EICSI	The AER could reduce uncertainty around the deviation of certain network service providers' credit spreads from the benchmark without disclosing confidential information, by reporting standard deviations and ranges for credit spreads around the EICSI, in a way similar to the way in which it currently reports, in the discussion paper, standard deviations and ranges for term at issuance and credit rating.	4
Using EICSI to set Benchmark Debt	The EICSI does not, in our view, lead to an efficient cost of debt which can be applied in a scheme of incentive regulation.	1
	Setting regulated prices using a service provider's own costs provides only weak incentives for the service provider to control its costs	1
	The benchmark set for a particular business should be calculated from a fairly large sample of otherwise comparable businesses (facing similar economic and technical opportunities) to ensure business specific effects are eliminated and should not include the price the business in question pays for the input, thereby eliminating any business-specific effects from the benchmark.	2
	The method of establishing an efficient cost benchmark is not applicable in the case of debt	2-4
	If the cost of debt is to be benchmarked, the EICSI cannot be used in that benchmarking	4
Ausgrid		
EICSI	The EICSI does not weight or adjust raw cost of debt data across the industry in order to produce a 'pure' unadjusted index. The EICSI approach is an informative starting point but has significant weaknesses when considered as a benchmark for cost of debt.	2
	The EICSI skews towards short term and small to medium-sized debt which will have lower term to maturity and credit spreads.	2
	The EICSI, having a membership that is relatively low in number and of a diverse range in size, lacks the breadth required to be a reliable index.	2

	There is an assumption that the EICSI represents the efficient financing practices of the firms in question. This assumption fails to consider the individual circumstance of each business.	2
	The data underlying the EICSI is highly sensitive and confidential. The ability of networks to forecast debt costs with any degree of comfort if the EICSI was used to benchmark debt costs would be lost.	3
	There is an interaction between debt raising costs (DRC) and spreads that may influence the EICSI. Some networks (or debt instruments) may have lower spreads and higher DRC (or vice versa) and it is not clear how this relationship would be captured if the EICSI was used to set the debt allowance.	3
	Without a broader base of inputs the index could have years where it fails to represent real market conditions and/or a very limited number of issuances heavily influence the outcome. An averaging period becomes irrelevant if the EICSI were to be used on its own to set debt costs	3
Credit Rating	Use of historic credit ratings may also be misleading as this does not take into account the prevailing conditions for debt issuances made in the future. The whole compensation framework should be considered, and the benchmark credit rating aligned to this through consideration of overall financeability.	3
AusNet		
EICSI	The EICSI still contains serious methodological flaws which were raised by industry in the 2018 Instrument process but have not yet been addressed. These relate to: 1. The material over-weighting of short-term debt; 2. Unclear criteria for inclusions and exclusions of particular debt instruments; and 3. Lack of consideration of bank debt fees. Further detail is provided in the ENA's submission.	1
Using EICSI to set Benchmark Debt	There are many benefits in continuing the current practice of divorcing the debt allowance from actual debt costs. Setting debt compensation based on third party indices is working well.	2
	If the EICSI is lower than the benchmark, this implies that some networks have departed from benchmark financing practices to issue lower spread debt. However, given the strong link between debt costs and financing risk borne, these networks bear an increased, and uncompensated, level of risk compared to the benchmark approach. A benchmark reflecting much shorter-term debt issuances, for example, would increase the volatility of prices as larger proportions of debt would be reset more frequently, including during periods of financial crisis. This price volatility would then be borne by customers.	2

	AusNet Services attempts to match its debt costs to the regulatory debt allowance by aligning debt issuances and/or swap transactions with its debt averaging periods. If the EICSI is given any weight in setting the debt allowance, given it is a 12 month rolling average, we will no longer be able to closely match actual debt costs and the regulatory debt allowance.	2
Credit Rating	We encourage the AER to consider the appropriate benchmark credit rating in its forthcoming working paper on financeability. The benchmark credit rating set in the 2022 Instrument needs to be congruent with the cash flows provided by that instrument.	3
Debt Term	AusNet Services supports the Chairmont analysis which concludes that the benchmark term for industry debt should remain close to 10 years. There is no case for change because: 1. Networks are still in the 10-year transition period, which the AER has previously committed to; 2. Chairmont's most recent analysis supports a 10-year benchmark; and 3. The current dataset is insufficiently long, and will be contaminated by COVID-19 effects in 2020.	3
Other	Any changes to setting regulatory allowances must be based on strong evidence that current approaches are no longer fit-for-purpose – that is, the case for change must be clearly established before alternatives are considered. It is notable that in the inflation review, despite compelling evidence that the AER's approach to setting expected inflation – which assumes inflation returns to 2.5% within two years regardless of market and RBA expectations – is flawed, the AER has reiterated there is a very 'high bar' for any change to occur. However, in the debt working paper review, numerous extreme options for change are being considered (including the direct application of a fundamentally flawed index to set actual debt costs), despite no case for change being set out.	4
Australian Pipelines and Gas Association (APGA)		
EICSI	The EICSI does not properly weight for tenor and is likely to substantially underestimate the actual cost of debt faced by networks as it over-weights short-term debt.	2
	As the relationship between spread and tenor is not linear (or stable), it is not clear whether the EICSI, which is an average of spreads of bonds of different tenors can play a role greater than a cross-check.	2
	If a network issues a new debt after the AER completes its next rate of return instrument, particularly if that debt has some novel or exotic characteristic, the AER may need to exercise judgement to determine whether it is an outlier or not.	2, 5

	Issues of clarity: 1. The AER will need to make choices about what risk-free rate to add to the EICSI or what averaging period will be used. 2. It is not clear how the AER will treat the debt margin from a 12-month rolling average in assessing or determining the cost of debt. 3. The use of EICSI could mean that a business that is raising debt in the prevailing lower (higher) interest conditions could benefit (lose) from higher (lower) rates in market condition occurring 12 months back in other businesses' averaging periods. 4. The use of an EICSI could potentially create perverse incentives for businesses to not allocate lower financing costs benefits to regulated assets where debt is raised at a group level. There appears to be an inconsistency where an inflation forecast is being used for the incremental debt observation.	4
	EICSI development: 1. There is a need to include whatever debt is actually required to provide regulated services on the part of each network. Anything else simply does not reflect the actual debt costs of the networks involved, which defeats the purpose of the indices. This includes fees, which may differ for different kinds of debt instruments. Outliers should not be removed from the EICSI as they reflect actual debt raised.	11
Using EICSI to set Benchmark Debt	At present, the AER uses three independent indices to set the cost of debt at each regulatory determination, this means that each network business makes its debt-raising activities independently of one another, as the current indices are largely unaffected by actions made by a single network. However, as the EICSI lacks independence it would change as any particular network makes changes to their own debt-raising practices.	7
	It is not clear if the EICSI is capable of meeting the NGL if it is used as part of the annual updating process.	9
	Using the EICSI or WATMI as the direct input into the determination of the cost of debt each year through a regulatory period is likely to lead to perverse management incentives and destabilisation of the industry.	10
	If the AER tried to write the rate of return instrument to include contingencies on what it would do if the WATMI index were to indicate a change of tenor (as it currently does, for example, in the case of one of the third-party indices failing to be published), then this would make the rate of return instrument very long, and likely, hopelessly confused.	5
Credit Rating	We believe it would be more useful to deal with credit rating issues as part of a financeability assessment than to use the EICSI for these purposes.	4

Term	The current trailing average is ten years and predicated on a firm issuing debt in equal tranches of ten percent per annum over those ten years. If the WATMI index indicates a change in tenor and the AER acts on this when it forms the next rate of return instrument, then doing so is likely to create very complex transition arrangements.	5
Consumer Reference Group (CRG)		
EICSI	The CRG considers that the potential use of EICSI as a substantive input into determining the cost of debt component of the rate of return entails a trade-off between multiple principles. While, the EICSI appears to have the potential to reduce efficient costs for energy consumers, depending on how the AER uses it, it does not perform as well against other principles to evaluate the effectiveness of the regulatory model.	2
	Our initial view is that the EICSI performs well in terms of efficiency. It is an example of the application of incentive-based regulation to the cost of debt parameter and in this respect, it is preferable to the AER's current methodology.	2
	We note that the EICSI is compiled from confidential data received from the networks. This is necessarily not transparent to consumers and their representatives, so it is not replicable or predictable. Accordingly, consumers and their representatives are required to place a higher degree of trust in the AER's choices. Our preliminary research with consumer advocates indicated they, at least, are willing to place a higher degree of trust in the AER's choices. However, some tension is apparent, with ongoing concern that the regulatory framework is biased in favour of investment over minimising prices.	2-3,14
	Consumers interviewed concluded that the EICSI approach was "closer to being more equitable", although this was subject to whether all the debt information that would be relevant to an efficient debt portfolio, such as bank lines of credit and debt tenor, are properly included in the index.	13
	Use of an index does not allow consumers (or networks) to predict the total impact on allowed revenue. However, neither does the current method. Any method largely based on historical outcomes should be partly predictable, and the longer the time series, the less year-to-year change.	18
	We are strongly opposed to adopting changes in response to short-term issues at the cost of longer-term predictability and stability of the framework for investors and consumers. Asymmetry of resources means that such changes will tend to be driven by network concerns rather than consumer concerns.	19
	EICSI Development: 1. This could include considering other types of debt that may be lower cost, debt dominated in foreign currency where the all-in	15

	cost including hedging currency risk is lower than domestic debt and other financing techniques such as credit-wrapping.	
Using EICSI to set Benchmark Debt	Use of the EICSI, including in conjunction with the existing 10-year trailing average approach, brings an additional layer of complexity to the approach to estimating the cost of debt for a benchmark efficient entity. Asymmetry of information and resources mean that complexity in a regulatory framework inherently favours networks, especially if it allows them to prosecute frequent changes to the methodology.	3
	Consumer advocates concluded that an "index" based on observations of network industry participants' actual debt costs would, in principle, be preferable to the AER's current approach of using market wide yield data	13
	The EICSI as presented on p11 of the working paper suggests that networks have collectively outperformed the current method for estimating their cost of debt. Prima facie, this means that partially or in whole factoring the EICSI into future cost of debt allowances would potentially have a positive impact on prices for consumers.	16
Other	The AER needs to listen to consumers and their advocates and clearly demonstrate in its decision making how it considered consumers' perspectives. This is particularly important given the asymmetry of information and resources between consumers and the networks.	10
Endeavour Energy		
EICSI	We consider the industry debt data supports the ongoing use of the current benchmark strategy and cost estimation approach. Networks generally issue debt in line with the AER's current assumption and where they do so the cost of debt is broadly in line with the AER's current estimates.	1
	Due to the commercially sensitive and confidential nature of the data, the data cannot be readily shared or reviewed. This would make it difficult for networks and other stakeholders to review a critical input into AER decision making. The data would also be difficult to update annually, particularly if discretion and judgment needs to be applied in deriving the EICSI which would form part of a binding rate of return instrument.	1
	The EICSI over-weights short-term instruments (which are refinanced more often) and should be corrected by weighting debt instruments by tenor.	1
	The accuracy of the EICSI would also be improved by weighting instruments by value and properly accounting for the higher bppa cost of fees on short-term debt.	1
	It is also worth noting that a number of network businesses were privatised in recent years. These transactions temporarily relied on short term bank debt which we expect will be gradually refinanced in to longer	2

	term facilities, which may skew the results both within and between the averaging periods examined in the report.	
Using the EICSI to set Benchmark Debt	Our primary concern is the potential use of network debt data to set the overall return on debt or component parts within the calculation. In line with the ENA's commentary, we do not consider industry debt data can be used to set debt compensation for a number of reasons.	1
	Setting debt costs based on actual practices would shift the risk of networks debt management strategies to customers. A benchmark approach better balances risk and cost and should be maintained.	2
	If the AER were to benchmark the cost of debt without considering equity, networks would have a perverse incentive to raise their debt risk premiums.	2
Credit Rating	Whilst the historical data is consistent with the benchmark credit rating we do not consider the analysis can be used to assess the impacts of the 2018 Instrument. This is because the industry debt data covers up to midway through 2019 and does not meaningfully cover the effects of the 2018 Instrument and the network determinations it has (or will be) applied to. It is important that the benchmark credit rating is consistent with the cash flows delivered by the prevailing instrument.	2
Other	We note due to the interaction of the AER's approaches to regulatory inflation and cost of debt, that networks have been consistently undercompensated for the actual (efficient) costs.	1
Energy Consumers Australia (ECA)		
EICSI	There is no doubt that the Energy Infrastructure Credit Spread Index (EICSI) is providing valuable insights into the actual cost of debt facing the regulated businesses, nor is there any doubt that it should continue to be developed by the AER.	4
Using EICSI to set Benchmark Debt	The ultimate question is how the treasury function of a regulated business manages the business's capital structure. The evidence from the EICSI seems to be that stability of the spread of cost of debt and the risk-free rate is either a goal of treasurers or is a natural consequence of that goal. This provides a potential answer to the first question of how to use the EICSI. If the objective of treasurers either is, or at least results in, a stable spread then it is logical for the regulatory process to adopt that spread as the means of determining the return on debt. The danger with this approach is that treasurers knowing the link between the EICSI and allowed rates might change their behaviour from promoting stability to promoting volatility as a device to periodically procure higher allowed returns. Therefore, if the EICSI is used to set the return on debt it should be used to select a single number for the spread which will be applied for an extended period. If the AER considers the use of a single pre-determined spread for the determination of the return on debt the same approach should be considered for the return on equity.	4

Other	Our research on consumer preferences and expectations through the Energy Consumer Sentiment Survey (ECSS) and the Consumer Expectations Research2 reveals that consumers' highest priority remains affordability and the area of least satisfaction is current value for money. At the same time consumers expectation is that in the future energy services are simple and easy to manage.	1
Energy Networks Australia (ENA)		
EICSI	This submission documents a number of deficiencies with the current construction of the EICSI, including for example: 1. The index gives ten times as much weight to one-year debt as it gives to ten-year debt; 2. The index gives the same weight to a $1 million bank loan as to a $500 million bond issuance; and 3. The index includes only a subset of the costs in relation to bank loans.	5
	Due to the confidential nature of the debt data, it is impossible for the construction of the EICSI to be transparent to stakeholders. Consumers and networks can never know which debt instruments are included in the index nor the weight each instrument might receive. This is a material problem that can never be remedied.	5
	ENA does not and, due to confidentiality restrictions, cannot fully understand the AER's construction of the EICSI. This is a critical threshold point of failure in relation to its proposed use to directly estimate costs	25
	ENA has been informed by CEG that the AER has excluded many debt instruments from the EICSI construction. However, CEG cannot advise the ENA specifically which instruments, and their associated risk premiums, have been excluded. Neither do customer groups know which instruments have been excluded or why they have been excluded or the effect that their exclusion has on any outputs.	25
	The current EICSI both over-weights and fails to capture the full costs of short-term debt. The current EICSI also over weights networks that have short-term debt strategies (because those debts are, by definition, refinanced more often and show up in the EICSI more often).	26
	The current EICSI is biased as a measure of NSP costs because it is a simple average of all instruments issued in any 12-month period. As a result, the EICSI gives most weight to instruments that are refinanced most often. Short-term instruments are, by definition, refinanced more often than long-term instruments. Consequently, the EICSI gives more weight to short-term debts – even if short-term instruments are less important in funding the RAB.	26
	The current EICSI not only over-weights short term bank debt but also under-estimates the costs of short-term debt. This is because up-front fees for short-term debt can translate into extremely high effective costs in	29-30

	terms of basis points per annum (bppa) on that debt. Similarly, undrawn fees on bank debt can be an important part of total fees.	
	The current EICSI gives the same weight to a $1bn and $10m instrument. This tends to over-weight small value debt issuance relative to the true value in funding the total assets of the industry.	30
	ENA submits that the EICSI data can, and should, be used in the manner envisaged in the 2018 review process – where the AER concluded that it should use that data to check whether its assessment of the benchmark efficient financing strategy remained appropriate	10
	Moreover, there are a number of other challenges, not listed above. It would be useful for all stakeholders to understand how the AER would anticipate dealing with them as well.	32-36
Using EICSI to set Benchmark Debt	ENA considers that it would be inappropriate to use the industry data to directly set the regulatory allowance for the return on debt.	15
	The industry data confirms that the AER's current approach for determining the benchmark efficient cost of debt remains fit for purpose.	3
	Even if the EICSI deficiencies are resolved, the implementation issues are too severe for the EICSI to be given a weighting in determining the cost of debt.	3
	Under an approach of applying the EICSI in setting debt allowances, any deviation by a network from the benchmark efficient financing approach does impact the regulatory allowance. In particular, if networks (on average) adopt a more aggressive financing strategy, that more aggressive strategy will then be reflected in the regulatory allowance. Consumers would then pay the cost of that more aggressive strategy and bear the risk associated with it – even if that strategy differs materially from what the AER currently considers to be prudent and efficient.	8
	A regulatory allowance based on the EICSI approach would be impossible to replicate because the index can only be computed in arrears.	5
	If the AER applies benchmarking techniques to the cost of debt alone (ignoring the consequential effects on equity and the WACC) then the AER could unintentionally create strong individual incentives for networks to pursue debt funding strategies that raise their debt risk premiums (credit spreads). Consistent with the Modigliani Miller theorem this will leave their individual WACC unchanged but the regulatory regime will, via impact on the EICSI, reward them with higher compensation for the cost of debt. With all networks having this individual incentive the impact on measured costs will likely be significant.	19
	Debt costs cannot be separately analysed/benchmarked from equity costs and equity costs are unobservable. In light of this, ENA considers that the proposed direct use of industry debt data to set regulated compensation for debt costs is fundamentally flawed.	19

Credit Rating	ENA does not consider that using the EICSI is an appropriate way in which to assess the benchmark credit rating. Rather, the benchmark credit rating in the 2022 Instrument should be congruent with the overall package of expected returns and/or cashflows provided by the 2022 Instrument and expected network determinations.	13
	The benchmark credit rating must be set on a forward-looking basis. This means that the 2022 Instrument should adopt a benchmark credit rating that is consistent with the credit metrics that application of the 2022 Instrument is expected to deliver. Forward-looking financeability analysis should underpin the benchmark credit rating.	14
Other	The interaction between the AER's approaches to regulatory inflation and cost of debt mean that the benchmark efficient cost of debt has not been delivered to networks over the last several years. When properly analysed, the industry debt data analysis shows that regulatory compensation to network businesses has been below actual (efficient) costs.	6
	Comparing EICSI to historical benchmark credit spread is potentially misleading.	37
Energy Queensland		
EICSI	We do not consider that the EICSI is presently fit for purpose. There are several process and measurement problems with the EICSI that mean it should not be relied on to set regulatory allowances.	1
Using the EICSI to set Benchmark Debt	We do not support the use of the EICSI either as a fourth data source alongside Bloomberg, Thomson Reuters and the Reserve Bank of Australia data or directly as the regulated return on debt.	1
	The use of actual network debt data to set regulatory allowances, would represent a fundamental shift in the estimation of the benchmark regulated cost of debt allowances. In Energy Queensland's view, the AER should only consider going down such a path if the EICSI is robust.	1
	Energy Queensland supports actual network data having a similar role to that in the 2018 Rate of Return Instrument. That is, data should be used only as a 'sense check' of reasonableness of the AER's benchmark approach.	1
Joint Submission – Australian Gas Infrastructure Group (AGIG), SA Power Networks (SAPN), United Energy and Victoria Power Networks (VPN)		
EICSI	The ENA submission sets out several material deficiencies with the current construction of the EICSI, including for example: 1. the index gives ten times as much weight to one-year debt as it gives to ten-year debt; 2. the index gives the same weight to a $1m bank loan as to a $500m bond issuance; and	1

	3. the index includes only a subset of the costs in relation to bank loans. These issues were raised with the AER in the 2018 review but have not yet been addressed. The ENA submission also identifies a number of additional issues, some of which appear to have no clear or simple solutions. These issues require full and transparent consideration to enable stakeholders to have confidence in the EICSI.	
Using the EICSI to set Benchmark Debt	A regulatory allowance based on the EICSI approach would be impossible to replicate as the index can only be computed in arrears. Our view is that it is not appropriate for the AER to set a benchmark efficient regulatory allowance based on an approach that is not possible for any network to implement.	2
	If the regulatory allowance is based on the industry data, any deviation by a network from the benchmark efficient financing approach does impact the regulatory allowance. This creates unnecessary strategic interdependence between networks in respect of debt strategies and consumers pay any costs associated with this, even if those strategies differ materially from what is prudent and efficient.	2
	It would be inappropriate to apply any weight to the EICSI when setting the allowed return on debt, given the various issues which exist with it, some of which appear to be more substantive than can be remedied by fine-tuning the indices.	3
Other	The interaction between the AER's approaches to regulatory inflation and cost of debt mean that the AER's estimate of the benchmark efficient cost of debt has not been delivered to networks over the last several years.	3
Major Energy Users (MEU)		
EICSI	The MEU recognises that the acquisition of the data to develop the EICSI will require some additional controls to be imposed on networks, but we consider that the costs of this are far outweighed by the benefits that consumers will get from lower costs for providing the network services.	5
	Refinements of the EICSI need to be balanced against the increase in complexity.	5
Using the EICSI to set Benchmark Debt	The MEU observes that, as the EICSI is an ex post assessment, it does present some challenges in directly using the information to set the debt benchmark for the next 12 month period but equally, it does identify that the current AER approach is not delivering an accurate assessment of the likely cost for debt ex ante.	4
	The MEU considers that the EICSI could be used to provide the benchmark cost of debt and agrees with the benefits observed by the AER through using the approach. Errors introduced by using an ex ante EICSI basis as a forecast could be removed with an ex post adjustment.	5

	This approach has some appeal as the AER could directly use the EICSI as the debt cost benchmark as it reflects the average actual cost of debt across all networks. Its use would still provide an incentive to the networks to "beat" the debt cost benchmark but would more closely reflect the actual cost of debt thereby minimising the premium the current AER approach to debt imposes on consumers.	4
	The AER could continue with its current approach but this does not resolve the fact that networks have actual debt costs lower than this benchmark. The bring the two closer together would require the AER to refine the tenor of the debt to be more typical of actual performance and adjusting the credit rating to deliver an outcome closer to the actual costs of debt.	4
Credit Rating	The AER uses a credit rating process that assumes all acquirers of debt on the same credit rating will pay the same cost – and assumption that is not true.	2
Term	The AER assumes that the tenor of debt acquired is 10 years even though network data provides a view that the average tenor of acquired by the networks is shorter than 10 years.	3
Other	The MEU points out that already the networks have benefitted from a reduction in risk by moving to a rolling annual reset of debt costs (the trailing average approach) and that moving to an EICSI based approach (more closely reflects the actual costs of debt) is a move which reduces consumer risk.	5
	The regulatory bargain between consumers and network service providers is based on allocating risk to the party best able to manage the risk. In the case of accessing debt, it has been accepted that networks are best placed to manage this risk and minimise the cost	2
	Networks have, on average, received a higher rate of return than the rate of return the regulator set at the commencement of each regulatory period	2
	Networks are continuing to invest in their network assets and proposing significant future investments and large augmentations, implying the returns they get are not only high enough to continue operations but to continue to invest to ensure that network performance will exhibit continuous improvement.	2
Public Interest Advocacy Centre (PIAC)		
EICSI	PIAC notes the potential implementation challenges the AER has noted.2 We consider these challenges are not insurmountable and can be addressed without negating the net consumer benefits of using EICSI more directly to calculate return on debt.	1
Using the EICSI to set	On this basis, PIAC supports the AER placing greater reliance on the Energy Infrastructure Credit Spread Index (EICSI). In particular, we	1

Benchmark Debt	support the proposal to use the EICSI in the direct calculation of the regulated return on debt.	
	PIAC agrees with the advantages listed in the consultation paper – that it would more accurately reflect the cost of debt for regulated networks, streamline the current process and retain the general benchmark approach to regulation	1
Spark Infrastructure		
Using the EICSI to set Benchmark Debt	We do not support a change to the approach to estimating the efficient cost of debt. Introducing a new approach to estimating the efficient cost of debt with no identifiable benefits when many businesses remain part way through transitioning from one historical approach to another historical approach results in instability and unpredictability that does no more than introduce risk and cost.	2
	Different NSPs will, for a range of reasons, pursue different debt management strategies to seek to outperform the benchmark. This should not be cause for concern or prompt a change because customers continue to benefit from competition in the market for debt and do not bear the cost of strategies that are not successful in outperforming the benchmark.	2-3
	If an average (EICSI) is applied as a benchmark, there will always be some NSPs that are unable to recover costs because they are higher than the average even when those costs are consistent with efficient benchmarks.	3
	The EICSI is backward looking - backward-looking data shows what historical costs may have been in those historical market conditions and reveals no information at all about efficient costs in prevailing or future market conditions for which costs are being estimated.	3
	We maintain that it is in the best interests of consumers to continue an incentive-based approach to regulation that provides NSPs with compensation for benchmark efficient costs.	3
Other	To ensure the revenue models calculate compensation that reflects the estimated efficient cost of debt, the AER should: 1. Ensure that the treatment of inflation in the revenue models (the post-tax revenue model (PTRM) and the roll-forward model (RFM)) is congruent with the method for estimating the efficient cost of debt. 2. Undertake a financeability assessment to ensure that the credit rating (currently BBB+) assumed in estimating the efficient cost of debt can, ex-ante, be expected to be achieved and maintained by an efficient NSP adopting the benchmark assumptions without support.	1
TransGrid		

EICSI	Shortcomings of the EICSI– the ENA submission identifies shortcomings with the current construction of the EICSI, such as that the index: 1. weights one-year debt ten times more than ten-year debt 2. equally weights a $1 million bank loan and a $500 million bond issuance, and 3. includes only a subset of the costs in relation to bank loans.	1
Using the EICSI to set Benchmark Debt	The EICSI approach can only be calculated in arrears. We encourage the AER to reconsider how a benchmark efficient regulatory allowance can be set on this basis.	1
	If the regulatory allowance is based on industry data, then any deviation by a network from the benchmark efficient financing approach impacts the regulatory allowance. This distorts incentives, which will either increase cost or risk (or both) ultimately borne by consumers.	1
	It would not be appropriate to apply any weight to the EICSI when setting the allowed return on debt until the substantive issues identified with it have been addressed.	2
Other	Industry debt data shows that regulatory compensation to network businesses has been below the actual cost of debt incurred by a network business following the AER's benchmark efficient debt management approach.	1

Appendix A - How might our preferred option be implemented?

We are proposing to rely more directly on the actual debt costs of the Network Service Providers we regulate when we set the return on debt allowance.

Our preferred option for doing this is to use the EICSI to estimate the blend of A and BBB debt data that most closely matches the actual debt costs incurred by the NSPs. We will then apply that blend to the debt yields we observe for the period covered by the 2022 Instrument.

This approach uses the benchmark yield curves provided by independent data providers (i.e. estimated interest costs for 10 year A-rated and BBB-rated debt) as anchor points for our regulated return on debt. It allows revealed data on networks' actual interest costs to determine how these benchmarks should be combined. In this way, we allow the efficient debt practices of firms (that is, active debt management practices such as variation in the term of issuance across time) to be reflected in the regulated return on debt. We will no longer need to specify a credit rating within this investment-grade band of debt.

However, there are a number of implementation decisions required to achieve this policy intent. While we have not settled any of these matters, this attachment sets out some initial proposals on how implementation might occur. Table 1 summarises our current ideas on implementation. We will consult on these issues as part of the main phase of the review.

Table 6 Summary of key implementation proposals

Implementation issue	Initial proposal
Application period	Specify blend in the 2022 Instrument; apply unchanged blend for life of instrument
Observation window	Four years of EICSI data from 1 July 2018 to 30 June 2022
Data collection	Collect data annually using formal information gathering powers.
Calculation method	Determine x for the observation window such that $x \times (average\ yield\ on\ A\ rated\ debt\ benchmark)$ $+ (1 - x) \times (average\ yield\ on\ BBB\ rated\ debt\ benchmark)$ $= average\ yield\ on\ EICSI$ Then apply the weights x and $(1 - x)$ to A-rated and BBB-rated benchmarks to set the regulated return on debt.

In the sections below we explain some key reasoning around these implementation proposals and provide an illustrative example.

Application period and update frequency

One key implementation decision is when the blend will be set, and how long will it apply for (or alternatively, how often will we will update the blend calculation).

We propose that the blend will be decided at the time of the 2022 Instrument and set for the life of the instrument (i.e. we do not propose to change the blend during the life of the instrument).

Key reasoning around the application period:

1. We are applying judgement when developing the EICSI blend. This is best placed as part of the review of the Instrument where we can consider the issues carefully, consider any interactions and consult with stakeholders.
2. Updating the blend calculation during the life of the instrument (for instance, annually updating the blend) would mean we had to specify an automatic mechanism. This might lead to adverse outcomes.
3. For example, no matter how well specified the inclusion/exclusion criteria for debt instruments, there is the potential for new instruments to be issued that sit on the margin or that have novel characteristics not previously contemplated.
4. Updating the blend during the period (for instance, an annual update) would introduce discrete step changes into our regulated return on debt series. This might lead to incentive problems around networks' debt issuance being timed to either enter or exit a relevant data window.
5. Continuous updating of the blend calculation would also be problematic from a practical perspective, as it would require ongoing data collection from all networks within short timeframes.

Observation window

One key implementation decision is which EICSI data will be used to calculate the weighting.

We propose to use an observation window of 1 July 2018 to 30 June 2022. This window is specified with regard to the EICSI output, not the underlying debt issuance dates—as the EICSI is calculated using a rolling 12 month window, the EICSI output for July 2018 includes data back to August 2017.

Key reasoning around the observation window:

1. The longer the window the larger the data sample, which is statistically beneficial in terms of the accuracy of the estimate. It also prevents any undue importance being placed on a brief period of data. There are two aspects to this latter point:
2. Temporary changes in market conditions will not overly affect the final blend calculation.
3. It avoids any incentive for networks to change their debt issuance characteristics during a brief data window in order to influence the blend calculation.
4. The data window should end as close as possible to the start date of the next instrument, because this allows consideration of the most recent data and financial market conditions. There needs to be lead time to allow networks to prepare their

data responses and submit to the AER, and for the AER to process the data, conduct any clarification meetings, and publish the outcome as part of its rate of return review.

5. The proposal also aligns the data window with the end of the financial year, which is a convenient reporting basis.
6. A four year data window also aligns with the four-yearly cycle of rate of return instrument. If this approach was maintained in subsequent instruments, the end of one data window would align with the start of the next. This means all debt issuance would enter equally into the EICSI blend calculation (no 'gap' between debt periods and no debt counted twice).[73]
7. We might also consider closing the observation window at December 2021, as this would provide more time to test and assure the data and to provide an initial estimate in our draft 2022 Instrument.[74] This possibility would have the benefit that there was no change in the return on debt data between the draft and final 2022 Instrument.

Data collection

There are also key implementation decisions around the process for collecting EICSI data.

We propose to collect debt data commencing in August each year for the preceding financial year (July to June), using the AER's formal information gathering powers. We also propose that blend used in the **draft** 2022 Instrument will be based on the observation window from 1 July 2018 to 31 December 2021.

Key reasoning for this data collection process:

1. Each year (in late November) we will publish our annual rate of return data update with the updated EICSI, so that all stakeholders are kept informed about actual debt costs.
2. The annual collection of debt data was raised in our draft working paper and there were no submitted stakeholder concerns.
3. The formal information gathering process will allow us to implement assurance requirements around the debt data that is submitted to us.
4. The draft 2022 Instrument will be released in mid-2022, before the August 2022 update of data. Basing the draft instrument on the observation window from 1 July 2018 to 31 December 2021 is a practical solution that will allow us to make a reasonable placeholder estimate of the blend in the final Instrument

Method of calculation

[73] Note that debt issued in the last year of the observation window will be included in this EICSI observation window for proportionately less time. However, it is then included in the following EICSI observation window (for the following instrument) so that it receives equal weighting in aggregate. For example, debt issued in May 2021 will be in this EICSI observation window for the full twelve months; debt issued in May 2022 will be in this EICSI observation window for only two months (May and June 2022). However, the May 2022 debt will then enter the following EICSI observation window for ten months (July 2022 to April 2022) to make twelve months in total across the 2022 and 2026 instruments.

[74] If this was the case, we would propose to start the observation period for the following instrument on 1 January 2022 (and running until 31 December 2025) so that there is no gap.

The final key implementation decision is the mathematical calculation of the blend.

We propose to calculate the blend of A-rated and BBB-rated debt as follows:

1. Calculate the average yield of the EICSI over the observation window. This is a simple average across time (i.e. the last year is weighted the same as the first year).
2. Calculate the average yield across the observation window for benchmark A-rated ten year debt from a simple average of the daily yields estimated from the chosen data service providers.
3. Calculate the average yield across the observation window for benchmark BBB-rated ten year debt from a simple average of the daily yields estimated from the chosen data service providers.
4. Calculate the blend of A-rated and BBB-rated yields that corresponds to the yield of the EICSI over the observation window. The blend will be expressed as percentage for the A-rated debt and percentage for the BBB-rated debt, and these percentages will sum to one.

If the EICSI is outside the bounds of A and BBB data we propose that we will use the benchmark A-rated curve or BBB-rated curve as an upper or lower bound. We do not consider that the average cost of network debt should be outside of the bounds of A and BBB debt costs. BBB would be one bound as this is key to maintaining investment grade debt. Similarly, A rating is an appropriate bound based on our long-term observation of regulated entities..

The data providers specified in the 2018 instrument were Bloomberg, Thomson Reuters and the RBA. As part of the development of the 2022 Instrument we will consider whether to maintain the same set of data providers or to make changes (add or remove a data provider). This assessment is not related to the blend calculation directly; we will use the same set of data providers for the blend calculation as is chosen for use in the 2022 Instrument.

The 2018 instrument specifies many details and contingencies around the estimation of daily yields for the benchmark A-rated and BBB-rated yield curves. The 2022 review will consider if any changes are to be made to these aspects. We will use the same set of methods to determine the daily yields in the blend calculation as is chosen for use in the 2022 Instrument.

. In brief:

1. The regulated return on debt will reflect observed actual debt outcomes, such that revealed costs inform the estimate of expected costs under the incentive benchmark framework. In particular, where there has been a historic difference between debt costs and the
2. It aims to set the regulated return on debt in line with the efficient return on debt, neither too high nor too low.
3. It avoids the problems of several of the more direct uses (such as practical issues around observing the EICSI in a nominated averaging period and some potentially adverse incentive effects).

Formula

The mathematical specification of the process described above is as follows[75]:

$$RoD_{AER} = xAvY(A) + (1-x)AvY(BBB)$$

$$choosing\ x\ such\ that$$
$$xAvY_{Ow}(A) + (1-x)AvY_{Ow}(BBB) = AvY_{Ow}(EICSI)$$
$$0 \leq x \leq 1$$

$$where:$$

$$RoD_{AER} = the\ AER's\ estimated\ return\ on\ debt\ for\ the\ upcoming\ instrument$$
$$AvY(A) = average\ yield\ of\ A\ rated\ debt\ from\ our\ nominated\ providers$$
$$AvY(BBB) = average\ yield\ of\ BBB\ rated\ debt\ from\ our\ nominated\ providers$$
$$AvY(EICSI) = average\ yield\ of\ EICSI$$
$$AvY_{Ow}(series) = the\ historial\ yield\ of the\ series\ during\ the\ observation\ window$$

$$and\ subject\ to\ the\ following:$$

$$if\ \min(AvY_{Ow}(A), AvY_{Ow}(BBB)) \geq AvY_{Ow}(EICSI)\ then$$
$$RoD_{AER} = \min(AvY_{Ow}(A), AvY_{Ow}(BBB))$$

$$if\ \max(AvY_{Ow}(A), AvY_{Ow}(BBB)) \leq AvY_{Ow}(EICSI)\ then$$
$$RoD_{AER} = \max(AvY_{Ow}(A), AvY_{Ow}(BBB))$$

Worked examples

Below we present two examples of how the proposed method would work using generated data.

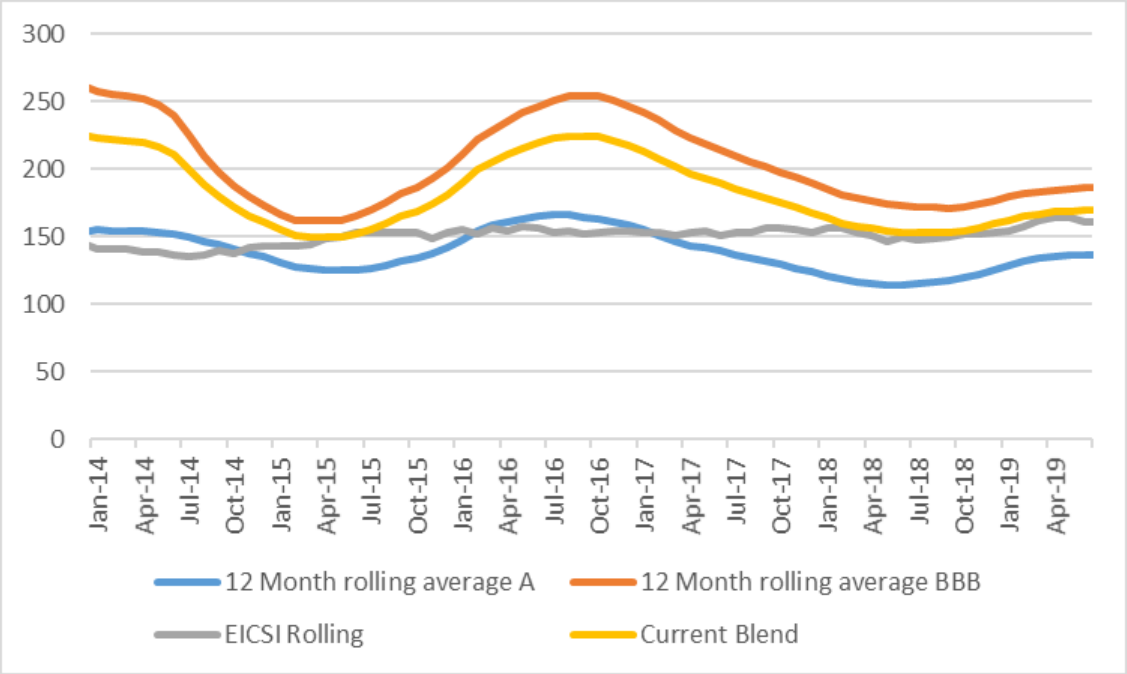
Example 1

The first stage of the example is shown in Figure 4. This shows the variation in the benchmark 10 year curve we have obtained from our data providers; both A-rated (blue line) and BBB-rated (red line). The average for the initial benchmark using our 2018 approach (yellow line – a 'blend' of 33% A-rated, 67% BBB-rated) is above that of the EICSI average (grey line).

The average for the current blend over the observation window is 182 basis points and the average for the dummy EICSI is 150 basis points. Hence, in this simplified example, there has on average been a gap of 32 basis points between the regulated return on debt and actual debt interest costs.

Figure 4 Graph showing an EICSI proxy alongside an approximation of our current cost of debt blend

75 We are currently examining whether it would be more appropriate to average the yield on a monthly basis or over the whole observation window.



Using the formula in section 1.2 we can rearrange so that

$$xAvY_{Ow}(A) + (1 - x)AvY_{Ow}(BBB) = AvY_{Ow}(EICSI)$$

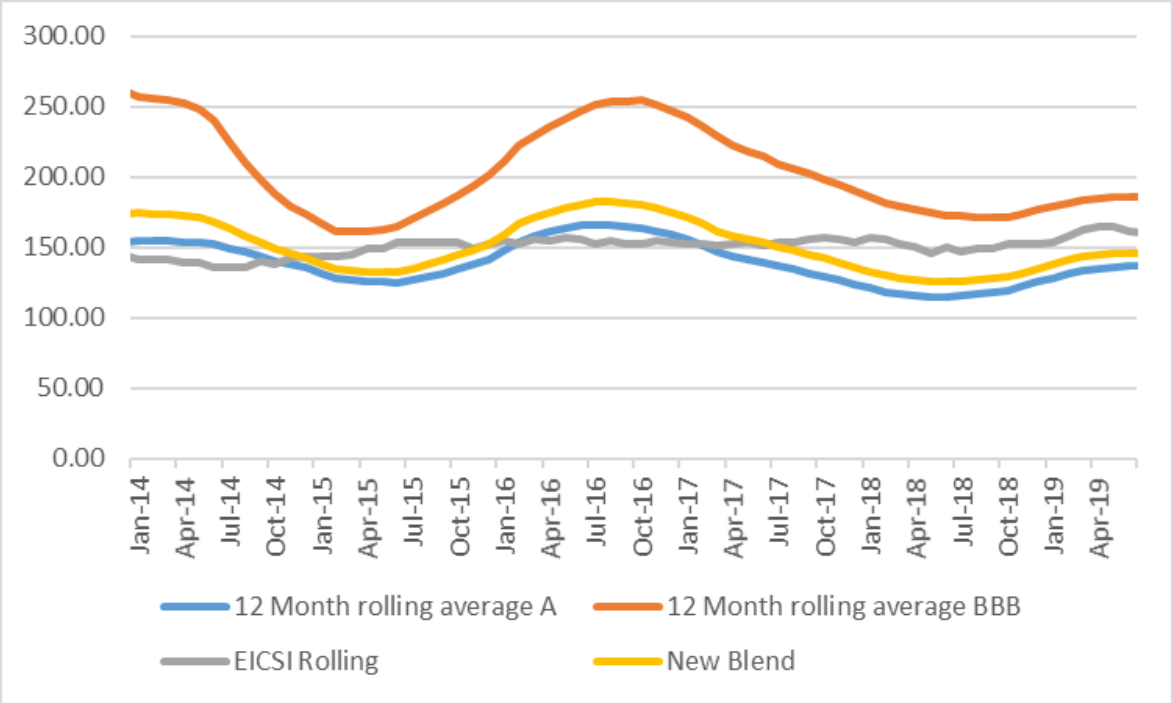
Can be shown as

$$x = \frac{AvY_{Ow}(EICSI) - AvY_{Ow}(BBB)}{AvY_{Ow}(A) - AvY_{Ow}(BBB)}$$

Which gives us the value that x=0.813345

This means that under our proposed implementation, we would give 81.3% weight to the A-rated debt benchmark and 18.7% weight to the BBB-rated benchmark. The average of this blend over the observation window matches that of the index. Figure 5 shows the adjusted blend.

Figure 5 Dummy EICSI alongside adjusted debt blend

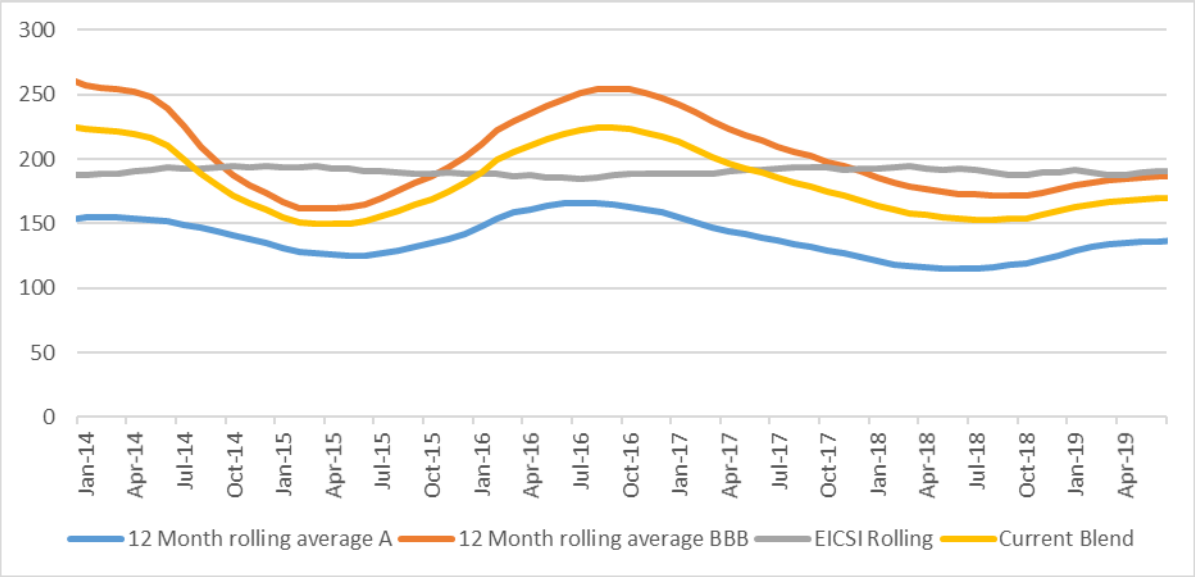


The blue, red and grey lines in this figure are unchanged from Figure 4. The yellow line reflecting the new weighting has lowered so that it more closely aligns with the EICSI (grey line). Although the new blend and the EICSI are not always equal, the change in the weighting (to 81.3% A-rated and 18.7% BBB-rated) results in the same average over the observation window.

Example 2

The first stage of the example is shown in Figure 46. This shows the same external information as Figure 4. The average for the initial benchmark using our 2018 approach (yellow line – a 'blend' of 33% A-rated, 67% BBB-rated) is above that of the EICSI average (grey line).

Figure 6 Graph showing an EICSI proxy alongside an approximation of our current cost of debt blend



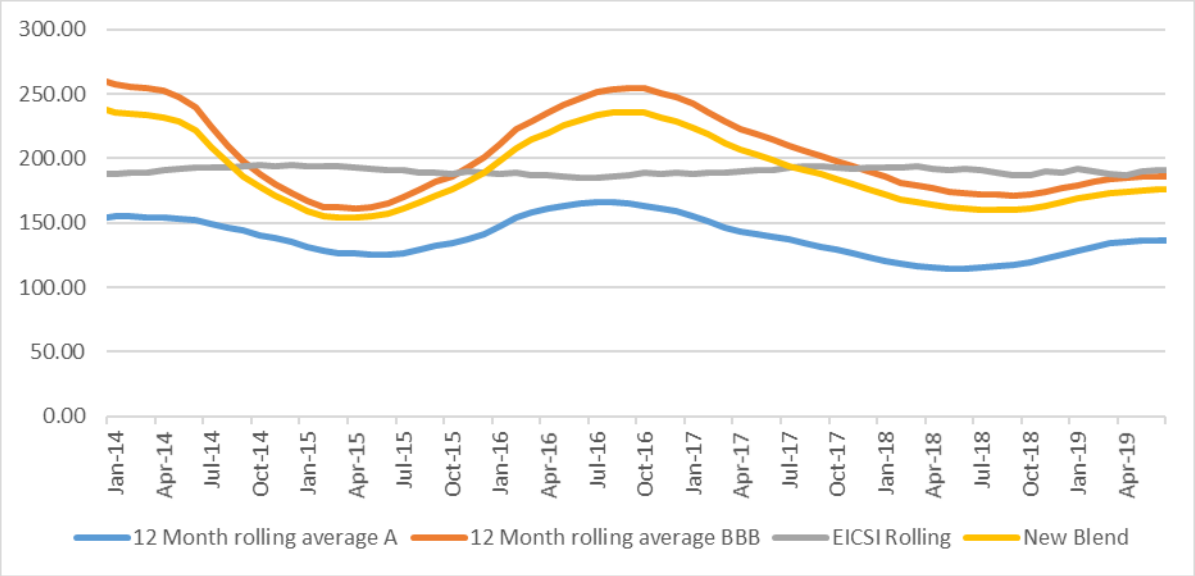
Using the same formula as above:

$$x = \frac{AvY_{Ow}(EICSI) - AvY_{Ow}(BBB)}{AvY_{Ow}(A) - AvY_{Ow}(BBB)}$$

We get the value of x=0.208

This means that under our proposed implementation, we would give 20.8% weight to the A-rated debt benchmark and 79.2% weight to the BBB-rated benchmark. The average of this blend over the observation window matches that of the index. Figure 7 shows the adjusted blend.

Figure 7



The blue, red and grey lines in this figure are unchanged from Figure 46. The yellow line reflecting the new weighting has lowered so that it more closely aligns with the EICSI (grey line). Although the new blend and the EICSI are not always equal, the change in the weighting (to 20.8% A-rated and 79.2% BBB-rated) results in the same average over the observation window.