Submission to the 2026 Rate of Return Instrument review Discussion Paper

QUEENSLAND TREASURY CORPORATION

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Summary

- Queensland Treasury Corporation (QTC) welcomes the opportunity to provide comments to the Australian Energy Regulator's (AER) 2026 Rate of Return Instrument (RoRI) review Discussion Paper.

Recommendations for the allowed cost of debt

- QTC supports introducing a weighted trailing average (WTA) cost of debt approach for all service providers to strengthen incentives for efficient investment in network infrastructure.
- Weights based on annual increases in opening post-tax revenue model (PTRM) debt should be applied in a way that initially compensates each increase at the prevailing 10-year BBB+ yield with the compensation moving to a 10-year simple trailing average (STA) over the next ten years. This is consistent with the 10-year benchmark debt tenor and transition approach in the 2022 RoRI.
- The Excel workbook that forms part of this submission includes an example of how QTC's proposed WTA is calculated. The main benefits of QTC's WTA are as follows:
  - The underlying calculations are transparent and based on simple arithmetic.
  - The same 10-year yields that are used in the AER's current STA are used in QTC's WTA. The only difference is how the yields are used to initially compensate increases in debt.
  - The calculations are based on data already used in the AER's revenue determinations, such as annual PTRM and roll forward model (RFM) debt balances. There is no requirement for additional data.
  - The same transition that the AER has already applied to service providers when moving from the on-the-day approach to the STA approach is applied to each increase in debt.
- Differences between forecast (ie, PTRM) and actual (ie, RFM) debt can be accounted for by:
  - resetting the ten yields in the WTA in year one of the next 5-year regulatory period to equal the yields based on opening RFM debt weights in the previous 5-year regulatory period, and
  - calculating a revenue adjustment based on the difference between the annual cost of debt allowances using the PTRM and RFM WTAs in the previous 5-year regulatory period.
- A materiality threshold should not apply as the complexity and administrative burden of applying QTC's WTA to all service providers in all years is low. Furthermore, there is no objective way to determine the appropriate size of the threshold, and a threshold may create opportunities for gaming by service providers.
- The AER has always used a 10-year tenor to estimate benchmark debt costs. The proposed use of 1–10 year transition yields in the AER's WTA is inconsistent with a 10-year tenor and will under-estimate the efficiently incurred benchmark cost of debt. Therefore, it should not be a feature of the WTA approach in the 2026 RoRI.
- Linear extrapolation using the RBA's 7-year and 10-year corporate yields and effective tenors is a simpler and more accurate way to estimate the 10-year BBB+ yield than the AER's extrapolation using swap risk premiums (SRP).

Weighted trailing average cost of debt

- Under the AER's current STA approach new borrowings above the 10 per cent annual refinancing are immediately compensated at historical 10-year yields. As it is not possible for a new borrowing to be made today at yields that prevailed in the past, a STA may not provide correct compensation for the efficiently incurred cost of debt, which can weaken incentives for efficient investment.
- A properly designed WTA based on a single 10-year benchmark debt tenor will produce an allowed cost of debt that better reflects the efficiently incurred benchmark cost of debt. As a consequence:
  - the potential for windfall gains and losses (ie, wealth transfers between consumers and service providers) will be significantly reduced, and
  - incentives for efficient investment will be strengthened as increases in debt will be initially compensated at a yield that aligns with the yield that a service provider will incur when raising debt in the market.
- The attached Excel workbook includes an example of how QTC's WTA is calculated. When debt is increasing QTC's approach produces an allowed cost of debt that is the same as:
  - continuing to apply a STA to the opening PTRM debt balance in year one of the first 5-year regulatory period under the WTA approach
  - separately applying the prevailing 10-year yield and the AER's current transition to a 10-year STA to each annual increase in debt, and then
  - summing the individual cost of debt allowances and dividing by total opening debt.
- QTC's WTA uses the same 10-year yields that are used in the current STA. The only difference is *how* the yields are used to compensate increases in debt:
  - Under the current STA, 90 per cent of the initial compensation is at historical 10-year yields and 10 per cent is at the prevailing 10-year yield.
  - Under QTC's WTA, 100 per cent of the initial compensation is at the prevailing 10-year yield, with the compensation moving to a 10-year STA over the next ten years. This is consistent with the transition approach in the 2022 RoRI.

Estimating the 10-year BBB+ benchmark yield

- The AER is considering reintroducing the corporate yield estimates produced by the RBA into the process for estimating the benchmark 10-year BBB+ yield. As the effective tenors of the RBA's 10-year yields have been consistently shorter than ten years, extrapolation is required to estimate yields for an exact 10-year tenor.
- The AER has proposed linear extrapolation based on swap risk premiums (SRP). The SRPs would be calculated by deducting the 7-year and 10-year swap yield from the A and BBB yields for a target 7-year and 10-year tenor.
- As the slope of the swap yield curve is usually positive, deducting 7-year and 10-year swap yields from yields with shorter effective tenors creates a downward bias in the SRPs, and the bias has been larger for the 10-year SRPs. As a consequence, the AER's proposed approach will produce extrapolated 10-year yields that are biased downwards.
- The bias could be removed by using interpolated swap yields with tenors that match the effective tenors of the RBA's 7-year and 10-year yields. An alternative and simpler approach that produces almost identical estimates is to extrapolate using the RBA's 7-year and 10-year yields and effective tenors.

1. Determining the allowed cost of debt

1.1 Simple trailing average

1.1.1 Description

- In the 2013 Rate of Return Guideline (RoRG) the AER replaced the previous 'on-the-day' approach with a 10-year STA approach to determine the allowed cost of debt.
- The STA is a proxy for the cost produced by a hypothetical benchmark portfolio of ten fixed-rate bonds with annual maturities between 1–10 years. Each year the maturing bond, which funds 10 per cent of total debt, is refinanced with a 10-year bond issued at the prevailing 10-year yield.

1.1.2 AER transition to the STA

- The 2013 RoRG included an approach to transition the allowed cost of debt from an on-the-day 10-year yield to a 10-year STA of 10-year yields. The transition was retained in the 2022 RoRI:
  - In the first year under the trailing average approach, the ten yields in the STA equal the prevailing 10-year yield in the service provider's nominated averaging period.
  - In each subsequent year one of the initial 10-year yields drops out of the STA and is replaced with the prevailing 10-year yield in the service provider's next annual cost of debt averaging period.
  - After ten years the yields in the trailing average equal the historical 10-year yields in the previous nine years and the prevailing 10-year yield.

1.1.3 Incentivising over/under investment

- A STA will produce a good estimate of the efficiently incurred cost of debt when a service provider's debt is stable over time. However, when debt increases 90 percent of the initial compensation on the increase is at historical yields. This is problematic because a new borrowing cannot be made today at yields that prevailed in the past.
- Differences between the STA and prevailing cost of debt may incentivise a service provider to over/underinvest, especially when the difference is large. This is recognised in the Discussion Paper[1]:

> 'For example, large capital programs, such as those associated with the Integrated System Plan (ISP), can result in debt being raised in amounts and timings that differ materially from the 10% annual refinancing assumption. At the same time, current interest rates could differ materially from the simple trailing average.
>
> In such cases, the simple trailing average may not reflect an appropriate benchmark for the actual debt financing costs incurred by the regulated business. Where interest rates are materially above the return on debt from the simple trailing average, this could result in required essential projects being delayed or not proceeding. In the alternative, where interest rates are materially below the return on debt from the simple trailing average, it could incentivise inefficient over-investment on large projects.'

- In the Eligible Experts' report Professor David Johnstone stated[2]:

> 'The essential problem is simply that the NSPs borrow large sums, and potentially very large sums in the next few years, at market interest rates of the time and under contracts of different lengths, and then invest that cash in infrastructure at a rate of return on debt determined by the regulator. So how should a regulator set that rate?

[1] Rate of Return Instrument review Discussion Paper, p. 21.
[2] 2026 Rate of Return Instrument review Eligible Experts' joint report (Johnstone), paras. 339–340.

> To make the scheme work, there should surely be some matching between the rates at which the NSPs borrow and the interest rates they are allowed in return.'

- Associate Professor Partington explains the over/under investment problem more firmly[3]:

> 'It is blindingly obvious that an equally weighted trailing average provides an incentive for underinvestment when the trailing average is below the current cost of debt and an incentive for overinvestment when the trailing average is above the current cost of debt.'

- The importance of aligning allowed and efficiently incurred benchmark debt costs to strengthen incentives for efficient investment was noted by the Australian Energy Market Commission (AEMC) in 2012[4]:

> 'The impact on the incentives for efficient capex is also an important consideration. The incentives for efficient capex are stronger when the difference between the [allowed] return on debt and the debt servicing costs of the service provider is minimised.'

- In October 2013 QTC identified the bias towards over/underinvestment under a STA[5]:

> 'If an unweighted [simple] average is used, a service provider's investment decisions will be affected by the difference between the prevailing cost of debt and the trailing average return on debt. Due to the use of overlapping data, large differences between these rates will naturally occur on an annual basis … it is inappropriate to incorporate a bias towards under (over) investment when the prevailing cost of debt is above (below) the trailing average return on debt.'

- These observations make a strong case for changing the current STA approach to initially compensate increases in PTRM debt at the prevailing 10-year yield rather than historical 10-year yields.

1.1.4 Improving the simple trailing average

- In a December 2020 submission to the AEMC, the AER outlined how a trailing average can be applied in a way that initially compensates increases in debt at the prevailing cost of debt[6]:

> 'The [simple] trailing average implicitly assumes firms raise 10% of their debt capital each year on a rolling basis. However, where firms make large new investments this assumption does not hold. In this situation, and where interest rates have changed significantly over the period of the current trailing average, firms may be materially incorrectly compensated on these new investments.
>
> A resolution to this issue is to provide all new investments the spot rate on debt and then transition these new investments to a trailing average. This would be consistent with our approach when we introduced the trailing average in our regulatory determinations post 2013. For all decisions made since 2013 we have started (or continued) the transition of the return on debt from the 'on the day', or spot rate, to a 10 year trailing average over 10 years.'

- The resolution is to treat each increase as a stand-alone borrowing with its own allowed cost of debt. Each allowed cost of debt starts at the prevailing 10-year yield and moves to a STA of 10-year yields over the next ten years. This is consistent with the 10-year benchmark debt tenor and on-the-day transition in the 2022 RoRI.
- In a given year:
  - the cost of debt allowance equals the sum of the allowances for the individual borrowings, and

[3] Eligible Experts' joint report (Partington), para. 400.
[4] AEMC, *Final Rule Determination*, November 2012, p. 77.
[5] QTC, *Submission to the Draft Rate of Return Guideline*, 11 October 2013, p. 18.
[6] AER, *Consultation on TransGrid and ElectraNet participant derogations – Financeability of ISP projects*, December 2020, p. 17

- the allowed cost of debt equals the cost of debt allowance divided by total borrowings, which is the same as the weighted average allowed cost of debt based on the individual borrowings.

- The allowed cost of debt under this approach is the same as the allowed cost of debt under QTC's proposed WTA.

1.2 QTC weighted trailing average

1.2.1 Description

- QTC's WTA approach initially compensates each increase in opening debt at the prevailing 10-year BBB+ yield, with the compensation on each increase moving to a 10-year STA over the next ten years.
- This is achieved by producing ten weighted average 10-year yields prior to the start of each regulatory year. Each yield is a weighted average of the prevailing 10-year yield and the corresponding 10-year yield in the trailing average after the annual refinancing of 10 per cent of existing PTRM debt has been performed[7].
  - The weight (**W**) given to the prevailing 10-year yield equals the annual change in opening debt divided by opening debt for the current year.
  - The allowed cost of debt is the arithmetic average of the ten weighted average yields.

1.2.2 Example

- Table 1 shows an example of the weighted average yield calculations where opening debt increases by $250m from $1,000m to $1,250m (**W** = $250m ÷ $1,250m = 0.20) and the prevailing 10-year yield is 7.00 per cent.

TABLE 1: 10-YEAR BBB+ YIELDS UNDER QTC WEIGHTED TRAILING AVERAGE (W = 0.20)

Yield #	Yields after 10% refinance (%)	Weighted average yield calculations	Weighted average yields after 10% refinance and ↑ in debt (%)
1	4.45	4.45 x 0.80 + 7.00 x 0.20	4.96
2	4.50	4.50 x 0.80 + 7.00 x 0.20	5.00
3	3.30	3.30 x 0.80 + 7.00 x 0.20	4.04
4	2.70	2.70 x 0.80 + 7.00 x 0.20	3.56
5	2.85	2.85 x 0.80 + 7.00 x 0.20	3.68
6	6.50	6.50 x 0.80 + 7.00 x 0.20	6.60
7	6.30	6.30 x 0.80 + 7.00 x 0.20	6.44
8	5.75	5.75 x 0.80 + 7.00 x 0.20	6.00
9	6.00	6.00 x 0.80 + 7.00 x 0.20	6.20
10 (prevailing)	7.00	7.00 x 0.80 + 7.00 x 0.20	7.00
Allowed cost of debt			**5.35**

- Table 2 shows the weighted average yield calculations prior to the start of the following regulatory year assuming opening debt increases by $550m from $1,250m to $1,800m and the prevailing 10-year yield is 6.50 per cent. Yield 1 from the previous year (4.96 per cent) falls out of the trailing average and the 6.50 per cent prevailing yield is added. The weighted average calculations are repeated using **W**=0.3056 ($550m ÷ $1,800m).

[7] The corresponding yields for the first nine yields are historical 10-year yields. As the calculations are done after the annual refinancing of 10 per cent of existing debt, the corresponding yield for the tenth yield is the prevailing 10-year yield.

TABLE 2: 10-YEAR BBB+ YIELDS UNDER QTC WEIGHTED TRAILING AVERAGE (W = 0.3056) – FOLLOWING YEAR

Yield #	Yields after 10% refinance (%)	Weighted average yield calculations	Weighted average yields after 10% refinance and ↑ in debt (%)
1	5.00	5.00 x 0.6944 + 6.50 x 0.3056	5.46
2	4.04	4.04 x 0.6944 + 6.50 x 0.3056	4.79
3	3.56	3.56 x 0.6944 + 6.50 x 0.3056	4.46
4	3.68	3.68 x 0.6944 + 6.50 x 0.3056	4.54
5	6.60	6.60 x 0.6944 + 6.50 x 0.3056	6.57
6	6.44	6.44 x 0.6944 + 6.50 x 0.3056	6.46
7	6.00	6.00 x 0.6944 + 6.50 x 0.3056	6.15
8	6.20	6.20 x 0.6944 + 6.50 x 0.3056	6.29
9	7.00	7.00 x 0.6944 + 6.50 x 0.3056	6.85
10 (prevailing)	6.50	6.50 x 0.6944 + 6.50 x 0.3056	6.50
Allowed cost of debt			**5.81**

- The '*STA + OTD transition*' sheet in the attached Excel workbook shows that if each annual change in debt is positive, QTC's WTA produces an allowed cost of debt that is the same as:
  - continuing to apply a STA to the opening PTRM debt balance in year one of the first 5-year regulatory period under the weighted trailing average approach
  - separately applying the prevailing 10-year yield and the AER's current transition to a 10-year STA to each annual increase in debt, and then
  - summing the individual cost of debt allowances and dividing by the total opening debt for that year.
- The allowed cost of debt is the same as the allowed cost of debt based on the approach outlined by the AER in its December 2020 submission to the AEMC (see Section 1.1.4.).
- Tables 1 and 2 also show that the current STA is a special case of QTC's WTA where W=0 in all years. This demonstrates that a relatively small and simple change is required to move from a STA to QTC's WTA.

1.2.3 Benefits of QTC's weighted trailing average

Simplicity

- The '*QTC WTA*' sheet in the attached Excel workbook includes an example of how QTC's proposed WTA is calculated[8]. The calculations are transparent, based on simple arithmetic, and do not require macros or complex nested IF/THEN formulas. In fact, the calculations are just a multi-year application of the weighted average yield calculations in Tables 1 and 2.
- There is no requirement to separately track the allowed cost of debt for each increase in debt. This is implicitly done through the way the weighted average 10-year yields are calculated each year.

Minor departure from the current simple trailing average

- The same 10-year yields that are used in the current STA are used in QTC's WTA. The only difference is *how* the yields are used to compensate increases in debt:
  - Under the current STA, 90 per cent of the initial compensation is at historical 10-year yields and 10 per cent is at the prevailing 10-year yield.
  - Under QTC's WTA, 100 per cent of the initial compensation is at the prevailing 10-year yield, with the compensation moving to a 10-year STA over the next ten years.

[8] If the AER decides to adopt the WTA approach set out in the *'QTC WTA'* sheet, QTC recommends the AER independently verify the underlying calculations before making any changes to the PTRM.

No requirement for additional data

- The calculations are based on data already used in the AER's revenue determinations. There is no requirement for additional data. In particular, there is no requirement to estimate benchmark debt yields for tenors other than the current 10-year benchmark tenor.
- The combination of simple calculations, not having to separately track the allowed cost of debt for each increase in debt, and not requiring additional data makes the administrative cost and burden of QTC's WTA very low.

Consistency with the transition approach in the 2013 RoRG and 2022 RoRI

- QTC's WTA applies the same transition to increases in debt that the AER has already applied to service providers when moving from the on-the-day approach to the STA approach. Continued use of this transition under a WTA received support in the Eligible Experts' report:[9]

> 'I recommend that the AER apply the transition that it adopted when it switched from the rate-on-the-day approach to the 10-year trailing average approach. **That transition is well-understood by all stakeholders, and would be simple to implement.**'

1.2.4 Accounting for decreases in debt

- Under QTC's WTA, W=0 if the annual change in opening debt is negative. This is done because a negative W assumes a service provider invests the debt portion of return of capital in a 10-year BBB+ bond. It is not clear if this assumption leads to a realistic estimate of the allowed cost of debt.
- By setting W=0, QTC's weighted average calculation is the same as the STA calculation in these years.
- An alternative approach is to reduce the size of the annual refinancing transaction. If opening debt decreases, the amount of maturing debt that is refinanced with new 10-year debt is reduced by the same amount.
- The '*Alt WTA*' sheet in the attached Excel workbook shows how these calculations can be performed[10]. The main issues with this approach are that:
  - it produces an uneven benchmark debt maturity profile when debt decreases, and
  - the reduction in debt may be greater than the amount of maturing debt, which may occur for a service provider undergoing accelerated depreciation.
- The approach in the *'Alt WTA'* sheet may be a more accurate reflection of what a service provider would do when debt decreases. However, the two issues above detract from the practical value of this version of a WTA.
- In QTC's view, a pragmatic approach is to set W=0 in years where opening debt decreases.

1.2.5 A materiality threshold should not apply

- In QTC's view, a materiality threshold based on the size of the increase in debt or capital expenditure should not apply for the following reasons:
  - The attached Excel workbook shows that the complexity and administrative burden of applying QTC's WTA to all service providers in all years is low. The calculations are based on data already used in the AER's revenue determinations, such as PTRM and RFM debt balances, and the 10-year yields in a service provider's annual cost of debt averaging periods.
  - Even if a threshold is applied it will not address the potential for investment distortions due to the size of the difference between the prevailing and trailing average cost of debt. For example, a distortion could arise on expenditure that is slightly below the threshold if the prevailing cost of debt is significantly higher than the STA. As such, two thresholds would need to be considered.
    - > In QTC's view, there is no objective way to determine the appropriate size of either threshold, so any choice will be arbitrary.

[9] Eligible Experts' joint report (Kumareswaran), para. 29 (a).

[10] If the annual change in opening PTRM debt in each year is greater than or equal to zero, this version of a WTA will produce the same allowed cost of debt as QTC's proposed WTA in the *'QTC WTA'* sheet.

- The Eligible Experts' report notes that a threshold may create opportunities for gaming by service providers:

> 'If the trigger is a function of the capital expenditure incurred by NSPs, then an NSP would have an incentive to defer capital expenditure inefficiently (so as to not breach the threshold) in circumstances where the simple trailing average approach would result in a higher allowance than would the weighted trailing average approach.'[11]
>
> 'The more serious problem is the potential for gaming. When the change in the allowed cost of debt results in an allowance below the current cost of debt, the incentive is to defer investment to stay below the threshold and vice versa.'[12]
>
> 'Unless the cost of applying the change to all NSPs is very large, then I favour no threshold. The potential arbitrary element and more importantly the opportunities for gaming should be avoided if it is cost effective to do so.'[13]

- Based on the above considerations and opinions in the Eligible Experts' report, it is QTC's view that a WTA should apply to all service providers in all years and without any thresholds.

1.2.6 Accounting for differences between forecast and actual debt

- Two adjustments to account for differences between forecast (ie, PTRM) and actual (ie, RFM) debt can be made when the regulated asset base (RAB) is rolled forward at the end of each 5-year regulatory period:
  - reset the ten yields in the WTA in year one of the next 5-year regulatory period to equal the yields based on opening RFM debt weights in the previous 5-year regulatory period, and
  - calculate a revenue adjustment based on the difference between the annual cost of debt allowances using the PTRM and RFM WTAs in the previous 5-year regulatory period.
- The *'QTC STA'* sheet in the attached Excel workbook automatically makes the first adjustment after the opening RFM debt balances have been determined.
- It is QTC's understanding that an approach for implementing the second adjustment is detailed in the submission from Energy Networks Australia.

1.2.7 Risks cited in the Discussion Paper

- The Discussion Paper cites the following risks with QTC's WTA approach:
  - reliance on roll forward model updates
  - inaccuracy due to the use of historical forecast information
  - interaction with the Capital Expenditure Sharing Scheme (CESS), and
  - modelling complexity
- These risks relate to a previous version of QTC's WTA that did not include a process to account for differences between forecast and actual debt. The adjustments outlined in Section 1.2.6 should address the issues relating to the first three risks above.

Modelling complexity

- Modelling complexity has been addressed in previous regulatory consultations. For example, the Economic Regulation Authority of Western Australia concluded in 2015 that any added complexity associated with a WTA:[14]

> '… is not insurmountable. Indeed, QTC and DBP both demonstrate that the spreadsheet calculation relating to weights would be straightforward, at least for the PTRM approach.'

[11] Eligible Experts' joint report (Kumareswaran), para. 374.
[12] Eligible Experts' joint report (Partington), para. 454.
[13] Eligible Experts' joint report (Partington), para. 455.
[14] ERA, *Estimating the return on debt – Discussion paper*, March 2015, p. 14.

- Similarly, in 2014:[15]

> '…this "added complexity" is, in reality, a very simple adding up problem which is no more complicated (and actually less complicated) than other aspects of building block models.'

- The calculations in QTC's WTA are not 'complex' in the sense that they are difficult to understand. The attached Excel workbook shows that the calculations are transparent, based on simple arithmetic, and do not require macros or complex nested IF/THEN formulas.
- Furthermore, no additional data are required to implement QTC's WTA. The calculations are based on data already used in the AER's in revenue determinations, such as annual PTRM and RFM debt balances, and the 10-year yields in a service provider's annual cost of debt averaging periods.
- The Discussion Paper also suggests that[16]:

> 'To the extent weights are based on the present value of capital expenditure, a half-year WACC adjustment may be desirable for accuracy, further increasing complexity.'

- The weights in QTC's WTA are calculated using annual changes in opening PTRM and RFM debt balances. As these balances equal 60 per cent of the opening RAB, they already reflect the half-year WACC adjustment that applies to capital expenditure, so no additional adjustments are required.

1.3 AER weighted trailing average

1.3.1 Description

- The AER's WTA splits each increase in debt into ten equal tranches:
  - the first tranche receives compensation for one year at the prevailing 1-year BBB+ yield
  - the second tranche receives compensation for two years at the prevailing 2-year BBB+ yield, and so on with
  - the tenth tranche receiving compensation for ten years at the prevailing 10-year BBB+ yield.
- Each maturing tranche is refinanced at the prevailing 10-year yield. After ten years the yields in the trailing average equal the historical 10-year yields in the previous nine years and the prevailing 10-year yield.

1.3.2 Comments on the AER's proposed approach

- The Discussion Paper makes the following points about the AER's approach:[17]

> 'It is important to note that the one to nine year transitional tranches of debt are not necessarily the actual debt instruments issued by businesses. They are a modelling structure used to phase in new borrowing over time, in a way that aligns with the trailing average framework and should correctly compensate regulated businesses for their benchmark debt costs.'

Unrealistic implied debt funding strategy

- By initially assigning prevailing 1–10 year yields to the debt tranches, the AER's WTA provides compensation 'as if' they are the debt instruments issued by a service provider. As such, the implicit assumption is that it is possible and efficient for a service provider to fund *each annual increase* in debt with equal amounts of 1–10 year debt. We do not consider this to be a realistic assumption.
- In QTC's view, it is highly unlikely that a service provider could fund, in real-world capital markets, increases in debt in this way. As corporates do not typically issue capital market debt with tenors less than five years, it is unclear

[15] Competition Economists Group, *Cost of debt consistent with the NGR and NGL*, November 2014, pp. 37-38.
[16] Discussion Paper, p. 27.
[17] Discussion Paper, p. 24.

what level of investor demand would exist (if any) for primary issuance at these tenors. At a minimum, investors would likely require a yield premium to invest for these tenors, however there is no reliable way to determine the size of the premium or how it may change over time.

- A related problem is how the yields for the shorter tenors would be estimated. Yields at these tenors from data providers such as Bloomberg reflect secondary market yields on longer-term bonds that were issued several years ago. As noted above, these yields are likely to under-estimate the *primary* market yields at the shorter tenors.
- Even if it were possible to issue ten tranches of 1–10 year debt, the administrative burden and transaction costs of doing this for each annual increase in debt would be very high[18]:

> 'The issue is that it is difficult to see how any NSP would, in practice, enter into such complicated financing arrangements. The transactions costs of issuing so many tranches of debt, perhaps over multiple projects, are likely to be prohibitive for most NSPs.'

- There are several ways a service provider can fund increases in debt. For relatively small increases, a single tranche of 10-year debt would likely be used. For large increases, a mix of tenors could be used, and these would likely be centered around a 10-year tenor. For example, a mix of 7, 10, 12 and potentially 15-year debt could be used.
- Both funding approaches create some mismatch with the allowed cost of debt (ie, the actual debt maturity profile will not be perfectly flat), however this is unavoidable in practice. The important point is that initially compensating each increase in debt at the prevailing 10-year yield is consistent with the efficiently incurred benchmark cost of debt, which is a key feature of QTC's proposed WTA.

A modelling structure already exists

- A modelling structure that phases in a new borrowing over time in a way that aligns with the trailing average framework already exists and has been applied by the AER to all service providers when transitioning from the on-the-day approach to the STA approach. The allowed cost of debt starts at the on-the-day 10-year yield and progressively moves to a 10-year STA of 10-year yields over the next ten years.
- Applying the existing transition under a WTA in the 2026 RoRI was supported in the Eligible Experts' report[19]:

> 'Given the AER's preference for pragmatic, rather than theoretically pure, approaches I recommend the AER apply the (simpler) transition it has already applied when it adopted the 10-year trailing average approach.'

Inconsistency with a 10-year benchmark debt

- The AER has always used a 10-year tenor to estimate benchmark debt costs. The AER's proposed WTA will produce an allowed cost of debt in the transition period on each increase in debt that reflects a blend of 1–10 year tenors. As this is effectively a change in the debt tenor that is used to estimate benchmark debt costs, the AER's proposed modelling structure should not be a feature of the WTA approach in the 2026 RoRI.
- It is important to note that the AER already compensates increases in debt under a STA at yields that reflect a 10-year tenor. There is no reason for the tenor to change under a WTA approach. The only required change is for the initial compensation to be at the *prevailing* 10-year yield instead of *historical* 10-year yields.
- Finally, the AER's proposal will require 600 yields across ten tenors to be estimated in each service provider's annual cost of debt averaging periods. Under QTC's approach, only 60 10-year yield estimates are required[20].
- In our view, the AER's existing transition from an on-the-day 10-year yield to a 10-year STA is an essential feature of a WTA approach. As shown in Section 1.2.2, QTC's proposed WTA is consistent with the existing transition.

[18] Eligible Experts' joint report (Kumareswaran), para. 365.
[19] Eligible Experts' joint report (Kumareswaran), para. 368.
[20] Based on a 20-day averaging period and three data providers (ie, Bloomberg, RBA and Refinitiv).

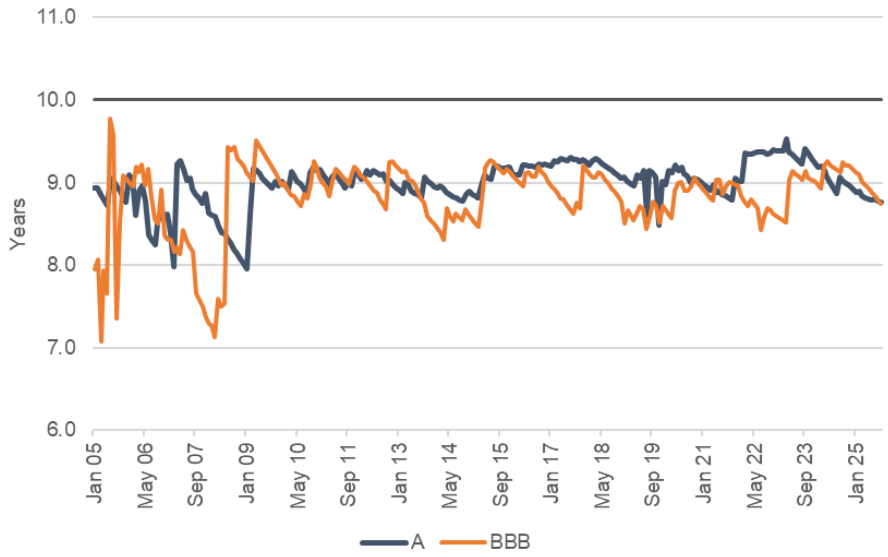
2. Estimating the benchmark 10-year BBB+ yield

- The AER is considering reintroducing the A and BBB corporate yield estimates produced by the RBA into the process for estimating the benchmark 10-year BBB+ yield.
- QTC supports using the RBA data. However, we do not support the AER's proposed use of swap risk premiums (SRP) to extrapolate the RBA's A and BBB yields to an exact 10-year tenor.
- Linear extrapolation using the RBA's 7-year and 10-year corporate yields and effective tenors is a simpler and more accurate way to estimate the 10-year BBB+ yield. The *'RBA extrapolation'* sheet in the attached Excel workbook shows how yield extrapolation can be performed directly in corporate yield workbook published by the RBA.

2.1 The need for extrapolation

- The RBA produces yields for a 10-year target tenor. As the effective tenors of the yields have been consistently shorter than ten years (Figure 1), extrapolation is required to estimate yields for an exact 10-year tenor.

FIGURE 1: EFFECTIVE TENOR OF THE RBA'S 10-YEAR A AND BBB YIELDS



Source: RBA

2.2 Downward bias in the AER's proposed extrapolation approach

- The AER has proposed linear extrapolation based on SRPs. The SRPs would be calculated by deducting the 7-year and 10-year swap yield from the A and BBB yields for a target 7-year and 10-year tenor.
- As the slope of the swap yield curve is usually positive, deducting 7-year and 10-year swap yields from yields with shorter effective tenors (Table 3) creates a downward bias in the SRPs, and the bias has been larger for the 10-year SRPs[21]. As a consequence, the AER's approach will produce extrapolated 10-year yields that are biased downwards.

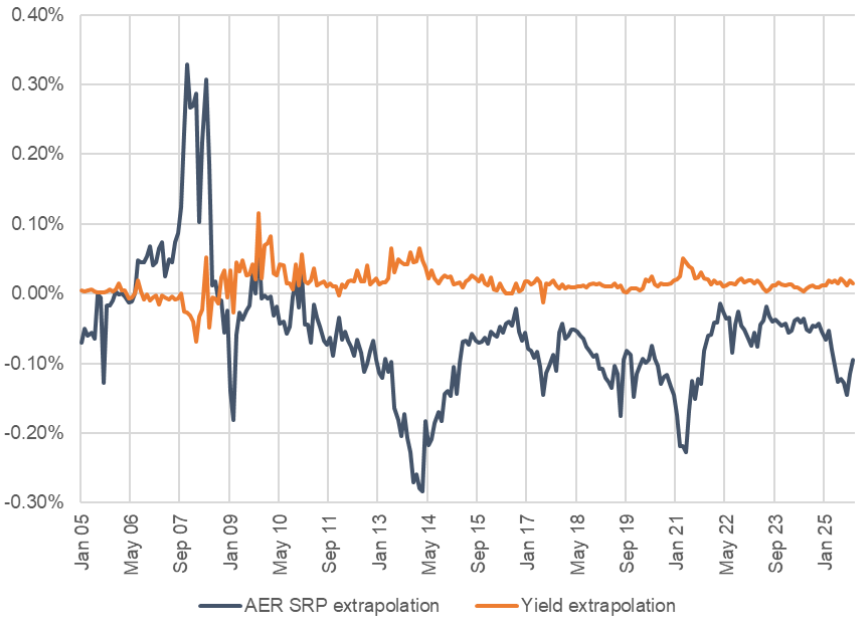
TABLE 3: AVERAGE EFFECTIVE TENORS FOR 7-YEAR AND 10-YEAR TARGET TENORS

Credit rating	7-year target tenor (years)	10-year target tenor (years)
A	6.66	8.99
BBB	6.78	8.82

[21] The average effective tenors of the A and BBB yields for a 7-year target tenor are 0.34 and 0.22 years shorter than 7-years, whereas the average effective tenors for a 10-year target tenor are 1.01 and 1.18 years shorter than 10-years. As such, the slope of the SRP curve in the AER's extrapolation will be too flat.

- The bias could be removed by using interpolated swap yields with tenors that match the effective tenors of the RBA's 7-year and 10-year A and BBB yields (ie, 'unbiased' SRPs). An alternative and simpler approach that produces almost identical estimates is to extrapolate using the RBA's 7-year and 10-year yields and effective tenors.
- Figure 2 shows the difference between the extrapolated 10-year BBB+ yields produced using unbiased SRPs and the 10-year BBB+ yields produced by the AER and yield-based extrapolation approaches:

FIGURE 2: EXTRAPOLATED 10-YEAR BBB+ YIELD DIFFERENCES RELATIVE TO UNBIASED SRP EXTRAPOLATION



Source: QTC calculations based on RBA and Bloomberg data

- With the exception of a brief period in 2008[22] the extrapolated 10-year BBB+ yields produced using the AER's SRP approach have been consistently lower than the estimates produced using unbiased SRPs, which confirms the downward bias in the AER's estimates. In contrast, the differences produced using yield extrapolation have been close to zero and significantly less volatile (Table 4).

TABLE 4: MONTHLY DIFFERENCES RELATIVE TO UNBIASED SRP EXTRAPOLATION

Metric	AER extrapolation	Yield extrapolation
Average (bps)	(5.9)	1.5
Standard deviation (bps)	8.9	1.9

- In QTC's view, linear extrapolation using the RBA's 7-year and 10-year corporate yields and effective tenors is a simpler and more accurate way to estimate a 10-year BBB+ yield than the AER's proposed SRP extrapolation. The *'RBA extrapolation'* sheet in the attached Excel workbook shows how yield extrapolation can be performed directly in corporate yield workbook published by the RBA. No swap yields are required.

[22] The extrapolated estimates during this period should be viewed with caution as that are likely to have been affected by data quality issues due to the impact of the Global Financial Crisis on domestic and offshore bond markets.

Appendix A: Responses to consultation questions

Introduction of a weighted trailing average approach: (a) Do you in principle support the introduction of some form of weighted trailing average (qualified by your answers to the later questions in this section)? Please include reasons.

- QTC supports the introduction of a WTA to determine the allowed cost of debt in the 2026 RoRI. The efficiency and incentivisation benefits of reducing the mismatch between the allowed and efficiently incurred benchmark cost of debt outweigh the additional calculations required to implement QTC's WTA.
- Consistent with QTC's proposed approach in Section 1.2, the weights should be applied so that annual increases in opening debt are initially compensated at the prevailing 10-year yield, with the compensation moving to a 10-year STA over the next ten years. This is consistent with the 10-year benchmark debt tenor and 'on-the-day' transition approach in the 2022 RoRI.
- Implementation of QTC's WTA strikes the right balance between accuracy, simplicity and regulatory consistency while not imposing a material regulatory burden or cost on the AER or service providers.

Application of the weighted trailing average approach: (a) Should it apply to all NSPs by default, or only when forecast capital expenditure exceeds a certain threshold? Please include reasons. (b) If a threshold is preferred, what kind of threshold would work best (e.g. a percentage of RAB and/or a fixed dollar amount or some other measure/s), and what level would be appropriate for your suggested trigger/s? Please include reasons.

- QTC does not support materiality thresholds. As demonstrated in the attached Excel workbook, QTC's WTA can be easily applied to all service providers in all years as it is neither complex in approach nor administratively costly. As such, it will not be a regulatory burden for the AER or service providers.
- Any threshold would be arbitrary and potentially incomplete. Even if a size threshold is applied, potential investment distortions may still arise due to the size difference between the prevailing and trailing average cost of debt. This would give rise to the need for two thresholds based on:
  - the size of the change in debt or capital expenditure, and
  - the size of the difference between the STA and prevailing cost of debt.
- There is no objective way to determine the size of these thresholds, so any choice will be arbitrary.
- A threshold may incentivise gaming by service providers, as acknowledged by the Eligible Experts' report.

How the true-up mechanism should work: (a) Do you support using a true-up to reduce the risk from capital expenditure forecasts? If you do or do not, please explain why. (b) What do you consider a preferred method of applying a true-up? Would it be through adjustments to the rate of return during the regulatory period (i.e. some form of rolling true-up), or through an adjustment to the rate of return in the next regulatory period (potentially at the time of the RAB roll forward calculations)? Why? c) If a rolling return based true-up with a two-year lag were adopted, are there specific implementation risks or modelling issues we should consider? Why?

- QTC supports the use of an adjustment to account for differences between forecast (ie, PTRM) and actual (ie, RFM) debt to ensure service providers are compensated for efficiently incurred benchmark debt costs. This is the case given the inherent uncertainty associated with large capital projects, where timing and spend differentials can exacerbate the mismatch between the allowed and efficiently incurred benchmark cost of debt.
- One way of implementing the adjustment is by:
  - resetting the ten yields in the WTA in year one of the next 5-year regulatory period to equal the yields based on opening RFM debt weights in the previous 5-year regulatory period, and
  - calculating a revenue adjustment based on the difference between the annual cost of debt allowances using the PTRM and RFM WTAs in the previous 5-year regulatory period.

- The attached Excel workbook (*'QTC STA'* sheet) shows how the first adjustment can be made after the opening RFM debt balances have been determined.
- It is QTC's understanding that an approach for implementing the second adjustment is detailed in the submission from Energy Networks Australia.

Interaction with the CESS: (a) Could financing benefits or losses be double-counted under both a true-up and the CESS? Why? (b) If so, should the CESS be amended after the Rate of Return Instrument is made to ensure it operates as intended?

- QTC does not consider financing benefits could be double counted where a true-up and the CESS co-exist under the AER's regulatory framework.

Reporting: (a) Are there any concerns with changes that might be needed to Regulatory Information Notices, the Roll-Forward Model, or the RORI?

- QTC does not envisage any changes to AER reporting processes following introduction of a WTA.
- The underlying calculations in QTC's WTA are based on data already used in the AER's revenue determinations, such as annual PTRM and RFM debt balances, and the 10-year yields in a service provider's annual cost of debt averaging periods. There is no requirement for additional data.

Costs: (a) Are there likely to be material incremental costs imposed on network businesses from applying a weighed trailing average to them (e.g. additional hedging or other financial transaction costs). If yes: what would these costs relate to (e.g. additional financial transactions of a given type); how large would you expect these to be; are these costs one-off or transitional; and what scheme design elements might reduce any incremental costs?

- QTC does not foresee any material incremental costs imposed on the AER or service providers from implementing QTC's proposed WTA.
- As explained in Section 1.3.2, the administrative burden and transaction costs of the debt funding strategy implied by the proposed use of 1–10 year yields in the AER's WTA (assuming it can actually be implemented in practice) would likely be very high[23]:

> 'The issue is that it is difficult to see how any NSP would, in practice, enter into such complicated financing arrangements. The transactions costs of issuing so many tranches of debt, perhaps over multiple projects, are likely to be prohibitive for most NSPs.'

- The AER has always used a 10-year tenor to estimate benchmark debt costs. The proposed use of 1–10 year transition yields in the AER's WTA is inconsistent with a 10-year tenor and will under-estimate the efficiently incurred benchmark cost of debt. Therefore, it should not be a feature of the WTA approach in the 2026 RoRI.

Transition: (a) What transitional arrangements or lead times would be necessary to help NSPs prepare for a change to a weighted trailing average?

- QTC does not envisage that service providers would require any additional transitional arrangements or lead times to prepare for a change to QTC's proposed WTA approach.
- The only relevant transition is for the cost of debt allowance itself. Consistent with the transition in the 2013 RoRG and 2022 RoRI, each increase in PTRM debt should initially be compensated at the prevailing 10-year yield with the compensation moving to a 10-year STA over the next ten years.

[23] Eligible Experts' joint report (Kumareswaran), para. 365.

Overall design: (a) Does the proposed approach strike the right balance between incentive-based benchmark regulation and greater use of firm-specific cost information that may move the trailing average approach closer to cost-of-service regulation? (b) Does the proposed approach strike the right balance between accuracy, simplicity and regulatory consistency? Why? (c) Would the use of a weighted trailing average add material regulatory burden and/or cost for NSPs to which it would apply? If yes, what are these likely to be? (d) Are there any other ideas or refinements we should consider? If yes, what are these?

- QTC does not consider that a WTA shifts the framework towards cost-of-service regulation:
  - all yields applied under a WTA remain benchmark yields rather than a service provider's actual cost of debt, and
  - a true-up for actual versus forecast capital expenditure, and the associated financing benefit already exists under a CESS adjustment. Incorporating prevailing rates does not weaken the incentive structure of the scheme, rather it incentivises financing at a benchmark efficient level by ensuring service providers are initially compensated at the prevailing (ie, achievable) cost of debt.
- QTC's proposed WTA strikes the right balance between accuracy, simplicity and regulatory consistency while not imposing a material regulatory burden or cost on the AER or service providers.
- The efficiency and incentivisation benefits of reducing the mismatch between the allowed and efficiently incurred cost of debt far outweigh additional calculations required to implement QTC's WTA. Furthermore, no additional data are required as the calculations are based on data already used in the AER's revenue determinations.

Do you support the reintroduction of the use of RBA yield curve data combined with Bloomberg or Refinitiv swap data? If no, why not?

- QTC supports the reintroduction of the RBA corporate yields. As the extrapolation to an exact 10-year tenor should be performed using the 7-year and 10-year yields and effective tenors, there is no requirement for swap data.

Are there any concerns with the proposed method of calculating the return on debt in the absence of RBA spread to swap data (ie, using swap rate data from another source)?

- QTC does not support the AER's proposed use of swap risk premiums to extrapolate the RBA's yields for a 10-year target tenor to an exact 10-year tenor.
- As demonstrated in Section 2.2, the AER's approach will produce a bias in the extrapolated 10-year yields because the tenor of the swap yields will not match the effective tenors of the RBA's 7-year and 10-year yields.
- Linear extrapolation using the RBA's 7-year and 10-year yields and effective tenors is a simple and accurate way to estimate the 10-year BBB+ yield. Yield extrapolation can be performed directly in the corporate yield workbook published by the RBA.