Australian Gas Infrastructure Group

Dampier Bunbury Pipeline | Multinet Gas Networks | Australian Gas Networks

Dampier Bunbury Pipeline ABN 78 081 609 289

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Jason Dignard
A/Executive Director – Economic Regulation Authority
Level 4, 469 Wellington Street, Perth WA 6000

Dear Jason,

Thank you for this opportunity to comment on the ERA's Draft Rate of Return Instrument (Draft RoRI) released late July. Overall, we consider that the Draft RoRI is supported by evidence and delivers a clear explanation of how the ERA has reached its positions. Briefly, in respect of each of its components, we:

- Consider that the cost of debt approach with a transition is supportable, but we consider the alternative single step transition is preferable to the two-step transition proposed in the Draft RoRI. Other comments here reflect only minor issues, considered further below. We also address the issues raised by the Independent Panel (see pp25-32 of that report) in respect to the transition.

- Consider that the gearing choice of 55% is supported by the evidence and we support the ERA's decision to keep it fixed over the RoRI period. We discuss the Independent Panel's views in this respect below. We make no further comments on gearing.

- Consider that the ERA's conclusion of a gamma of 0.5 reflects available evidence (including uncertainty and potential for estimation error in said evidence) and we support the ERA's decision to keep this fixed over the period that the RORI is active. We do not agree with the Independent Panel's assessment (p24 of that report) that there is enough precision in the estimates of the components of gamma for these to be estimated to more than one decimal place. We make no further comments on gamma.

- Consider that the ERA's proposed approach to estimating expected inflation remains sound; a view we have expressed in past RORI processes. We make no further comments on inflation.

- Consider that the ERA's proposed approach to determining the averaging periods for both debt and equity is sound, and we note that the ERA has dealt with the minor issue we raised as part of the Discussion Paper by linking the market rates to the "intended start of the access arrangement". We make no further comments on the averaging periods.

- Consider that the ERA's approach to continue to use the ten-year term for the return on equity (and debt) is sound and supported both by evidence of investor practice, and relevant economic principles. We make no further comments on the term of the term of the risk-free rate.

- Consider that the ERA's choice of 0.7 for beta is supported by available evidence. We have only minor comments which we detail below. We also deal with comments made by the Independent Panel on beta, specifically the option of a lower beta, which we consider is based on a somewhat selective view of the evidence.

+61 8 8227 1500
info@agig.com.au
agig.com.au

- Consider that problems remain in respect of the ERA's estimate of the market risk premium. This has been a long-standing issue, and we detail our concerns in relation to the fixed MRP allowance that the use of arithmetic and geometric means below. The majority of our submission deals with this issue.

- Consider that the benchmark credit rating of BBB+ is appropriate under the current circumstances. However, we note that these circumstances could change rapidly with changes in energy policy. We note in particular the AEMC's "Gas Networks in Transition" rule change process currently underway and the potential adverse impact of the redundancy provisions in the Draft Rule on the gas sector and credit ratings. We refer the ERA to our submission on this issue on the Gas Networks in Transition website for further information, and we make no further comments on this issue here.

- Consider that the debt raising and hedging costs, including as these change through the transition, appear reasonable. We make no further comments on this issue in our submission.

We also touch briefly on some remaining overall issues associated with the RoRI, and RoRI process and respond to comments made by the Independent Panel on beta and the debt transition process. The attachments to this letter sets out our submissions in more detail.

If you would like to discuss any of them further, please do not hesitate in contacting me, or Nick Wills-Johnson.

Yours sincerely

[redacted]

Roxanne Smith
Executive General Manager Corporate and Regulation

Australian Gas Infrastructure Group

Detailed positions

In the sections below, we provide further detail in respect of each of the topic areas outlined in our covering letter.

Debt

In respect of debt, in our response to the Discussion Paper, we noted our acceptance of a full trailing average; subject to the form of the transition. We noted that a transition must be applied given that the benchmark firm will be transitioning from the ERA's current approach to a new approach, and that the ERA must ensure that an adequate cost of hedging is maintained through the transition.

Whilst the ERA's favoured approach of two five-year tranches in the transition is feasible, we consider that the other transition considered by the ERA is more appropriate because:

- It produces an average duration of 4.5 years at the outset of the transition, which then lengthens through the transition. This more closely matches how a benchmark efficient firm would finance.
- It produces a single transition profile, rather than one with a change in the middle which is unknown at the outset and which, by virtue of being unknown, adds volatility and risk, which will be priced in debt and reflected in potential large shifts in pass through costs at year 5 rather than a smooth profile from year 1.

With this in mind, we do not have any major issues with the ERA's proposed approach for debt, but rather have a number of minor issues:

- Whilst we agree with the ERA's approach to use the market value of firms in determining gearing (Attachment 4 p6), we cannot see what prevents the ERA from providing guidance in respect of Spark and Ausnet for the next RoRI (p8). By 2030, they will have been delisted for 9 years, almost the same time period as DUET has been delisted now and so one would expect, all else being equal, they would be removed from the dataset. The ERA's statement does not need to be definitive, and it can reserve the right to reconsider the matter in 2030 if circumstances require, but stakeholders will prefer some degree of predictability to none.

- Whilst we support the ERA's decision not to use international firms at this point in time (Attachment 4 pp8-9), it would be useful for the ERA to look forward and give some consideration to what it might do in 2030 on this point because, if it treats Spark and Ausnet the same way it has treated DUET, it will have only one domestic firms providing information. Although the points the ERA raises about international firms are valid, it may need to take the pragmatic step of using the information in the absence of sufficiently robust domestic information. This is tied to the point above; neither need bind the ERA, but stakeholders value a degree of forward guidance, which supports regulatory stability. We note the Independent Panel also calls for consideration of different firms for gearing (p20 of that report), but we disagree with its suggestion for using non-regulated energy or non-energy infrastructure in gearing for essentially the same reasons the ERA has rejected these firms when estimating beta (see Attachment 5 pp 50-51).

- There appears to be an error in the ERA's formula for the transition weights, which carries through to the ERA's spreadsheet example. In simple terms, the dot points in [457] (see Attachment 4 p73) do not match Equation 16 (Attachment 4 p74) and the example spreadsheet implements a "fix" which

does not reflect how Equation 16 actually operates. Since [457] and Equation 16 do not do the same thing, the RoRI contradicts itself, and it is not clear which part should be followed. We note that our proposal to move to the single transition period, which would require [457] to be re-worded as a matter of course, makes Equation 16 correct, and there is only a small formula change required in the spreadsheet example. If the current 2-part transition remains, Equation 16 would need to change; as would the example spreadsheet. This appears to be a simple calculation error, and we have raised the detail of the issue already with the ERA via email.

- Whilst we agree that the DBNGP has no large capex associated with expansions planned during AA6 (Attachment 4 p31), and we do not have a position in respect of the weighted trailing average per se, the ERA should recognise that increases in capex may become necessary in AA7 for DBP, depending upon the pace of coal closure. We suggest that consideration be given to putting in place a contingency. We note the comments of the CRG (Attachment 4 p17) about retaining approaches over a full interest rate cycle. Whilst we reject the unsubstantiated assertion that network providers can or do "manipulate the approach depending upon financial conditions",[1] we understand concerns about approaches to debt changing from one RoRI to the next, and we note the practical consideration that AA7 for DBP will be partway through any transition period to the full trailing average. For this reason, we submit that the ERA should at least consider how it might treat future expansion, and the conditions under which it might allow a weighted trailing average.

- In Attachment 4, p54, the ERA notes that no new debt risk premia will be required to be calculated and that only historic debt risk premia will need to be used. As we understand the approach the ERA proposes, we continue to calculate debt risk premia through until the start of our next AA but, once this RoRI is implemented (in AA7 for DBP) no new debt risk premia will be calculated. If this is incorrect, the ERA should make this clear.

- In Attachment 4 Chapter 7, it appears that the ERA is implementing its "Revised Bond Yield Approach" when calculating the full trailing average (it simply omits the removal of the swap rate in the current approach).[2] It would be helpful if the ERA made this clear in its discussion of reasoning, rather than stakeholders needing to compare the descriptions of the approach in the 2022 and 2026 RoRIs.

- In Attachment 4 p67, the ERA begins its discussion on contingencies. In respect of contingency A (see also the discussion on p68), the ERA notes that it will use the A and the broad BBB bands with a 1/3 and 2/3 weight respectively when the number of BBB+ bonds is less than 15. We understand the need to expand the sample when the number of bonds is too small but, under this approach, it would appear that the BBB+ bonds would be grouped together with the BBB bonds (the ERA should be clear on this) and then given a 2/3 weight. If so, this may mean that the cost of debt is under-estimated. It might be better to first weight the BBB+ bonds, and then apply the 2/3 and 1/3 weights to the A and BBB bonds to avoid this risk.[3]

- On the same pages, Contingency B applies when the standard deviation of the three yield curve estimates is greater than 100 basis points. This is appropriate if all three estimates are widely spread, but it is not clear if it would be appropriate if two of the three estimates are very close together and

[1] Like the unsubstantiated assertion by Alinta (attachment 4 p16) that networks "refinance large tranches of debt during periods when debt is relatively cheap", this would require networks to have powers of foresight in respect of interest rates that we simply do not have. The Independent Panel (see p29) also makes an unsubstantiated assertion about our incentives to alter debt tenor which we address below.
[2] The ERA might also consider changing the name; the "Revised Bond Yield Approach" has been around since at least 2018, and it replaces an approach which was technically incorrect with one that is correct and is a lot more than a revision of the earlier model.
[3] So, if there are 14 BBB+ bonds, 10 A bonds and 4 BBB bonds, the weights would be 1/2 to the BBB+ bonds, 1/6 to the A bonds and 2/6 to the BBB bonds.

one is very distant. To account for this, it may be appropriate to also consider a minimum difference between any two estimates and instead to eject from consideration the outlier in this situation.

- In Equation 20, p76, the "F" subscript denotes the "cost of full new debt" in year t (that is, the difference in the cost of debt allowance from one year to the next), but in Equation 14 to 19 the same subscript denotes the "full" (as distinct to hybrid) cost of debt. Having the same subscript apply to two different things is liable to cause confusion, so equation 20 should be redefined. Note that the same issue arises with Equation 29 on p99 of Attachment 4, as Section 8.4.5 essentially replicates Section 8.3.1 when it comes to the equations.

- Figure 4.8 (Attachment 4 p86) and Figure 4.11 (p90) are hard to tell apart unless they are compared side-by-side (Figures 4.6 and 4.9, dealing directly with swap rates, are much clearer). When compared, Figure 4.8 appears to have slightly higher total debt allowances in earlier years, which we assume is due to prevailing rates, but suggest it would be useful for the ERA to clarify.

One final issue is the debt risk premium associated with the hybrid tranches. The ERA intends (see [56] of the Draft RoRI) that this will reflect only historical debt risk premia at the start of the transition, and that debt risk premia will no longer be calculated separately as they are at present. This is given force in the ERA's example spreadsheet by the average debt risk premium each year during the transition being formed by a progressively smaller part of the historical sample as earlier years drop off (see O119:W127 of the ERA's worked example spreadsheet). The intent is that, through time, new information about the debt risk premium is reflected through the full cost of debt tranches.

However, the formula for the hybrid cost of debt tranches (see Equation 15 and 24 in Attachment 4) still contains a trailing average of the debt risk premium, and what the ERA's approach means is that, by the time one reaches the end of the transition period, the hybrid part of the cost of debt allowance will contain debt risk premia which are nine years old. The importance of these debt risk premia decline through time as the hybrid cost of debt has a smaller and smaller weight. Moreover, it is not clear that debt risk premia have a clear trend which would mean that historical information is invalid. There would be no need to change the formulae in the Draft RoRI to admit new debt risk premia into the hybrid tranches of debt; all that would be required is that networks would need to continue to calculate the debt risk premium as they have done for the past ten years or so, for another ten years. This adds some complexity (not much; the main task, which is using the ERA's approach to estimating tranches of debt, needs to be done anyway), but it does allow updated information to be added to the hybrid part of the cost of debt allowance, if this is considered valuable.[4] We suggest the ERA may like to consider this option to see if it adds sufficient value in terms of updating information.

Equity beta

In its Discussion Paper, the ERA proposed to largely keep its approach to the estimation of beta the same, and make three relatively minor changes, being (Discussion Paper p34):

[4] *The ERA's alternate approach to the transition, whereby a network institutes a series of swaps over 10 years would more logically use only historical debt risk premia, because the intuition is that the network is, at the very start of the transition period (when the historical debt risk premia are still current), engaging in a one-time adjustment to its swaps portfolio to transition over to the new approach to debt. However, the two stage process the ERA prefers has an update to all the swap information partway through, and it is not clear whether it is logical to update market information in the swaps, but not the debt risk premia. Under that logic, the debt risk premia may only need to be updated during the first half of the transition.*

- To round gearing to the nearest percent to allow stakeholders to better replicate the ERA's calculation of beta.
- To remove DUET from the portfolio, as its information is now stale.
- To simplify the approach to undertaking merger and acquisition checks.
- To remove the ERA's portfolio approach

We supported the first three of these changes in our submission to the Discussion Paper, suggesting a small change to the way the ERA handles mergers and acquisitions which the ERA has picked up (see Attachment 5 p57). In respect of the portfolio approach, the ERA notes that we had interpreted its proposal as meaning that it would move to an approach whereby each firm received equal weight (Draft RoRI Attachment 5 p38), and this is indeed what we had thought the ERA meant. We understand now that what the ERA meant was that it would remove the different portfolios of Australian firms (equal and value-weighted) shown in Table 13 and 14 (see p189 of the Explanatory Statement from the 2022 Final RoRI). We agree with the removal of portfolios though we maintain our support for consideration of an equal-weighted approach (see below). The ERA has subsequently made several methodological changes to its estimation approach in the Draft RoRI, which we discuss below.

Beta estimation

Overall, we consider that the ERA has struck an appropriate balance between empirical analysis and transparent use of judgement to inform its estimate of beta. The ERA's explanation of its reasoning is contained in Attachment 5 pp62-66. There the ERA:

- Notes the range of Australian beta estimates is from 0.3 to 0.6 with an average of 0.5 (p62) and the range of international estimates is from 0.5 to 0.8 with an average of 0.6 (p63), with the full distribution of both being much wider (p64).

- Notes specifically that betas all around the world appear to have been affected by the April 2025 tariffs (p65); we note that these are the same tariffs from which the ERA notes markets recovered from relatively quickly (see Attachment 5 pp39-40).

- Notes mixed evidence where UK and NZ estimates have remained stable, whilst US and Canadian estimates have declined, even though there is no link to fundamental factors (p64).[5]

- Notes that a case could be made for a beta of at least 0.6, and that the evidence for 0.7 has been weakened due to the reduction of North American betas (p65).

- Shows that the ERA's beta estimate lies fourth from the bottom (amongst 22 comparators shown) of betas chosen by other regulators when evaluated at the ERA's preferred leverage (p66). We would note that many of these regulators, facing the same problem of a limited information set use much the same data as the ERA have used; though we note also that not all of the observations were made at the same time.

We would agree with the assessment of the available evidence made by the ERA and its conclusion that the evidentiary basis for moving away from 0.7 is insufficient at this time. In particular, we note the change in empirical estimates, particularly from North America, but we likewise note that these estimates, particularly the 5-year estimates, can change rapidly and a mechanical change downwards now could be

[5] *We present similar findings in our response to the ERA's Discussion paper (see pp17-18 of this response); albeit for a slightly earlier time period.*

reversed at the next RoRI; potentially to a much higher level reflective of these data in the past.[6] We also think it would be prudent for the ERA to re-estimate beta closer to the Final RoRI to pick up the most recent information given (see Figure 5.14, Attachment 5 p 65) how quickly beta estimates can change.

Additionally, whilst we think that the ERA has explained its process of judgement clearly we would suggest is that the ERA consider how its explanation might start to set a precedent for 2030 (and beyond). For example, shocks have played an important role in the ERA's use of regulatory judgement in this RoRI and stakeholders would like to know if this is likely to continue to be the case. This does not mean the ERA should outline what shocks it will react to and the extent of its reaction (this would be impossible), but some guidance as to how shocks inform its judgement would be useful precedent.

The ERA has also made a series of technical changes to its estimation methods for beta. We discuss these below; overall we agree with the ERA's changes.

Firstly, the ERA has made a call on which day of the week to use for beta estimates. Unlike geopolitical or other single event shocks, this is something which should not, in principle, matter; one day should be similar to another in markets which now trade pretty much continuously around the world. However, as the ERA point out (Attachment 5 pp 44-46), it does, giving rise to a "reference day risk". Unlike shocks, we do believe that "reference day risk" ought to be amenable to a mechanistic approach, such as averaging across all days of the week.[7] We therefore agree with this proposal from the ERA.

Likewise, to the extent that weekly betas themselves can vary from one week to another, absent of a particular shock happening in a given week, this would appear to be statistical noise and should not impact the ERA's approach. We therefore agree in principle with the ERA's approach (Attachment 5 pp 45-6) to take a 10-week rolling average, with three caveats:

- The explanation given by the ERA in Attachment 5 is not very clear. A worked example, or similar, via an Excel model, would provide more clarity.

- The approach may fail if there is a genuine shock in the ten-week period; for example if the geo-political environment worsened further. The ERA should therefore publish the betas for each of the ten weeks, note any significant difference between them and, if necessary, deviate from the approach delineated in Table 5.4 (Attachment 5 p 46) to account for that shock. It is challenging to identify a true shock when it is happening, so we would expect such deviations to be rare, and to be well-justified if they occur, but their possibility should be made clear to stakeholders.

- There are some times of the year, such as around calendar or financial new years, where trading by large players to meet financial reporting requirements or similar can give rise to anomalous effects. The ERA should attempt, where possible, to avoid such periods, where they can be identified in the literature, in its 10-week average.

Whilst we consider that the ERA has been prudent in each of the technical estimation changes it has made, we would encourage it to signal to stakeholders whether it intends to carry the estimation

[6] *This is of particular concern for AGIG. Depending upon timing, this RoRI could inform our next AA period from January 2031 to December 2036, and the next RoRI could be published only days from our Final Decision for our next AA period. It would be incongruous if there was a significant difference in beta allowances between the two decisions, days apart, and it would be difficult to sustain the view that this was a genuine reflection of market conditions, rather than a quirk of regulatory timing. Use of regulatory judgement can prevent outcomes like this.*

[7] *We are aware of a wide economic literature which examines whether there are different "day of the week" effects, but different papers find different things and, markets being markets, when anomalies emerge, if they can be arbitraged, they will. So a simple average is a pragmatic solution.*

approaches forward into the next RoRI. This does not need to bind the ERA, but rather it helps stakeholders gain an understanding of what to expect.

Additionally, we would encourage the ERA to show the effects, if any, of the methodological changes it has made to the estimation of beta; for example, starting with the same methodology it used in 2022 (updated to reflect the most recent data) and then re-estimating after making each methodological change. In this way, stakeholders can clearly see if any changes in the final results for beta are driven by changes in the input data, or changes in methodology, or both. We note that the fact that methodological change might have driven changes in outcomes is not a reason against methodological change per se (as we outline above we do not see any major flaws with any of the methodological steps the ERA has taken), but stepping out the change process helps stakeholders understand what has driven change and may assist in underpinning a better understanding of the ERA's use of judgement.

The ERA has also made further refinements in respect of the selection of firms for the sample, (see pp 47-56 of Attachment 5):

- We agree that live firms are needed for a forward-looking estimate of beta, and that a single firm would be far too small a sample (p47).

- We agree that Spark and Ausnet are (just) likely to still be able to provide useful information (p47) and we agree with the ERA's proposal to remove DUET as its data is too stale (p50), but we disagree that the ERA cannot provide more guidance about the future removal of Spark and Ausnet (p50) and consider that this leaves doubt in the minds of stakeholders. To provide some flexibility, the ERA could provide guidance or direction that would be clarified in 2030, or that they would be removed as DUET was unless some clear signal (which does not need to be specified now) is evident that they should not be.

- We likewise agree that, if the systematic risk of networks were stable, then it would be reasonable to include more historical data (p47). However, we point out that this stability has never been shown by regulators, just asserted.[8]

- We agree with the ERA's assessment (pp 50-51) that domestic infrastructure firms are unlikely to form a good comparator to domestic energy networks and agree that international energy firms are likely to be the more salient proxy.

- We agree with the filters the ERA proposes to use when selection process (pp 51-56) and in particular agree that the ERA is correct to reject the filters proposed by Graham Partington, which would serve to reduce the set of comparators to one too small to be useful, and likewise to reject the approach proposed by EMAS, for much the same reason.

- We agree with the ERA's approach not to remove shocks from the data, but to rather use consideration of LAD results and contextual assessment (p57).

[8] *For example, on Attachment 5 p49 "We consider that the systematic risk of network service providers is relatively static or time invariant". We note, however, that the ERA concluded in 2022 that "Realised equity betas have generally not been stable for the last decade, but the impact of the COVID-19 pandemic is obvious and has resulted in observed betas dropping significantly" (Draft RORI Explanatory Statement p164, available here). These statements would appear to be in contradiction; strengthening the case not to use out of date data in a forward-looking estimate. We note also that the AER, in its most recent discussion paper responding to the criticisms made of its work on beta (available here, Appendix C) has conducted a Hansen test which does not reject the null hypothesis of stability in the Australian sample, but we note also that such a test can only be run on data when each firm was live which, for many in the sample, was more than a decade ago.*

- We agree with the ERA's proposal not to try and establish a mechanism for adjusting international betas to reflect supposed differences between other jurisdictions and Australia (p59); there are nowhere near enough data points to do this with any degree of reliability and any exercise would be one of subjective judgement only, likely to lead to a lack of confidence in the approach.

- We agree with the ERA's proposal (pp 59-60) to adopt a debt beta of zero. Although some evidence exists (and the ERA summarises it) of alternate values, this appears more in the line with expert views than actual empirical analysis,[9] and therefore maintaining past practice in the absence of more solid information would appear prudent.

- We remain of the view that looking at a pool of all firms is valuable, even if it is only to assist in making judgements after considering the country pools. It may be, for example, that the removal or addition of a single firm in a country, where that country has few firms, could have a significant impact on the overall result and, if so, this is an important issue for informing regulatory judgement.

Market risk premium

In respect of market risk premium, we make two key arguments:

- We do not think the ERA has made a logical case for using both conditional and unconditional mean information and then setting a fixed MRP with this information.
- There remains no support for the use of a 60/40 weighting for the arithmetic and geometric means.

Both of these issues are issues we have addressed in the past. We do not repeat our previous arguments, for brevity, but focus new evidence and responding to points made by the ERA and Pink Lake, where relevant. In respect of the latter, it is not clear what brief was given to Pink Lake, but it appears focussed on trying to establish which of several possible methods gives a prediction of the cumulative average growth rate over a ten-year period which has the lowest mean squared error, and on increasingly complex simulation exercises relying upon assumptions at least as much as the actual historical data (which Pink Lake appear not to trust very much). It is not clear what link this has to the regulatory task of deriving a market risk premium allowance which reflects what investors expect. Further, the only substantive use the ERA appears to have made of the Pink Lake report is to conclude that no weighting of arithmetic and geometric means is "optimal" and therefore that the decision is entirely one of regulatory judgement. This is not particularly helpful to the regulatory task.

Conditional and unconditional means, and the fixing or otherwise of market risk premia

The first issue we address is whether, as a matter of logic, the ERA should use a fixed or a varying MRP estimate, given that it makes use of both conditional and unconditional mean estimates. To begin, we address an issue of terminology. In the Draft RoRI (Attachment 5 p 33) the ERA states:

> *To estimate the market risk premium the ERA uses multiple inputs to develop the best estimate to apply for the gas instrument. These inputs are the historical market risk premium estimate and the DGM estimate. Both are used to approximate the expected market risk premium over the period that the gas instrument is in place. Both estimates are "conditioned". The historic estimate is conditioned as a sample (not*

[9] *The QCA debt beta (see here, p 44) mentioned ultimately appears to trace back to work by OfWat in 2019 (see here pp66-8) which does appear to be based on empirical analysis; albeit in a different country, for a different sector, roughly a decade ago.*

population) estimate as it uses post-1958 observations. The DGM is conditioned by current market valuations and expectations of future dividends.

We consider that this misunderstands what the term "conditional and "unconditional" means, actually means. The ERA makes the following distinction (ERA Draft RoRI Explanatory Statement p 92):

Consistent with our previous RORIs, we estimate an unconditional MRP. This reflects a stable, long-run estimate of the equity risk premium that evolves gradually over time, rather than one that varies with short-term movements in market conditions.

That is, the unconditional estimate is the long run average, picking up all of the dataset what is considered relevant (for the ERA, from 1958 onwards; a time horizon we consider reasonable) and the conditional estimate is the estimate of where the series is right now. It is incorrect to classify a long run estimate using all data from 1958 as "conditioned" because it does not use all of the data that could be used.

However our main concern is whether the high degree of variability seen in the MRP in practice should lead the ERA to conclude that the MRP allowance should be fixed and to be fixed based upon information from both the conditional and unconditional means. We turn first to the evidence from the ERA itself about the high variability of the MRP in practice.

In Figure 5.1 (Attachment 5 p14) the ERA points to the high degree of variability in the MRP and compares the "relatively constant" risk free rate (the ERA reports a range of 3.6 to 4.7 percent) with the "volatile" annual market return (the ERA reports a range from 1 to 18 percent). It also states (Attachment 5 p22)

Historic returns are observed to be volatile, where asset values can go both up and down. However, a return that is provided as a fixed value that avoids volatility can result in outcomes that are too high (arithmetic mean) or too low (geometric mean).

We would note that, given the variability of the MRP, and indeed the changing expectation of MRP estimates reflected in the very different DGM estimates from one RORI to the next the issue of geometric vs arithmetic means is a second order issue. Both may well be significantly above or below the expectation of the future MRP on the part of investors, if the MRP estimates themselves are made with stale data and not updated.[10]

Additionally, the ERA notes in respect of the DGM (Attachment 5, p33):

The ERA continues to use the DGM as a market based, forward looking estimate of the market risk premium. However, we have noticed that it can be highly variable, even when employing six month averages. This has also been noted by other economic regulators such as the AER.

This is advanced as a reason not to provide a fixed weight to the DGM to set a different MRP for each AA under a given RoRI, but it could equally be used as a reason for allowing the MRP to vary; if the DGM is an effective proxy for the conditional MRP (as the ERA appears to believe; it uses the measure for this purpose). Additionally, if the DGM is as variable as the ERA suggests, then it is not clear why it proposes to use a DGM estimate that is from a different time period than its historical estimate.[11]

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[10] *Pink Lake's Figure 1 on p11 of its report, which is based on simulations rather than actual data, makes clear the very large disconnect between the range of potential MRP values and the difference between arithmetic and geometric mean estimates.*

[11] *The ERA has used historical estimates to December 2025 in its Draft RoRi and, unless it changes the timing of its Final RoRI, these would still be the most recent estimates available at the time of the Final RoRI. The DGM is an average of the six months following December 2025 in the Draft RoRI (see Table 5.3, Attachment 5, p29), and we presume the ERA will be updating this measure for the Final RoRI, as the 2022 RoRI used the 6 months to September 2022 (see 2022 Final RoRi Explanatory Statement Table 12, p 152)*

Pink Lake's advice notes (p8) that:

> *Rapidly varying distributional measures will be difficult to forecast and will induce deep uncertainty as to the future state of the market. Consequently, utilising any model or estimate of the MRP conditioned on a set of covarying factors will be fraught because: i) the future values of the covarying factors are uncertain; ii) the relationships connecting those covarying factors to the market returns may vary over time; iii) there is uncertainty as to which covarying factors to include in a conditioning model and the importance of covarying factors may vary over time; and, iv) parameter estimates and/or predictions associated with each covarying factor are generally characterised by high uncertainty within a conditioning model due to weak correlation and/or model uncertainty. Under a binding arrangement which requires mechanical rules the use of fixed rather than varying MRP estimates is supported due to the difficulty in determining conditional relationships and their change through time.*

All of this may be true, however we consider it overlooks two key points:

- By setting the MRP as a fixed value, governing allowed rates of return for up to nine years, the ERA is implying a set of covarying factors; it is asserting that the weight it applies to the DGM and the historical MRP in this RoRI will be the same for nine years. Moreover, it is also asserting that the values of each will be the same for nine years, which is untrue.

- The role of the regulator is not to search for the "perfect" approach. The relevant regulatory question is not "is there a perfect way to capture the relationship between unconditional and conditional means?" but rather "is it better to capture some relationship and allow the conditional and unconditional means themselves to vary through time and reflect updated information for subsequent time periods than to assume a fixed MRP for up to 9 years?".

Finally, considering the 2022 AER and ERA RoRIs together further highlights the concern about variability in the MRP. Consider the conclusions of the ERA and AER in their respective 2022 RoRIs, reproduced in Table 1 in respect of just the unconditional means; which are supposed to be the more stable estimate.

Table 1: AER (RHS) and ERA (LHS) historical MRP estimate from 2022 RoRIs

Time period	Arithmetic mean	Geometric mean
1958-2021	6.77	4.56
1980-2021	6.84	4.77
1988-2021	6.55	5.11
2000-2021	6.84	5.30

Sampling period	Arithmetic average (%)	Geometric average (%)
1883 to 2022	6.3	5.0
1937 to 2022	6.1	4.4
1958 to 2022	6.6	4.4
1980 to 2022	6.6	4.6
1988 to 2022	6.2	4.9

Source: ERA: 2022 RoRI Explanatory Statement Table 11 p145, AER: 2022 RORI Explanatory Statement Table 7.3 p159.

The only real difference between the two estimates is that the AER, which made its decision just 2 months after the ERA, uses one additional year of data. The ERA's own estimate of the historical MRP in 2022 was 6 percent, based on all 4 of its time periods, including one which the AER does not publish. If it just used the first three time periods (which are common with the AER) and its approach to estimating the historical MRP, it would have obtained an answer of 5.96 percent. By contrast, that same methodology, using just one more year of data, results in an answer of 5.73 percent. The historical estimate is supposed to, as the AER points out, reflect a long run average, and adding one more year of data should not make this much difference to an MRP allowance.

Overall, it is clear from the information that the ERA itself considers that the MRP estimate is not stable, and there can be no confidence that an MRP estimate fixed today will remain fixed, or even representative,

over a period of up to 9 years. This would be true even if the ERA used only unconditional mean information (see Table 1 above), but it is especially the case when it gives some weight to conditional mean estimates which are *intended* to reflect short run information and cannot be taken, even in principle, as estimates which are likely to reflect expectations well over a long period of time.

In this context, we do not support an approach of using a fixed MRP estimate based upon a combination of a conditional and an unconditional mean estimate. We address the logic of the position and the updating of an MRP estimate through time below.

It appears that the ERA's main concern with updating the MRP through time appears to be the difficulty of setting in place a mechanistic adjustment approach it can trust (see Attachment 5 pp32-34) and meets the ERA's criteria of an "academically first best" mechanism (p33) or one which would "meet the National Gas Objective to the greatest degree". However, our concern is that there is no assessment of the counter-factual of setting a fixed MRP when the actual market risk premium is likely to be highly variable.

Rather than set a fixed weight for the DGM for use through the course of a RoRI, the ERA states its preference as (Attachment 5 p33):

> *Instead, we prefer to examine what information is being revealed from DGM estimates at each gas instrument review. These reviews evaluate the latest evidence on the expected market risk premium, where informative but noisy signals can be considered through assessment and consultation to establish an estimate for each new gas instrument.*

It is not clear to us where or how this assessment has been undertaken. In previous RoRIs the ERA has made a case for different weights based upon the conditioning variables (see p15 of our submission on the ERA's Discussion paper and note our concerns regarding consistency through time). In this Draft RoRI, no reason is given why the particular weights are used. Stakeholders cannot judge, therefore, if the ERA's analysis to determine why a particular weight should be appropriate to determine the fixed MRP value proposed for this RoRI could also be used to support a fixed weight to be applied to the conditional mean through the course of the operation of the RoRI.

We further note the following in the context of mechanistic weights (Attachment 5 p33):

> *We do this because of our concerns regarding DGM sensitivity and variability which detracts from its ability to be used in a mechanical way. These concerns regarding DGM reliability also mean that we cannot assign weights to DGM estimates in a way that promotes the national gas objective, which further detracts from its ability to be used in a mechanical way.*

This statement is unclear. In forming its estimate of the MRP based on historical and DGM estimates, the ERA uses a best estimate of the historical MRP of 5.9 percent and a best estimate of the DGM of 3.8 percent and comes up with an MRP estimate of 5.8 percent (see Attachment 5 p35), so it must be using some weights to come up with this weighted average final number, even if these are not specified in the RoRI.

If the ERA believes that the weights it has used to form the fixed value for the MRP in this RoRI are likely to change through time, then it must also believe that, if it were able to make a fresh RoRI, say in 2029, it would come up with a different result, which would imply that the MRP formed in this RoRI, in 2026, would be wrong in 2029; even if the values for the inputs of the conditional and unconditional means remained the same.

The basic problem is that the ERA appears unwilling to make any change from the status quo, unless that change is perfect. It says (Attachment 5 p34):

> *Likewise, we cannot completely and exhaustively document every contingency that might be needed to be exercised under an instrument to deal with unexpected events. By their very nature, unexpected events are not predicted, and any level of prescription would likely require potentially new methods and procedures to be utilised, which cannot be accommodated under a binding instrument.*

The stance the ERA takes on updating an MRP would preclude change, even where change is beneficial, if applied more widely. Indeed, the ERA does not apply it more widely but rather acts in a pragmatic fashion. For example, in 2022, it moved to bring international beta estimates into the formation of a beta estimate. All stakeholders (including the ERA) recognise that there is no "perfect" way to bring in international data to beta estimation,[12] but when the only alternative is to stick with out-of-date domestic data, the ERA made the sensible, pragmatic choice. We do not understand why the same approach cannot be taken to the MRP.

The ERA's characterisation of our view about mechanistic weighting mechanisms is also incomplete. In fact, we said (see p29 of our submission to the Discussion paper) that, if the ERA found it infeasible to develop a mechanistic method of combining the historic and DGM estimates such that they could be updated each year through the course of a RoRI, the second best solution would be to use a fixed MRP based on the unconditional mean; that would at least be logically consistent. We do not suggest that the ERA should maintain its current approach, just because updating was infeasible. Additionally, as we outline above, whatever analysis the ERA has done to reach its conclusion that updating is infeasible has not been provided in the Draft RoRI. To satisfy stakeholders, it should be included.

We note the following statement regarding our submission (Attachment 5 p34):

> *AGIG considered that a mechanism of applying fixed weights to the historic and DGM estimates is simple and logically consistent. AGIG's statements are true but omit consideration of outcomes. AGIG asserted that in the past we applied a 60/40 weight between historic market risk premium and DGM estimates in access arrangements. Applying this asserted weight would mean that given past DGM estimates range from 3.5 to 7.0 per cent, this would have resulted in market risk premium variability of 140 basis points that would have applied mechanistically.*

The ERA goes on to say that this is roughly ¼ of the historic MRP estimate itself, and, on the same page, in responding to ATCO, it talks about "volatility increasing approaches", which we take to be referring to the same issue. Two points flow from this. The first, a minor point is that our omitting the "consideration of outcomes" misses the point that we made in our submission to the Discussion Paper, which was that the ERA itself had maintained roughly the same weighting between evidence over several decisions even when it did not have to. We assume that this was done in full "consideration of outcomes" and found to be the right thing to do. Our more salient point is that, if the ERA could apply an effectively mechanistic approach then, it is not clear what has changed that means it cannot do so now.

Pink Lake address our concerns about joining conditional and unconditional means as well, stating (p35):[13]

[12] *There is, of course, no perfect way in which to estimate beta using just domestic data either. Indeed the many flaws identified in the CAPM model itself by many authors, both theoretical and empirical, mean that the whole approach to determining expected returns on equity used by the ERA and other regulators has imperfections.*

[13] *Pink Lake makes essentially the same statement on p38, responding to a similar concern raised by ATCO and indeed references the quotation above in the main text as it does so.*

One may feasibly consider an unconditional mean estimate as the fixed MRP. If evidence for an estimate of the conditional mean information is strong then the fixed MRP value may be moved towards the conditional estimate if there is confidence that there will be a general, consistent movement in the conditioning variable over the future holding period. If the correlation between the conditioning variable and MRP is characterized by uncertainty then that is sufficient reason to retain a fixed MRP rather than apply a time-varying variable. It does not mean that the regulator has concluded that only unconditional mean information is important in using the MRP estimate. However, how conditional mean information is considered and incorporated in the regulator's decision when that information is uncertain should remain at the regulator's discretion. Moreover, under a binding arrangement which requires mechanical rules supports the use of fixed rather than varying MRP estimates due to the difficulty in determining conditional relationships and their change through time.

Pink Lake appears to be saying that it is fine for the regulator to act in a logically inconsistent manner, by fixing an MRP after considering conditional mean information, provided there is some uncertainty in the estimation of the relationship between the conditional and unconditional means. This does not appear to be a particularly robust basis upon which the ERA can form its approach to MRP estimation.

It is also difficult to reconcile Pink Lake's view about the highly variable nature of the MRP (whose key characteristics like autocorrelation, skew and other aspects -see pp20-21 of the Pink Lake Report - change through time) with its view that it is appropriate for the ERA to set an MRP estimate that will govern returns for up to 9 years with no possibility of variation.

Pink Lake then (see p37) takes a partial quote (again, excising the part about logical consistency, which is the key part of the relevant paragraph) about how the ERA would have chosen a different MRP estimate had it made its 2022 RoRI estimate at any point in time between 2022 and 2026 had it used the approach it used in 2022 (this part of our statement is omitted), and uses it to conclude that (p37):

If there was no model or parameter uncertainty concerning the relationship between the conditioning information and MRP realisations, or if the future value of conditioning information was not unknown then AGIG's statement would hold true that the conditional mean estimator would be more efficient

However, our submission said nothing about the efficiency or otherwise of estimators, and in the context of what we said, the conditioning information would be current, not future and unknown information. For context, this is the full statement from our submission (Discussion Paper response, p 28):

There is, therefore, a logical inconsistency between how the ERA forms and then subsequently uses the MRP estimate. In simple terms, if the ERA followed the same approach it used to form its RoRI in 2022 in any of the subsequent AA decisions it made, it would likely have chosen a different MRP estimate than that which was chosen in the RoRI as the conditional mean would have changed, so the MRP derived in the RoRI cannot represent the efficient cost of financing that prevailed at the time any AA decision was made under it.

Our simple point is if the ERA had made its RoRI in 2023, or 2024 (or any year between 2022 and 2026), it would have chosen a very different MRP, even if it used exactly the same approach, and even if the unconditional mean had remained exactly the same in numerical terms. This is because the conditional mean changes rapidly, as the ERA itself acknowledged back in 2022 and continues to acknowledge. If the structure of the way in which an estimate is made leads to a very different answer at the point in time when the estimate is actually used (the purpose of the RoRI is not to get a good estimate of the MRP in December 2026, but to get a good estimate of the MRP at each AA after 2026) compared to when it is made, then this is not an appropriate structure to apply and not one that can meet the NGO in our view. This is the point we are making; it has nothing to do with efficiency or future unknowns.

To give a different example. The next DBP AA decision will be made in December 2030, in time for the next AA which starts on January 1st 2031. The next RORI will also be made in December 2030. If the AA decision is made on December 5 and the next RoRI comes out on December 6, then the AA decision will have an MRP based on data which is 95 percent informed by an historical MRP which admits no information newer than December 2025 and 5 percent informed by information no newer than about September 2026 (or whenever the ERA finalises its DGM estimates, and assuming the same weights as in the Draft RoRI). This is intended to inform the appropriate return on equity for investments starting on January 2031. And yet, on the very next day the ERA will produce another MRP estimate, which may be very different and which, by construction, is intended to be the best estimate for that particular point in time; including an AA decision made on December 7 2030. This is illogical in our view.

Furthermore, whilst it is true that the DGM estimate of the MRP has changed from roughly 7 percent down to roughly 3.5 percent over recent years, that has happened as risk-free rates have increased. So the market risk premium (informed by the falling DGM) would have changed in an opposite direction to the risk-free rates, resulting in a more stable return on equity if the MRP had been allowed to vary through time over the most recent RoRI period. This is essentially the conclusion the AER reached when considering this issue as part of its assessment of mechanistically updating MRP estimates as part of its 2022 RoRI process.[14] This is not to say there would always be an inverse relationship, and we do not intend to re-open that particular debate, but the facts of the last few years are quite different to what has been presented.

Additionally, we note that a key reason for the ERA's proposal to change the cost of debt approach from the on-the-day swap rate approach to a full trailing average is to improve stability in prices (see Attachment 4 p23). It is not clear why an approach which could result in a more stable return on equity allowance is rejected, and indeed the potential for such stability not even considered, when in debt, said stability has been a key part of the ERA's choice for change.

In conclusion, we do not say that the ERA must switch to an MRP which changes through time in a mechanistic fashion as it did in 2013. This is our preferred position, but the ERA has proven to be unresponsive to these arguments in past RoRIs and remains so. Rather, we ask only that:

- The ERA be logically consistent and only use unconditional information if it sets a fixed MRP, or explain why its adopting an illogical approach provides the best outcome; and
- Provide much more detailed explanation of how it has actually formed its conclusions, so stakeholders can see how various aspects have been traded off against one another in a rigorous cost-benefit analysis.

Arithmetic and geometric means

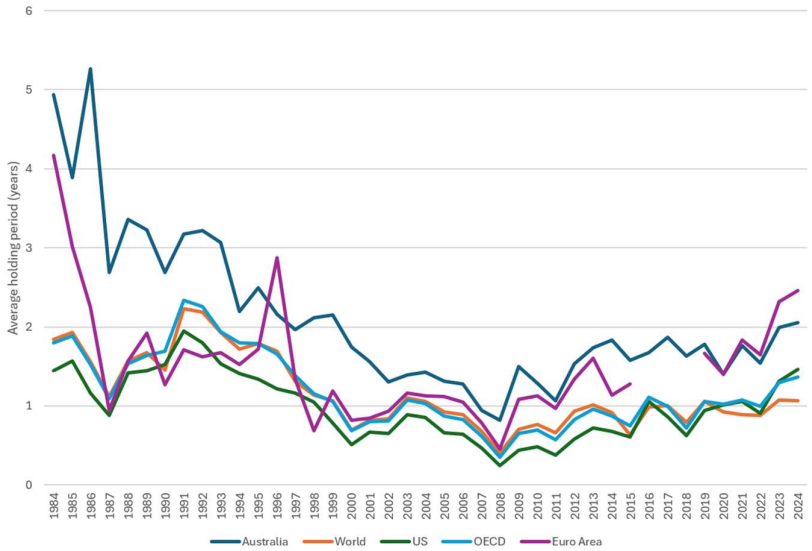
In respect of the unconditional mean, the key issue at hand is whether to use the arithmetic mean, the geometric mean, or both and, in the case of the latter, the proportion given to each. This is not a new debate and, as with the fixed or varying MRP, we focus on new information not yet considered.

As we note above, Pink Lake has decided that it should estimate the compound annualised growth rate over a 10-year holding period, but no reason is given as to why this is the correct holding period to use. In the past, Lally has argued that, because the regulatory model assumes annual returns, the holding period in the model is one year.[15] Others have suggested that, because the purpose is to estimate the

[14] *See AER 2022, Draft Rate of Return Instrument: Explanatory Statement, p283 (available here).*
[15] *See Lally, M, 2012, The Cost of Equity and the Market Risk Premium, Victoria University of Wellington, 25 July 2012, pp31-2, available here*

required return in the market, it is the holding period in the market which matters.[16] However, the relevant holding period has, to our knowledge, never been measured.[17] We do so now, in Figure 1.

Figure 1: Holding periods of stocks



Source: World Bank Data Stocks Traded (turnover ratio) available here. Holding period defined as 1/(turnover ratio)

For Australia in 2024, the average holding period was around 2 years, which is slightly above other markets. This is slightly higher than data direct from the ASX at around 1.3 years (source data available here) which includes all venues and product types, whilst the World Bank only includes order book trading in domestic shares.[18] The basic point is that average holding periods in the market are not in fact very different from one year which means the use of the arithmetic mean alone is reasonable.

If, however, the ERA finds evidence that the holding period of market stocks is significantly in excess of one year, and it considers it needs to account for the potential bias in arithmetic and geometric means, then it needs to find evidence to support its proposed ratio of 60/40, which it currently uses. This is an

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[16] The ERA cites Partington and Satchell (see [810] of the 2022 RoRi Explanatory Statement) in this respect. Pink Lake (see pp33-36) make a different argument, stating that, if the historical data are used to make a forward-looking forecast of even one year (Pink Lake does not disagree that the best, unbiased estimate of a single-period MRP is the arithmetic mean), then volatility in the historical data will lead to bias in the arithmetic (and geometric) mean. We suggest that it introduces uncertainty; not bias. The ERA (Attachment 5 p115) cite work by Partington and Satchell (2015 – available here) which says much the same thing as Pink Lake; except that Partington and Satchell appear to define the geometric mean as the target and then show that the arithmetic mean is a biased estimated of this, which does not seem relevant to the question of the suitability of the arithmetic mean itself. In any case, the ERA uses the conditional mean as the forward-looking component of its MRP allowance, and so it is not clear how relevant the position of either Pink Lake or Partington and Satchell is to the ERA's task of finding the best historical MRP estimate for use with its forward-looking conditional mean estimate is.

[17] We note that Pink Lake, in a 2017 paper for the ERA (available here, see p12) explicitly calls for the ERA to provide an investment horizon in response to arguments such as this. However, this has not, to our knowledge, ever occurred, or, if regulators have considered such a horizon, they have not based it on actual data on holding periods in the market.

[18] In both cases, this is all trades, including high frequency trades. These are part of the market, and thus part of expected market returns, so it would be inappropriate to simply ignore one part of the market. However, Bradrania, Elliot and Wu (2022 – available here) report daily turnover of 0.457% for ASX 200 and 0.23% for other stocks, resulting in holding periods of 221 and 451 days respectively, and report holing periods of 221 (trading) days for foreign institutions and 328 for local institutions, which are not significantly different to our metrics, so excluding high frequency trades would not, for example, increase holding periods of other investors to anywhere near the 10 years assumed by Pink Lake.

issue the ERA has never addressed, instead asking Pink Lake to address an entirely different, and unrelated question, which is summarised by the ERA itself (see Attachment 5 p18) as follows:

> *This was informed by Pink Lake Analytics, who examined the statistical properties of the historic market risk premium. After conducting analysis regarding whether there was an optimal weight to provide to the arithmetic and geometric means, it concluded that no such optimal weight could be derived, but that various weights were related to the estimation horizon and the forecast window.*

Pink Lake has found no statistically "optimal" weighting, and the ERA has interpreted this to mean that, since there is no evidence of an optimal weighting, the 60/40 weighting cannot be proven incorrect, and therefore the ERA is open to using it. This has the approach to determining a reasonable method backwards and indeed makes it impossible to determine what is the best weighting to use. By the ERA's logic, for example, there is no way of determining, by construction, whether a 10/90, or a 90/10 weighting is appropriate. Indeed (see Attachment 5 p18), the ERA's CRG has proposed a 50/50 weighting, and the ERA has ignored this proposal entirely; we suspect this may be because the ERA can give no reason why the CRG's proposed approach is unreasonable.

Instead, to provide evidence that its choice of a ratio of 60/40 is sound, the ERA needs to consider 2 factors:

- Whether it believes that the various distributional assumptions which underpin the different weighting measures that exist in the literature actually obtain in the Australian market; and
- Whether the ERA considers it appropriate to provide unbiased or minimum mean squared error results.

In respect of the former, we note the discussion above about Pink Lake's conclusions, which would seem to suggest its belief that, in fact, few of the distributional assumptions underpinning the various models hold. However, if the ERA also concludes the same (which it may do, see Attachement 5 [108]), the correct answer is not that any weighting is as good as another, but rather that the MRP decision should reflect the characteristics of the actual data. On page 19, Pink Lake suggest the price series is perhaps a random walk, and on page 29, based on their simulations which mix data and assumptions, they suggest negative serial correlation over the whole return time series (page 20 suggests this has changed through time, but it has been negative for nearly 50 years according to Pink Lake). Neither of these would suggest a fixed MRP would be appropriate.

In respect of the latter, we note Pink Lake prefers minimum mean squared error estimation from a statistical perspective, but this is somewhat irrelevant from the perspective of what best meets the NGR, which is the ERA's requirement. It would appear, from context, that the ERA wishes to form an unbiased estimate of the MRP estimate. For example, in Attachment 5 of the Draft RoRI (p23), it says:

> *For the 2026 draft gas instrument the ERA maintains that an unbiased estimate of the historic market risk premium is likely to be somewhere between the arithmetic mean and the geometric mean. We continue to support the use of a weighted average of the arithmetic and geometric means.*

The ERA places a similar focus on unbiased estimators on p24, as well as earlier in its discussion on p19 and p22. This is, we believe, correct; if the ERA is intending to meet the revenue and pricing principles, and provide an allowed rate of return which is provides a reasonable opportunity to recover at least the efficient costs the service provider incurs (NGL Clause 24) then it cannot be using biased estimates. This is a point we have made before (See our Discussion paper response p23).

If the focus is on unbiased (or at least minimum biased) estimates, then the answer is reasonably clear; the paper by Indro and Lee (1997), and both papers by Jacquier Kain and Marcus (2003 and 2005)[19] all use much the same weights, as we point out in our submission to the ERA's Discussion Paper.[20] We note that the ERA says, in respect of the latter Jacquier et al paper that (Attachment 5 p23):

> *Pink Lake Analytics also noted that statistical estimators can provide contradictory weights, where the large sample JKM estimator would put 70 per cent weight on the arithmetic mean, but only 30 per cent weight if using the small sample JKM estimator. That is, the same class of statistical estimator would put one weight for the arithmetic mean, but a different formulation would put that same weight to the geometric mean instead.*

This is incorrect because the two estimators are different things; one is an unbiased estimator and one minimises mean squared error. That is why they have different weights on the arithmetic and geometric mean. If the ERA is focussing on unbiased estimators, then the weights on the minimum mean squared error are irrelevant. To assist in the task of providing unbiased estimates of a weighted, historical MRP estimate using both arithmetic and geometric means which accords with the literature, we provide a summary of the results for unbiased estimators, given the average investment horizon in the market data noted above of 2 years. This is provided in Table 2, alongside the ERA's current estimate.

Table 2: ERA and unbiased weighted estimates of the market risk premium (H=2 years)

	Arithmetic mean	Geometric Mean	ERA	Indro & Lee (1997)	Jacquier et al unbiased (2003, 2005)
1958-2025	6.65	4.57	5.82	6.62	6.59
1980-2025	6.66	4.76	5.90	6.62	6.58
1988-2025	6.37	5.06	5.85	6.34	6.30
2000-2025	6.52	5.2	5.99	6.47	6.42
Mean			*5.89*	*6.51*	*6.47*

As can be seen, the unbiased estimate which can be justified by the literature (provided the ERA assumes that the distribution of market returns in Australia is sufficiently "well-behaved") is 6.5 percent. This is slightly lower than the average of the arithmetic mean over the four time periods the ERA considers.

Proposed solution

We propose three solutions, in order of preference, below. They are based on the following assumptions:

- The conditional DGM estimate is 3.8 percent (as per the ERA Draft RoRI - see Attachment 5 p29)
- The arithmetic mean of the unconditional estimates is 6.55 percent (as per the ERA Draft RoRI - see Attachment 5 p25)
- The unbiased combination of arithmetic and geometric means, from Table 2 above, is 6.5 percent

[19] *Cited at p27 of our response to the Discussion Paper. As in that response, we do not consider any of the estimates from Kaserer. Pink Lake, responding to our criticism of the Kaserer paper which forms a large part of its 2022 report, but plays almost no role in its 2026 report, cast our criticism as "invalid" because we had not critiqued Kaserer's methodology. This misses the point; the role of regulation is to reflect investor expectations and a paper which appears never to have been read by any investor cannot be held to be influencing investor expectations, whatever its academic merits. As we point out in our submission to the Discussion Paper (see p26), when providing advice to a regulator, Kaserer favours the arithmetic mean.*

[20] *We note that, although the AER does not in fact use geometric means, it does calculate the combined geometric and arithmetic mean metric and, in doing so, uses the approach of Indro and Lee, and has done so for some time (see, for example, the 2022 Final Explanatory Statement p144-5 and Table 7.3 on p159)*

- The weighting of unconditional vs conditional means is 95/5 (back-solved from the data on p35 of Attachment 5)

Under these assumptions, the first best option is to set an MRP which includes both conditional and unconditional MRP information, and then to allow it to vary mechanistically through the course of the RoRI, and, potentially, through the course of any AA made under the RoRI (much as the cost of debt varies every year). This would give starting value of the MRP of 6.4 percent (0.05*3.8 + 0.95*6.55).

The second best option would be to set a fixed MRP based on an unconditional mean which in turn is based solely on the arithmetic mean, and would give an MRP of 6.55 percent. This would not change during the course of the RoRI, or any AA made under the RoRI.

The third best option would be to provide a fixed MRP allowance based on an unbiased combination of arithmetic and geometric means which is formed using market data on average stock holding periods. This would give an MRP of 6.5 percent, which would be fixed over the course of the RoRI and any decisions subsequently made under it.

Other issues

We raise a number of other minor issues as set out below:

- Attachment 1 p3 – says that this RoRI will apply to DBP. This may or may not be the case; the RoRI that is current at the time of the relevant decision is the one which will apply, and both the next RoRI and the DBP AA7 decision are scheduled to be released in December 2030, so it depends on which is issued first. At present, this is not an issue but, closer to the time, the ERA will need to be clear which RoRI will apply and will need to manage both processes carefully to ensure this happens. This is because, by law, the RORI which is in force when a final decision is made is the RORI which will apply (NGL 30Q).

- Attachment 2 pp 11-13 – the comparison of the sensitivity analysis of 2022 with subsequent outcomes is not really a test of the 2022 RoRI itself, but just a test of whether the sensitivity bands were wide enough. It appears they were, but this tells us nothing about the performance of the RoRI in respect of its key roles in respect of supporting efficient investment. On p14-20 of Attachment 2, the ERA mentions five possible checks. However, there is no analysis of those checks. We note that the Independent Panel (see p10) has also criticised the ERA in this respect, and we would agree with the Panel that further work is needed.

- Attachment 7 pp 10–13 the sensitivity analysis should reflect known extreme scenarios, such as the very low rates prevalent in the early 2020s. It is not simply a matter of just producing a WACC estimate and assessing reasonableness in the abstract; instead, the ERA needs to assess whether the efficient business is sustainable under these extreme conditions. The best way to do this is bring financiability analysis into the sensitivity testing, and ensure that, in extreme scenarios, the benchmark efficient firm would be able to maintain the BBB+ credit rating that the ERA considers efficient. On p12 of Attachment 7, the ERA says that it considers its Draft RoRI to be "robust to a wide range of market conditions", but it has not really tested this; all it has done is present a series of numbers for WACC, explain how the training average works, and make a judgement call on reasonableness. The sensitivity analysis needs to be tied to something, and that something is a test of financial sustainability under extreme situations.

Response to the Independent Panel

In this section, we provide our responses to the two key issues the Independent Panel devoted most of its response to; the debt transition and the estimation of beta. Other smaller issues are responded to in the cover letter or in the more detailed discussion above, as appropriate.

Debt transition

The Independent Panel makes a series of recommendations in respect to the transition for the cost of debt approach (see pp 25 to 31 of that report). It does not appear to oppose the transition per se, but rather the way in which the transition might occur. In particular, the Independent Panel:

- Appears to believe the ERA need to gather more evidence that the issue which has precipitated the change is ongoing and likely to cause consumer harm.
- Appears to favour a shorter transition, potentially even a "zero transition", and to start any transition at the time the RoRI is published and not at the time any AA starts under the RoRI.
- Appears to want a strong focus on actual debt costs, and in particular, evidence from networks to substantiate any actual costs which flow from the transition.

Many aspects of the points the Independent Panel have made were debated some 10 years ago when transition approaches were first mooted for debt, and this debate does not appear to have informed the Panel's analysis. We consider that its proposed solutions could lead to significant costs for customers if they are acted upon by the ERA.

In respect of the concerns the Panel raises in respect of the "evidenced problem" of rising prices due to volatile and rising costs of debt, it is not clear that the Panel has properly understood the context the ERA is attempting to address. DBP's 2021 AA decision was made at a uniquely low point in interest rate cycles (we calculate that we may have chosen the lowest point in some 5,000 years, based on academic research which appeared around the time).[21] Subsequent to that, interest rates have returned to more normal levels, which has resulted in increases in price. Had a full trailing average been in place at our last reset, rather than experiencing the rise in rates via a single jump in price, shippers would have experienced the same rise in a series of smaller steps, which may have been easier for them to address.

It is unclear whether the same kind of interest rate rise seen in the past five years will be seen again, or whether the same rise will be reversed, or whether some other pattern of interest rate evolution will emerge. In this context, it is unclear what the ERA is supposed to meaningfully do in order to provide the "evidence" the Panel seems to seek. For our shippers, interest rates themselves are of little interest; it is the prices they cause when passed through a WACC and building block model that matter. Any analysis undertaken by the ERA would need to be a counterfactual analysis, comparing prices under one transition approach (or the status quo of no change) and another. However, that analysis would be entirely driven by whatever assumptions the ERA makes about interest rate evolution. That is, the analysis would reveal nothing about the intrinsic worth of one transition approach over another but would rather simply reflect whatever assumptions were made about interest rate movements, which are variable none can predict.

In respect of the length of the transition period, the Panel appears not to have recognised costs associated with its proposed changes. DBP, for example, is hedged, following the ERA's current cost of debt approach, out to January 2031 when our next AA starts. If we were to commence the transition in January 2027 (after the RoRI is published), we would need to unwind all of those hedges. This would be very costly. Moreover, given that under both the current and the proposed future cost of debt approach, we

[21] *See this speech from the Bank of England from a few years earlier, when rates were marginally higher. The basic point is that the risk-free rate estimates were formed at a time when rates were at historic lows, and they have subsequently recovered.*

roll over one-tenth of our debt every year, the only way we could put in effect a transition period shorter than 10 years once the transition starts (we cannot roll out a tranche of debt worth 10 percent of our debt book and roll in one worth 20 percent without increasing the size of our debt book) is to overlay the debt book with a complex set of hedges designed to try and give effect to this attempt to shorten the transition period.[22] This, again, would be costly.

It is not clear what benefit customers would gain from incurring these costs. As noted above, whether prices for customers are lower or higher depends entirely upon the weighted average cost of debt at any point in time due to the structure of the particular transition mechanism. There is, in particular, no reason to suspect that a shorter transition would lead to a lower weighted cost of debt. Nor is there any sensible way for the ERA to ascertain whether their might be, as nobody can predict interest rate movements.

Thirdly, the Panel appears to favour something very close to an "actual cost" approach to debt, requiring networks to produce evidence of any costs actually incurred when moving through the transition (whichever transition it happens to be) and, in the absence of such evidence, simply wearing any cost of transition. This is a significant change to the benchmark regulation approach which has prevailed in the past. Its logical conclusion would be for debt itself to become a pass-through cost, which takes away a key part of incentive regulation as it removes the incentive to source debt at or below the benchmark level.

This is an issue we picked up in our submission to the ERA's Discussion Paper.[23]

As a final point, we wish to point out an error in the Independent Panel's assessment of "incentives" (see p29 of the report), where the Panel suggests that networks can gain (and indeed have an incentive to seek) advantage from departing from the benchmark (in this context, it appears the Panel is talking about the timing of debt) providing an asymmetry for customers. The claim, like others made in the past about networks gaining advantage by moving away from the benchmark, ignores risk. In particular:

- The ability to alter the tenor of existing debt is limited as debt is a contract, and any network trying to do so would need to gain the agreement of the counterparty to the particular debt instrument and, depending on whether it affects the risks of other debt holders, their consent as well. This takes time, and is not costless, which makes the returns from timing the market limited; and

- If a debt instrument has a tenor of ten years, anyone seeking to change the start date also needs to think of what effect this might have on the end date, and the refinancing risk which may arise. Predicting changes in interest rates over the short time period required to retire an existing debt instrument early and commence a new one is hard enough; predicting how this might change the rates available at the next refinancing is next to impossible.

For this reason, we would disagree that the ERA needs to provide a "response" to the incentive issue that the Panel thinks exists, as the issue itself does not exist.

Beta estimation

The Independent Panel has come to much the same conclusion we arrive at above, that; based purely on the empirical evidence as presented by the ERA, a case could be made for a beta lower than 0.7. Where we differ, essentially, is our assessment of the ERA's use of regulatory judgement, where we consider that use of this judgement does support remaining at 0.7 and the Independent Panel would like to see more

[22] Under the ERA's proposed approach, each new tranche of debt has zero hedging costs.
[23] See page 12 of that submission. We note that the transition mechanism we propose in that submission is different to the one the ERA has chosen; though both are acceptable.

analysis. The Panel is concerned, in particular, that the ERA may have exercised "status quo bias" (see the Panel report p21) in keeping beta at 0.7. We disagree, and consider that the Panel may itself be subject to some biases in respect of its consideration of the evidence, notably:

- A large portion of the firms in the overall sample are indeed US firms (Panel report p23), but the US itself gets no more weight than any other country, so it is not clear how this relevant. It is also not clear how different, exactly, US regulation is from other countries,[24] and why this would necessarily lead to a different beta. We note that the ERA itself has addressed issues of difference carefully via its filtering mechanism. We note also that the US and Canadian 10-year OLS estimates, and the Canadian 10-year LAD estimate (see Table 5.7 in Attachment 5) point to beta estimates of at least 0.7, and that it is not the case that North American data point universally to a beta below 0.7.

- Both New Zealand and the UK (Panel report p23) do have a single firm in the sample, but Australia likewise has only one live firm and the Panel does not appear to have any concerns in respect of the Australian data. It is not clear whether the Panel is being consistent in this respect. Similarly, it is not clear why one should draw the conclusion that the 5-year estimate of the single UK firm may be providing "idiosyncratic" evidence (Panel report p24) but the 5-year estimate of the single live Australian firm, which has estimates towards the lower end of the range is not.

- The Panel's suggestion (Panel report p23) that the ERA look to European firms may have merit, but we note that European regulators (see Attachment 5 p 66 of the Draft RoRI), who presumably have the best view of appropriate betas in each of their jurisdictions, almost all provide beta allowances above that provided by the ERA. It seems likely that this is evidence of a higher, not a lower beta.

- The use of a non-zero debt beta (Panel report p23) appears to make little difference to results according to the calculations undertaken by the Panel, particularly when one considers the precision of beta estimates in the first instance. Additionally, as we note above, empirical evidence in support of a particular debt beta value, in the Australian context, appears lacking.

- The ranges of both domestic and international debt betas provided by the Panel on p23 of its report appear to contrast with the ERA's estimates, provided at [347] and [349] of Attachment 5 respectively.

- The "mean all methods" value for New Zealand (Panel report p 24) is indeed 0.61 to 0.62 as the Panel suggests, but this obscures the fact that the OLS estimates are between 0.65 and 0.68, so there is in fact evidence from New Zealand much closer to 0.7 than 0.6.

- There is no greater weight (Panel report p24) given to UK and New Zealand firms in the ERA's analysis; as Table 5.7 (Attachment 5 of the Draft RoRI) shows each country is given equal weight. Likewise, there is no evidence in that same table that US or Canadian estimates have been "de-weighted".

[24] *See Weisman, DL, 2026, "The Commitment Problem in Regulatory Regimes", Journal of Regulatory Economics, 69(25), available here.*