

9 May 2022

Mr Steve Edwell
Chair
Economic Regulation Authority
Level 4, Albert Facey House
469 Wellington Street
Perth WA 6000

Dear Mr Edwell

Re: Rate of Return Instrument Focused Consultation Discussion Paper

Thank you for the opportunity to respond to the Focused Consultation for the 2022 Rate of Return Instrument Review Discussion Paper published 4 April 2022. This letter outlines a submission from ATCO Gas Australia (ATCO).

ATCO is supportive of the ERA's additional focused consultation on the Beta and Market Risk Premium parameters of the Capital Asset Pricing Model. Improvements in the estimation of the return on equity parameters, beta and the market risk premium, are welcomed. Our detailed responses to the ten questions posed by the ERA can be found in Attachment 1.

In summary, our response to the focused consultation discussion paper is as follows:

- **Beta** – The sample of available domestic listed firms has declined to one. Additionally, beta estimates for domestic firms in recent years may be affected by merger and acquisition activity. ATCO supports the ERA's use of international comparators to address the small sample size problem of using only domestic firms to estimate beta.
- **Market risk premium (MRP)** – ATCO supports giving explicit weight to the Dividend Growth Model estimate of the MRP to provide a more forward looking estimate consistent with the National gas objective (NGO). The MRP must be calculated mechanistically at the time of each Access Arrangement decision to ensure it reflects market conditions at the time including the risk free rate.

ATCO sincerely hopes the initiative shown by the ERA investigating matters relevant to the return on equity in this focussed consultation will lead to improved estimation of the return on equity CAPM parameters and ultimately returns that provide efficient investment signals in the long term interests of consumers.

I look forward to continuing to work with the ERA throughout this review process. If you have any questions or would like to discuss any of these matters further please contact me or Hugh Smith, General Manager Regulation and AA6 Lead.

Yours sincerely



John Iyulich
Chief Financial Officer
Attachment 1: ATCO submission



ATTACHMENT 1: ATCO SUBMISSION

2022 RATE OF RETURN INSTRUMENT FOCUSED CONSULTATION PAPER

GAS DIVISION

09/05/2022

Contents

1.	INTRODUCTION	1
2.	BETA.....	3
3.	MARKET RISK PREMIUM	10
APPENDIX A.	REVIEW OF ERA BETA ESTIMATION - AMENDMENTS TO COMPARATOR FIRM SAMPLE.....	17
APPENDIX B.	EFFECT ON FULL POOLING AND COUNTRY POOLING	20

1. INTRODUCTION

ATCO welcomes the opportunity to respond to the Economic Regulation Authority's (ERA) Discussion Paper titled "Focused consultation for the 2022 gas rate of return instrument review" dated 4 April 2022.

The ERA's Discussion Paper outlines the ERA's additional focused consultation on the Beta and Market Risk Premium (MRP) parameters of the Capital Asset Pricing Model (CAPM). CAPM is the model used by the ERA to set the equity rate of return (RoE) in its rate of return instrument (RORI).

The ERA in its discussion paper has requested responses to a series of question on Beta and MRP:

*"For **equity beta**, given the de-listing of energy networks, the ERA is considering the potential use of international comparators for the 2022 gas instrument. This would be a new element of the beta estimation method, and so the ERA is seeking views on how international comparators might be selected.*

*For the **market risk premium**, the ERA is considering suggestions from stakeholders that may assign specific weights to the results of different estimation methods to estimate the market risk premium and suggestions that the market risk premium should be updated at every access arrangement review, rather than remaining fixed for the four-year term of the gas instrument."*¹

ATCO is supportive of:

- Expanding the sample of betas to international firms to address the small sample size issue of using only Australian firms.
- Including the "calibrated" DGM in the estimation methods used to estimate the market risk premium.

ATCO's responses to the Focused Consultation Paper questions are summarised in the following table.

Table 1.1: Summary of ATCO's submissions – ERA focused consultation

ERA Question	ATCO Response
Beta	
1. Are the firms selected by the ERA in the discussion paper (reproduced in Appendix 1 of the Discussion Paper) appropriate? If there are firms which are inappropriate, what characteristics make them inappropriate?	ATCO undertook a review of the international firms selected by the ERA based on the criteria outlined by ATCO in its February 2022 submission to the ERA's December 2021 discussion paper. The result is listed at Appendix A with reasons for amendments to the ERA's selected firms noted.
2. Are there any additional jurisdictions that should be considered by the ERA?	No, ATCO supports the ERA adding listed international firms operating energy networks in the United States, Canada, United Kingdom and New Zealand to the domestic comparator set.
3. Should the ERA consider reweighting foreign market indices to be reflective of the Australian Securities Exchange (ASX), or would this create distortions?	No, amendments should not be made. Consistent regulatory practice has been not to make adjustments for differences in the industry weights of foreign market indices ² .

¹ Economic Regulation Authority, Focused consultation for the 2022 gas rate of return instrument review, 4 April 2022, page 3

² As noted by ENA; ENA, Estimating the Cost of Equity, Response to AER's Pathway to 2022 Rate of Return Instrument: Draft Equity Omnibus Working Paper, 3 September 2021, page 76

ERA Question	ATCO Response
4. What adjustments, if any, should be made to estimates of international equity betas?	The only adjustment made should be to re-lever beta to be consistent with the RORI benchmark gearing using the commonly used Brealey-Myers ³ levering method.
5. Once the sample has been selected and individual betas have been estimated, how should the ERA best use this information to determine an equity beta point estimate? Should this be done in a mechanical way or should regulatory discretion be used?	There are benefits and disadvantages to both the “full pooling” and “country pooling” methods outlined by the ERA. The estimates calculated cannot be mechanically adopted and should be tested for reasonableness using regulatory judgement, for example, by comparison to values calculated by international regulators and the range of estimates within and across samples. Domestic anchoring should not be used as it perpetuates the current sample size problem.
Market Risk Premium	
6. What are stakeholder views on the calibrated DGM proposed by Energy Networks Australia? Does this amended model provide additional confidence in the DGM and how?	ATCO considers that it is essential to incorporate results from a DGM model into the MRP estimate. ATCO supports use of the calibrated DGM for this purpose and considers that this DGM model has the advantage of removing concerns about subjectivity in the growth rate parameter.
7. Is it possible to combine inputs in a more formulaic manner when estimating a forward-looking market risk premium	Yes, a mechanistic way to use DGM model results for calculating the MRP can be specified in the RORI. The ERA may use judgement at the time of the RORI decision (for example, in specifying model weighting), but this can then be codified in the RORI for MRP updates at the time of access arrangement determinations.
8. What weight, if any, should be assigned to the historic market risk premium, DGM and conditioning variables in estimating the market risk premium?	ATCO considers that the evidence of the weights adopted by the ERA in past determinations suggest that a 50% weight could reasonably be applied to the DGM estimate in the RORI, and 50% weight on the arithmetic average historical market risk premium. No weight should be applied to the geometric average.
9. Do you support a fixed or updating market risk premium being used over the four-year term of the gas instrument?	The MRP should be updated at the time of the AA review to be consistent with the market conditions under which the risk free rate is estimated.
10. Is it possible to estimate a forward looking market risk premium in a completely mechanical way with no use of regulatory discretion?	Yes, the mechanistic way in which the MRP is updated at the time of an access arrangement determination can be specified in the RORI. ATCO encourages the ERA to engage with Frontier Economics regarding how the DGM can be updated in a mechanical way.

The remainder of this document is structured around the questions posed by the ERA in the discussion paper. We restate the question followed in each case by ATCO’s detailed response.

³ Brealey, R., S. Myers and F. Allen, 2020, *Principles of Corporate Finance*, 13th edition, McGraw-Hill

2. BETA

Firm selection

1. Are the firms selected by the ERA in the discussion paper (reproduced in Appendix 1 of the Discussion Paper) appropriate? If there are firms which are inappropriate, what characteristics make them inappropriate?

ATCO supports the ERA adding listed international firms operating energy networks to the equity beta estimation process from several jurisdictions.

The United States, Canada, United Kingdom and New Zealand are appropriate jurisdictions because these countries have capital markets that are sufficiently deep, liquid, large and informationally efficient. They also have stable regulatory regimes.

In terms of selecting the firms within these jurisdictions ATCO supports the firms being selected based on a set of screening criteria that includes:

1. To ensure business risk comparability for an energy firm beta estimate, the company should be predominantly engaged in energy transmission or distribution, as identified by some threshold quantification of the proportion of revenue, cash flow, or asset value that is associated with regulated business activities. For example, some regulators have established criteria such as

a) At least 70% of revenues are in relevant regulated utility businesses⁴

b) At least 50% of their assets dedicated to regulated utility service⁵

Note that the particular thresholds established for regulated revenue, cash flow, or asset value may be tuned to strike an appropriate balance between obtaining a statistically adequate sample and selecting comparators that are as close as possible to pure play energy network operators.⁶

2. A company must also have sufficient liquidity to allow its share price to move as its risk relative to the market changes. This could be measured by the percentage of the company's shares traded over, say a week on average or require that the companies have an investment grade credit rating, and more than \$US300 million in revenues to ensure liquidity. As an alternative threshold, QCA has found companies with a market capitalisation of over \$US 150 million have sufficient liquidity for reliable beta estimation.

3. Eliminate companies whose stock return data may have been affected by M&A transactions during the relevant beta estimation window; a threshold for the size of the transaction in proportion to the company's market cap (e.g., 30%) may be established to identify potentially material M&A activity, with such a screen to be supplemented by reasoned judgement and common sense with respect to whether proposed and/or completed transactions had a material impact on the company's stock price.

⁴ Queensland Competition Authority, Rate of return review, Final report, November 2021, pg 74. Note that in some instances, it may be appropriate to replace or supplement revenue metrics with cash flow metrics (such as operating profit or EBITDA) in assessing the importance of regulated energy transmission or distribution operations to the company's business

⁵ Alberta Utilities Commission (AUC), 2021 Generic Cost of Capital (GCOC) Proceeding ID 24110 Responses on Evidence to: Alberta Utilities Commission (AUC), Exhibit 24110-X0077, Evidence of Bente Villadsen, pg 73

⁶ With respect to proxy group selection for setting the allowed rate of return on equity for natural gas or oil pipelines under its jurisdiction, FERC applies a 50% cash flow threshold to North American pipeline companies, but applies that standard flexibly, relaxing it when necessary to obtain a proxy group of at least 5 members. Policy Statement on Determining Return on Equity for Natural Gas and Oil Pipelines, 171 FERC 61,155, paragraph 64 (2020).

-
4. Stock price information for a company should be available for the entire observation period to ensure uniformity in the estimation window across the sample and avoid any issues related to listing or de-listing.

ATCO has recommended that the Alberta Utilities Commission apply similar criteria when selecting firms to establish its estimate of beta as part of their Generic Cost of Capital proceedings.⁷

With regard to M&A activity the ERA has noted in its discussion paper in 2021 there were takeover bids for both Spark Infrastructure and AusNet Services. With those takeovers now complete, APA Group is the only remaining domestic listed energy network. Additionally, DUET has been delisted for a number of years. This means that the domestic energy sample used in the 2018 gas instrument has substantially reduced – to a single firm – from 2022 onwards.⁸ Further, even though the acquisitions of AusNet Services and Spark Infrastructure were completed relatively recently, care must be taken in using partial period data for these firms in estimating beta. ATCO submits that it would be inconsistent and illogical to consider these acquired and delisted firms while excluding foreign firms that have been similarly impacted by M&A activity.

ATCO has undertaken a review based on the criteria outlined above of the firms selected by the ERA and listed in Appendix 1 to its Discussion Paper. Based on the criteria above some amendments were made to the sample firms used by the ERA, including:

- Removal of 3 delisted domestic firms
- Removal of SSE Plc in the United Kingdom: Company derives a minority of its revenues from regulated utility service; its business is predominated by unregulated production and marketing of power and other commodities and the unregulated provision of energy services.
- 2 Canadian companies were removed as they did not provide regulated utility services. They were replaced by two more appropriate energy utility companies.
- 16 United States firms were removed from the sample for a variety of reason including
 - Proportion of business not related to regulated activities
 - Sub investment grade credit rating
 - Business size

A listing of the amendments made to the sample of firms is included at Appendix A.

Despite these amendments by averaging either the sample of companies or the average of each jurisdiction the resultant average beta is very similar.

⁷ Alberta Utilities Commission (AUC), 2021 Generic Cost of Capital (GCOC) Proceeding ID 24110 Responses on Evidence to: Alberta Utilities Commission (AUC), Exhibit 24110-X0077, Evidence of Dr Bente Villadsen, pg 73

⁸ Indeed, even though APA Group remains listed, it was the target of an unconsummated acquisition bid in August – November 2018 and placed a bid for AusNet in the fall of 2021.

Table 2.1: Average beta estimates (ERA data and ATCO review amended sample July 2016 to June 2021)

	ERA Focused Consultation Paper			ATCO Amended Sample		
	Sample Size	OLS Beta estimate	LAD Beta estimate	Sample Size	OLS Beta estimate	LAD Beta estimate
Full pooling average	70	1.1	0.8	50	1.07	0.80
Country pooled average	5	0.81	0.71	5	0.83	0.74

These results demonstrate the improved robustness of the estimate using a larger sample size and conversely the potential for error created by using a small sample size. This point is elaborated at question 5 where the method of combining beta estimates is discussed.

ATCO also tried to replicate the ERA’s analysis but was not able to do so in all cases. As a matter of transparency in the ERA’s estimates the ERA should not only publish its re-levered beta estimates but also the original equity beta estimates made in the company’s home market before any leveraging adjustment.

Jurisdictions

2. Are there any additional jurisdictions that should be considered by the ERA?

No, the selected jurisdictions provide a practical trade-off that will result in improved confidence in the beta estimates while controlling for additional cost and complexity of the estimation process.

In selecting jurisdiction, market diversity and liquidity need to be considered to ensure sufficient diversification options are available to investors and market movements are not dominated by factors particular to any one industry sector. The selected jurisdictions meet the requirements of diversity and liquidity while providing a sufficient number of markets such that the results are not dominated by any one market (assuming equal weights are applied to each market). As a pragmatic matter, the availability of listed comparable firms should also be considered. While adding additional markets may provide improved statistical precision from an increased sample size it is unlikely the added cost and complexity from investigating the suitability of additional markets and firms will alter the outcome of the estimation process. Country risk is also a factor pertaining to selected jurisdictions since one-off events such as a natural disaster or war could affect the market as a whole in that country.

Weighing up these factors ATCO is satisfied that the United States, Canada, United Kingdom and New Zealand are sufficient and appropriate jurisdictions for the ERA to adopt in its assessment of beta.

Foreign market indices

3. Should the ERA consider reweighting foreign market indices to be reflective of the Australian Securities Exchange (ASX), or would this create distortions and interpretation issues as the market beta would no longer be one?

ATCO supports use of betas calculated with reference to a company's domestic market. This is consistent with generally accepted regulatory and financial practitioner practice and ensures the general market forces to which the company is subjected are the same as those for the "market".⁹

The issue of reweighting foreign market indices to be reflective of the ASX has been investigated by other Australian regulators including IPART, the ESC, the QCA and the NZCC. Their conclusion has consistently been not to reweight the foreign market index¹⁰. Brattle in their 2020 report to the AER noted it is preferable to estimate beta against the index or a regional index of the utility's domicile as the timing of economic cycles could vary internationally.¹¹

Adjustments to international equity betas

4. What adjustments, if any, should be made to estimates of international equity betas?

Beta estimates should be de-levered and re-levered to the benchmark gearing. The generally accepted standard formulas for de-levering and re-levering are well documented, for example, by Brealey, Myers and Allen,¹² and consistently used by Australian regulators. The same formulae should be used across jurisdictions.

Having followed the firm selection criteria outlined in the response to question 1 there should be no reason to further adjust individual firm betas.

Point estimate made mechanically or using regulatory judgement

5. Once the sample has been selected and individual betas have been estimated, how should the ERA best use this information to determine an equity beta point estimate? Should this be done in a mechanical way or should regulatory discretion be used?

The estimate should be made mechanically in the first instance but will require regulatory judgement to arrive at a point estimate or confirm the point estimate calculated mechanically.

The ERA has outlined three possible methods of calculating a beta estimate in its consultation paper:¹³

- **Full pooling** - Combining all estimates and equally weighting them. This results in an indicative OLS (LAD) equity beta of 1.1 (0.8).
- **Country pooling** - Separating estimates by country, estimating country means that are then equally weighted. This results in an indicative OLS (LAD) equity beta of 0.8 (0.7).

⁹ The Brattle Group, A Review of International approaches to Regulated Rates of Return, Prepared for the Australian Energy Regulator, June 2020, page 41

¹⁰ As noted by ENA; ENA, Estimating the Cost of Equity, Response to AER's Pathway to 2022 Rate of Return Instrument: Draft Equity Omnibus Working Paper, 3 September 2021, page 76

¹¹ The Brattle Group, A Review of International approaches to Regulated Rates of Return, Prepared for the Australian Energy Regulator, June 2020, page 41

¹² Brealey, R., S. Myers and F. Allen, 2020, Principles of Corporate Finance, 13th edition, McGraw-Hill

¹³ ERA, Focused consultation for the 2022 gas rate of return instrument review, 4 April 2022, page 8; Data based on ERA estimates using data July 2016 to June 2021 as published in ERA, Gas rate of return instrument review, December 2022, page 84.

- **Domestic anchoring** - Putting more weight on domestic estimates as an anchor, which is then modified by lower weightings on international estimates (either individually or by country). This results in an equity beta which depends on an explicit choice of weights and would produce a range of results from 0.5 to 0.8.

As noted at question 1 ATCO undertook a review of the ERA's beta sample. The results of that analysis are in Table 2.2.

Table 2.2: Beta estimates (ERA company estimates July 2016 to June 2021)

	ERA Focused Consultation Paper			ATCO Amended Sample		
	Sample Size	OLS Beta estimate	LAD Beta estimate	Sample Size	OLS Beta estimate	LAD Beta estimate
Full pooling average	70	1.1	0.8	50	1.07	0.80
Country averages						
Australia	4	0.46	0.62	1	0.76	0.90
Canada	8	0.90	0.78	8	0.91	0.85
New Zealand	1	0.65	0.57	1	0.65	0.57
United Kingdom	2	0.92	0.76	1	0.71	0.59
United States	55	1.13	0.81	39	1.13	0.80
Country pooled average	5	0.81	0.71	5	0.83	0.74

The table highlights some relevant points.

- The larger variation in estimates are for countries with a small sample size due to varying views on the appropriateness of including individual companies within the sample for that country.
- The relative stability of estimates for countries with larger sample sizes
- The relative stability of average estimates whether it be by "Full pooling" or "Country Pooling"

In summary, the results support the necessity of widening the comparator firm sample size.

Domestic anchoring

Use of domestic anchoring is not supported as it would perpetuate the problems associated with a small sample in the Australian market. In the present instance it would presumably place extra weight on the sole surviving listed utility comparator in the Australian market, which itself has been the target of acquisition bids with the potential for attendant impacts on its returns data. Further, domestic anchoring is problematic because there is no reasonable way to derive the weights that would be used.

Country or Full pooling

With regard to full pooling, assuming international equity betas are comparable to Australian equity betas, which is the underlying assumption of expanding the sample to international comparators, then it is appropriate to treat all of the beta estimates equally; That is, use the full pooling approach.

ATCO's February submission to the ERA presented evidence that Australian equity betas are not different or lower than United States betas¹⁴. Additional work by CEG also concluded:

"...we conclude that there is no basis for a prior belief that the underlying asset beta for Australian utilities is lower than that for foreign utilities."¹⁵

The only potential disadvantage to this approach might be if one country dominated the sample and that country was affected by some significant country specific event.

The alternative of "country pooling" has the disadvantage it would give equal weight to a sample of US utilities and a sample of Canadian utilities as to a single utility in each of NZ, UK and Australia. Anomalies associated with a single firm will be "averaged out" if the firm is in the US or Canada, but not in the other three countries.

While collapsing the many independent beta measurements from separate utility companies in the US (and to a lesser degree Canadian) markets into a single observation for each country surrenders some of the advantages of a statistically large and robust sample, that isn't necessarily a prohibitive issue in and of itself.

The more important question is whether the single firms in the UK, New Zealand and Australian markets are as "good" and representative comparators as the mean beta results from Canada and the U.S. If the ERA's desire not to "overweight" the larger markets based on the number of firms, it could consider being more selective in which such companies it allows into a "fully-pooled" sample. For example, tighter thresholds could be applied with respect to the degree of regulation, or more stringent elimination of companies with any exposure to M&A activity could be applied, to produce a smaller and more directly comparable sample regardless of jurisdiction.

ATCO considers that either full pooling or country pooling could be used. Country pooling introduces some risk that the results of one or a small number of firms could be over-weighted in the final results and could potentially introduce anomalies. However, provided that a sufficient number of countries are represented, and that the few firms in each small market are appropriately representative as comparators, this risk should be reasonably small.

Regulatory Judgement

As indicated by the above discussion the ERA will require judgement to decide how to combine international beta estimates to arrive at a point estimate.

When evaluating the beta estimates for the sample companies and countries the ERA should use its judgement to arrive at a point estimate. The ERA should have regard to:

- The overlapping ranges of the estimates for each country.
- The estimates calculated by regulators in the sampled jurisdictions

For example, the regulator could consider not only a mechanical average based on one of the suggested "pooling" methods, but also how the results compare across and within jurisdictions, or by identifying "sub-categories" (e.g., distribution-focused firms vs. vertically integrated, companies with especially high degrees of assets/cash flows subject to regulation, etc.) within the larger markets.

¹⁴ ATCO, ATCO submission, 2022 Rate of return discussion paper, February 2022, page 60

¹⁵ CEG, Use of foreign asset beta comparators, March 2022, page 3

Looking at the overlapping ranges of estimated betas and the values calculated by international regulators will provide confidence to the ERA that the value calculated mechanically is “about right” or else lead to questioning the value calculated. In the latter case understanding why the beta estimated differs from international regulatory estimates should inform the ERA in the exercise of its judgement with regard to the beta point estimate.

3. MARKET RISK PREMIUM

Calibrated DGM

6. What are stakeholder views on the calibrated DGM proposed by Energy Networks Australia? Does this amended model provide additional confidence in the DGM and how?

ATCO considers that the calibrated DGM model proposed by Energy Networks Australia provides additional confidence in the DGM. Regardless of the form of DGM, ATCO considers that the ERA should not rely solely on a backwards-looking historical estimate of the MRP, and that combining this with a forward-looking estimate from a DGM will do a much better job at ensuring the MRP reflects currently prevailing conditions in the market for equity funds.

The ERA has expressed uncertainty with regard to the calibrated DGM in relation to:¹⁶

- The time period for the range and how the range would be used
- The long-term growth assumption identified by the calibration might not be unique and is not directly used.
- The calibration does not address biased analyst forecasts

Time period for the range and how the range would be used

With regard to the time period, the DGM would be “calibrated” over the same time period that the historical arithmetic average MRP is estimated. That is, the long-run growth parameter (g) must be estimated by setting the average DGM estimate equal to the average historical MRP estimate over the same period.

As discussed at the ERA’s Consultation paper forum on April 27 with Frontier Economics, DGM estimates from, for example, the last 3 to six months would then be used to set the DGM used in the MRP estimation by the ERA. This would ensure that the estimate was not unduly affected by a spike in MRP estimates in a single month due to a stock market correction occurring in that month.

Long-term growth assumption

With regard to the long term growth rate not being unique, ATCO’s understanding of the model is that the resultant growth rate is unique in practice. There is a single long-run growth rate that equates the average DGM estimates with the average historical MRP estimate for a particular historical period. This growth rate is obtained endogenously as part of the estimation exercise.

ATCO notes that Frontier Economics have offered to share their “R code” for the calibrated DGM with the ERA to assist the ERA resolve any issues the ERA has in implementing the model or understanding its operation.

Biased analyst forecast

With regard to “biased analyst forecasts”, ATCO considers that the ERA would need to collect and assess evidence the forecasts are biased and to what extent. If the ERA has evidence the forecasts are biased, the ERA could consider adjusting the weight on the DGM model or could adopt the ERA’s “calibrated DGM”. One of the main advantages of the calibrated DGM is that any systematic bias in DGM estimates of the MRP (whether such bias might be due to analyst forecasts or any other

¹⁶ ERA, Focused consultation for the 2022 gas rate of return instrument review, 4 April 2022, page 11

source) is eliminated by the calibration process. Equating the mean of the DGM estimates to the mean historical average estimate eliminates any bias, by definition.

Despite these concerns by the ERA, the DGM's theoretical underpinning is accepted and it is used in practice including by other regulators.

The AER's July 2021 *Equity Omnibus* paper observed that Brattle has advised the AER that many comparable regulators use the DGM approach to estimate the MRP and that the AER's approach would be improved by having regard to such forward-looking evidence:

In the International regulatory approaches to rate of return working paper, we have received expert advice from the Brattle Group that the dividend growth model could be used to estimate a more forward looking MRP. Brattle's report also identified other regulators that used the dividend growth models to estimate the MRP¹⁷.

In conclusion, the calibrated DGM provides additional confidence in the DGM for the following reasons:

- The long-run growth parameter is "calibrated" to the long historical MRP. There is a unique long-run growth estimate that equates the average of the DGM estimates with the average from the historical excess returns approach. Under this approach, there is no debate about what figure should be used for the growth parameter and no need for testing sensitivities to alternative growth estimates; and
- By definition, there is no bias in the DGM estimates relative to the historical excess returns estimates – both are constructed to have the same average. The only difference is that the historical excess returns approach is essentially constant over time, whereas the DGM estimates will fluctuate around the average figure as market conditions change.

The ENA provides an example of the calculation of the DGM MRP and total market return based on a growth rate of 6.1%.¹⁸ The result is intuitively appealing as the MRP generally increases after 2010, while the total market return falls somewhat. This occurs because the increase in the MRP estimates only partially offset the decline in government bond yields over that period. This result reinforces the DGM as an estimate that protects the estimated return calculated by the RORI from market shocks while being forward looking.

Mechanistically estimating MRP

7. Is it possible to combine inputs in a more formulaic manner when estimating a forward-looking market risk premium?

Yes, it is possible to combine inputs in a more formulaic manner when estimating a forward-looking market risk premium both at the time of the RORI, and to re-estimate the MRP at the time of an access arrangement determination in a completely mechanical fashion.

Estimating MRP at the time of the RORI

At the time of the RORI the ERA can specify how it has calculated its estimate of the MRP. For example, it currently specifies the time periods used, the data sources, how it has combined different estimates as well as rounding of the estimate. With regard to the DGM it can specify the input parameters used. It is possible for the ERA to specify in a formulaic way the weight it has

¹⁷ Australian Energy Regulator, *Equity Omnibus*, July 2021, page 24.

¹⁸ A guide to the ENA's model is available at: <https://www.aer.gov.au/system/files/ENA%20models%20user%20guide.pdf>

applied to different MRP estimates in the RORI although it may have used judgment in deriving those weights.

Where the ERA uses judgement based for example on conditioning variables it may not be possible to specify exactly how that judgement translates into the final MRP estimate. Certainly with regard to conditioning variables it is not possible to specify a mathematical relationship to the MRP estimate over time. However, what is possible is to specify a formulaic approach at the time of the RORI decision: That is, for example, the ERA could specify the weights it has applied to the historical arithmetic average and DGM for the term of the RORI. Those weights would then stay constant over the term of the RORI and would not be updated.

Updating MRP estimate at the access arrangement determination

Regardless of whether a historical average, a DGM model or some combination of the two is used to estimate the MRP it is possible to codify in the RORI how the MRP is calculated. The ERA already specifies a relatively complex process for the annual update of the debt risk premium. Similarly, the process the ERA uses to estimate the historical average MRP could be documented in the RORI including the data sources used. With regard to the calibrated DGM the process could be documented and the “R code” used specified as part of the RORI in the same way as for the debt risk premium annual update.

It is important to update the MRP to produce results more reflective of market conditions at the time of an access arrangement determination and be less likely to produce the shocks and volatility in returns of an assumed fixed MRP.

MRP estimate weights

8. What weight, if any, should be assigned to the historic market risk premium, DGM and conditioning variables in estimating the market risk premium?

ATCO has considered this matter in previous submissions to ERA RORI determinations and maintains the position previously stated with regard to use of the DGM and arithmetic average historical MRP estimate.¹⁹

ATCO considers that the evidence of the weights adopted by the ERA in past determinations suggest that a 50% weight could reasonably be applied to the DGM estimate in the RORI. This will result in the RORI placing material weight but less reliance on the DGM than in the majority of the ERA’s decisions since 2013 but prior to the current RORI.

Providing weight to a DGM will:

- Allow the estimated MRP and total return to equity to respond to market shocks
- Provide an outcome more consistent with the NGO and the revenue and pricing principles by providing a forward looking return to promote efficient investment.
- Take into account the relationships between financial parameters.

With regard to the use of the arithmetic or geometric average in estimating the historical average MRP this matter has been previously canvassed extensively in the academic literature and service provider and industry body submissions. Overwhelmingly the evidence is only the arithmetic average should be used when estimating the historical average MRP. The geometric average should

¹⁹ ATCO, 2022 rate of return discussion paper submission, February 2022, page 27

be given no weight. This was further confirmed by the discussion presented by Frontier at the ERA's recent webinar consultation on its focused consultation discussion paper. It is not the intention to reproduce these arguments here. A comprehensive discussion of the matter can be found in the ENA's submission to the AER regarding the equity rate of return.²⁰

With regard to conditioning variables, their use is problematic. As the ERA has stated in its Consultation paper:²¹

"The ERA considers that no formulaic use of conditioning variables would be possible, as there is no mechanical mapping between them and the market risk premium."

If it is not possible to "mechanically map" the relationship of a conditioning variable to the MRP then the use of conditioning variables is truly judgemental. Additionally, as AGIG point out, the values of conditioning variables might be used in setting the MRP at the time of the RORI but those conditioning variables will vary over time:

"This is the core of the problem the ERA faces in its current approach to the return on equity in its 2022 RoRI. That is, if it chooses to give weight to current market data to inform estimates, it should not do so unless it somehow automates the way the updating happens in an access arrangement decision after the RoRI is made, as is the case for debt and the risk-free rate currently. ...

...None of this suggests that the ERA does, or ought to have sufficient faith in the conditioning variables to use them mechanically to determine a point on the range between the historical and DGM estimates of the MRP at a given regulatory determination following a methodology set out in the RoRI. Any use of these variable ought to be in conjunction with regulatory judgement. However, this can only be exercised when making the RoRI.

However, since the conditioning variables have some weight in determining the number in the Discussion Paper, the ERA cannot be sure that exercising the same judgement with future manifestations of the conditioning variables would lead to the same number as in the Discussion Paper. This makes the use of these variable problematic, unless some way out of this manifestation of the "timing problem" (See Section 3.1) is found."²²

Therefore, the effect of the conditioning variables on the MRP set at the RORI may be different to the effect they would have at the time of an access arrangement determination.

ATCO's caution with regard to the use of conditioning variables is reinforced by implications of assuming MRP is fixed over time. If the MRP is fixed over time how can its value be influenced by an observation of conditioning variables. GGT have summed up this matter as follows:

"The second implication also follows from the underlying constant expected return model and the efficient market hypothesis. Conditioning variables provide no further information to that already embedded in the returns data. The use of conditioning variables to adjust an estimate made from a long series of historical excess returns represents an arbitrary change to the estimate of the underlying constant MRP and should be avoided."²³

²⁰ Ibid. page 43

²¹ ERA, Focused consultation for the 2022 gas rate of return instrument review, 4 April 2022, page 121

²² AGIG, ERA 2022 rate of return discussion paper, AGIG submission February 2022, page 18

²³ Goldfields Gas Transmission, Response to ERA Discussion Paper on 2022 Gas Rate of Return Instrument Review, 14 February 2022, page 27. Available at: <https://www.erawa.com.au/cproot/22497/2/-RoRG.Rev.2022---Discussion-paper-submission---GGT.PDF>

In summary ATCO cautions the use of conditioning variables due to the judgemental nature of their use and their indeterminate effects over time. Should any weight be applied to conditioning variables it must be done in a way that allows the MRP to be updated mechanistically over time while maintaining an MRP relevant to the market conditions at the time of an access arrangement determination.

MRP updates

9. Do you support a fixed or updating market risk premium being used over the four-year term of the gas instrument?

The MRP should be updated at the time of the access arrangement determination to be consistent with the market conditions under which the risk free rate is estimated.

An estimate of the MRP must:

1. Be capable of handling the potential effects of a financial market shock.
2. Be forward looking.
3. Take account of the factors required to be considered by the National Gas Law (NGL).

An estimate of the total return on equity should be robust to market shocks. The assumption of a constant MRP in the face of recent negative real risk free rates has been no less unreasonable than the same assumption the Australian Competition Tribunal overturned in 2009²⁴.

The issue arises because the RORI is estimated at a point in time different to the time it is applied to calculate the allowed rate of return at an access arrangement final decision. This timing difference allows changes in financial markets, such as RBA market intervention, to occur in a way not contemplated by the RORI and therefore corrupt the results attained from a mechanistic application of the RORI in its current form.

It is not appropriate for the MRP to be fixed in the RORI and then used in an access arrangement determination which will potentially still be on foot up to 9 years after the RORI is determined. The MRP should be updated (mechanically) at the start of the AA, when the risk free rate is updated so that both parameters reflect the market conditions at the time.

The COAG Energy Council's intention when setting up the RORI mechanism was that the method outlined in the rate of return instrument is capable of handling the potential effects of a financial market shock.²⁵ The AEMC was also explicit about this in relation to the rate of return guidelines that preceded the RORI and were directly responsive to the 2009 Tribunal decision. The AEMC summarised their decision as follows:

The most significant changes made in response to these rule change requests relate to how the rate of return for service providers is determined under the NER and the NGR.

*The amendments in relation to the rate of return provisions in the NER and NGR provide for a common framework that enables the regulator to make the best possible estimate of the rate of return **at the time a regulatory determination is made. When making the estimate the***

²⁴ Application by EnergyAustralia and Others (includes corrigendum dated 1 December 2009) [2009] ACompT 8 (12 November 2009), paragraph 117

²⁵ COAG Energy Council, Senior Committee of Officials, Bulletin, Binding rate of return guideline, June 2018

*regulator must take into account the market circumstances, estimation methods, financial models and other relevant information.*²⁶

The RORI is used to estimate expected returns over an upcoming access arrangement period and therefore must estimate forward looking financial parameters. The ERA's RORI must also have regard to the factors listed in the National Gas Law (NGL); particularly in the context of this question items 3 and 4 in the list below.²⁷

1. The revenue and pricing principles;
2. Estimation methods, financial models, market data and other evidence relevant to making the instrument;
3. Prevailing conditions in the market for equity funds;
4. The interrelationships between financial parameters used, or to be used, in relation to deciding the rate or value.

Updating the historical MRP and DGM to re-estimate the MRP at the time of an access arrangement determination will make them consistent with the prevailing conditions in the market for equity funds including the risk free rate estimated at that time. It will also make the RORI more resilient to market shocks and avoid the volatility associated with a fixed MRP and a varying risk free rate.

Mechanistic MRP estimate

10. Is it possible to estimate a forward looking market risk premium in a completely mechanical way with no use of regulatory discretion?

In answering this question, it must be distinguished between estimating the MRP at the time of the RORI decision and updating the MRP at the time of an access arrangement determination. In the former case the ERA may use judgement but is not obligated to do so. In the latter case the NGL prohibits the use of judgement as it requires the MRP be updated in a mechanical way.

ATCO's response to question 10 overlaps its response to question 7 which specifically refers to combining inputs which is essentially the process of estimating the MRP.

Estimating MRP at the time of the RORI

Yes, it is possible to estimate a forward looking market risk premium in a completely mechanical way with no use of regulatory discretion, however the ERA is not obligated to do so at the time of the RORI.

The ERA can mechanically estimate the MRP using established processes to estimate the component estimates such as the historical average MRP and the DGM estimate of the MRP.

The ERA may use judgement in how it weights those component estimates to derive its final point estimate of the MRP. The judgement may be based for example on a subjective judgement of the confidence it has in each estimate.

²⁶ AEMC, Rule Determination National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012 National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012, 29 November 2012, page iii

²⁷ National Gas Access (WA) Act, As at 10 October 2020, sections 30A(e) and 30D(5)

Updating MRP estimate at the access arrangement determination

Yes, it is possible to estimate the historical market risk premium in a mechanical way at the time of an access arrangement determination as noted at question 7.

All the processes used at the time of the RORI decision can be documented in the RORI so that the process used in the RORI decision can be replicated at the time of an access arrangement determination.

As noted at question 7 it is possible to codify in the RORI the effect of judgement used and how inputs are combined in the RORI in the same way that annual updates to the debt risk premium have been codified. In particular, it can be specified:

- The weights applied to different estimates of the MRP
- How the effect of judgement applied at the time of the RORI decision is to be transferred to an update of the MRP. For example, at the time of the RORI decision it might be specified that judgement was used to set the MRP at the 6th percentile of the range between the historical arithmetic average and the DGM MRP estimate.

In summary, it is possible to estimate the market risk premium in a mechanical at the time of an access arrangement determination as required by the NGL. Not only can it be done it is important that it is done to provide an estimate commensurate with the market conditions consistent with the NGO and revenue pricing principles.

APPENDIX A. REVIEW OF ERA BETA ESTIMATION - AMENDMENTS TO COMPARATOR FIRM SAMPLE

A.1 Deletions

Ticker	Company Name	Country	Amendment to ERA List	Reason for Amendment to ERA Sample
ACO/X CN Equity	ATCO LTD -CLASS I	Canada	Company removed	ATCO Ltd's regulated utility businesses are held within CU Ltd. Therefore, only CU Ltd. is retained in the sample.
SPB CN Equity	SUPERIOR PLUS CORP	Canada	Company removed	Company is a propane and chemicals distributor, not a provider of rate regulated utility service. Company also has sub-investment grade credit.
SSE LN Equity	SSE PLC	United Kingdom	Company removed	Company derives a minority of its revenues from a rate regulated utility service; its business is predominated by unregulated production and marketing of power and other commodities and the unregulated provision of energy services.
AES US Equity	AES CORP	United States	Company removed	Company is predominantly in unregulated lines of business; two rate-regulated U.S. utilities make up a small proportion of assets and cash flows.
AVA US Equity	AVISTA CORP	United States	Company removed	Major M&A activity: proposed acquisition by Hydro One (with deal price representing 150%+ of AVA's market cap) was announced July 2017 and later terminated by unanimous agreement in Jan 2019. AVA's stock price seems to have traded on the merger expectation between July 2017 and late 2018.
FE US Equity	FIRSTENERGY CORP	United States	Company removed	Company has a sub-investment grade credit.
HE US Equity	HAWAIIAN ELECTRIC INDS	United States	Company removed	Company is diversified and has less than half of its assets devoted to regulated electric utility operations, and more than half dedicated to its banking division.
KMI US Equity	KINDER MORGAN INC	United States	Company removed	Company's rate regulated businesses are predominantly FERC regulated natural gas and petroleum products pipelines, with these assets representing less than half of the company's total net PP&E. KMI's other businesses are unregulated midstream oil and gas services.

Ticker	Company Name	Country	Amendment to ERA List	Reason for Amendment to ERA Sample
NFG US Equity	NATIONAL FUEL GAS CO	United States	Company removed	Company has approximately half or less assets and cash flows associated with rate regulated lines of business; also has exposure to high risk natural gas exploration and production activities.
OKE US Equity	ONEOK INC	United States	Company removed	Company has less than half of its assets devoted to regulated pipeline transmission; its business is predominated by unregulated midstream business activities, including some sensitive to commodity prices.
PCG US Equity	P G & E CORP	United States	Company removed	Company has sub-investment grade credit and recently emerged from bankruptcy.
PNM US Equity	PNM RESOURCES INC	United States	Company removed	Major M&A activity: proposed acquisition by AGR was announced October 2020 and remains pending in April 2023 with an appeal of the New Mexico regulator's December 2021 rejection of the deal. News regarding the deal has clearly impacted PNM's stock price.
RGCO US Equity	RGC RESOURCES INC	United States	Company removed	Company has less than US\$100 million in annual revenue.
SJI US Equity	SOUTH JERSEY INDUSTRIES	United States	Company removed	Major M&A activity: February 2022 announcement of take-private acquisition had a readily-apparent impact on stock price.
SPH US Equity	SUBURBAN PROPANE PARTNERS LP	United States	Company removed	Company is a propane and fuels distributor and provider of deregulated retail electric and gas service; does not have rate regulated utility businesses. Company also has sub-investment grade credit.
TCP US Equity	TC PIPELINES LP	United States	Company removed	TC Pipelines was acquired by TC Energy in 2019 and has been delisted.
UGI US Equity	UGI CORP	United States	Company removed	Company has sub-investment grade credit.

A.2 Additions

One Canadian company, TC Energy, (Ticker TRP) was added to the Canadian comparator sample meeting the filtering criteria applied noted at question 1.

One company, Enbridge, (Ticker ENB) was moved from the US sample to the Canadian sample. Both TC Energy and Enbridge have business in both Canada and the US and both have shares traded on both the NYSE and the Toronto Stock Exchange. However, they are both Canadian domiciled companies and therefore it is reasonable to put them in with the other Canadian entities.

No other additions were made to the sample.

APPENDIX B. EFFECT ON FULL POOLING AND COUNTRY POOLING

The following table illustrates the effect of full pooling and country pooling on estimates of beta using the amended sample of firms and ERA data as at June 2021. Data for the 2 Canadian firms (ENB and TRP) not included in the ERA's Canadian sample has been estimated and included by ATCO.

Stock Ticker	Country	ERA Estimated as of June 30 2021	
		OLS	LAD
APA	Australia	0.76	0.90
ALA	Canada	1.50	1.21
AQN	Canada	1.07	0.96
CU	Canada	1.01	0.78
EMA	Canada	0.55	0.50
ENB	Canada	0.91	1.01
FTS	Canada	0.64	0.64
H	Canada	0.61	0.67
TRP	Canada	1.01	1.04
NG	United Kingdom	0.71	0.59
VCT	New Zealand	0.65	0.57
AEE	United States	0.99	0.75
AEP	United States	1.02	0.62
AGR	United States	0.94	0.81
ALE	United States	1.38	0.99
ATO	United States	1.15	0.88
BKH	United States	1.20	0.75
CMS	United States	0.93	0.61
CNP	United States	1.37	0.81
CPK	United States	1.06	0.89
D	United States	0.84	0.55
DTE	United States	1.16	0.65
DUK	United States	0.85	0.49
ED	United States	0.70	0.45
EIX	United States	1.13	0.95
ES	United States	1.20	0.78
ETR	United States	1.02	0.54
EVRG	United States	1.07	0.58
EXC	United States	1.08	0.91
IDA	United States	1.32	0.82

Stock Ticker	Country	ERA Estimated as of June 30 2021	
		OLS	LAD
LNT	United States	1.18	0.88
MGEE	United States	1.05	0.92
NEE	United States	1.19	0.92
NI	United States	0.84	0.68
NJR	United States	1.22	1.16
NWE	United States	1.39	0.98
NWN	United States	0.93	0.75
OGE	United States	1.69	1.05
OGS	United States	1.25	1.05
OTTR	United States	1.47	1.44
PEG	United States	1.28	1.04
PNW	United States	1.30	0.61
POR	United States	1.14	0.72
PPL	United States	1.31	0.79
SO	United States	1.00	0.70
SR	United States	0.95	0.61
SRE	United States	1.10	0.71
SWX	United States	1.25	0.89
UTL	United States	1.12	1.05
WEC	United States	1.12	0.70
XEL	United States	1.04	0.64
Full Sample Average		1.07	0.80
Australian Average		0.76	0.90
Canadian Average		0.91	0.85
New Zealand Average		0.65	0.57
United Kingdom Average		0.71	0.59
United States Average		1.13	0.80
Country Pooled Average		0.83	0.74