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13 July 2015

Mr Chris Pattas
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Australian Energy Regulator
GPO Box 520
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Dear Chris

UNITED ENERGY ISSUES PAPER

DBP is pleased to make this submission to the above Issues Paper, released by the AER to assist in providing feedback to the United Energy Access Arrangement Proposal (AA Proposal) of 30 April 2015.

The purpose of this submission is not to comment on the reasoning of either the AER (from its recent final decisions on other East Coast businesses) or United Energy (as outlined in its access arrangement proposal (**United Energy AA Proposal**)) on particular matters relating to rate of return, rather it is to provide some additional information which post-dates the United Energy AA Proposal, but which would be important in the consideration of the proposal by the AER.

Return on equity

The role of models other than SL-CAPM

In respect of the return on equity, service providers and the AER have reached very different conclusions about the merits of different asset-pricing models. DBP shares the view put forward by service providers that the AER has erred by giving little real role to models other than the SL-CAPM when estimating the return on equity. DBP also shares the view that the assessments of different models has been unbalanced, and the AER has sought to answer the question "should we deviate from the SL-CAPM?", rather than addressing the relevance of each cost of equity model as required by the Rules. These issues are covered in detail in a recent expert report by Frontier Economics, which responds directly to some of the recent AER decisions where errors from the Guidelines have been perpetuated, and in an additional report by NERA which focuses more specifically on the AER's misuse of empirical evidence. These reports are appended at Appendices A and B respectively.

One concern the AER appears to have in respect of the relevance of other models of the return on equity is their lack of widespread use. This is despite a steady flow of information from service providers that other asset-pricing models are used around the world. Two new pieces of testimony from two former regulators in the US that provide further evidence as to the widespread use of models other than the SL-CAPM by overseas regulators are provided at Appendices C and D respectively.

Additional information about beta

In respect of the parameters of the single asset-pricing model that the AER makes effective use of within its foundation model approach, the SL-CAPM, there has been some new information in respect of estimates of beta, and considerably more information in respect of the market risk premium.

In respect of beta, it is apparent that the AER has not adequately considered the effects of leverage (particularly when comparing betas) and that, when considering the effects of disruptive technologies, it has neither considered the systematic components of this new risk (which, by definition, is likely to be under-represented in past data used to estimate beta) nor has it adequately allowed for the non-systematic component of these risks in cash-flows. These issues are addressed in a report from Frontier Economics, appended at Appendix E.

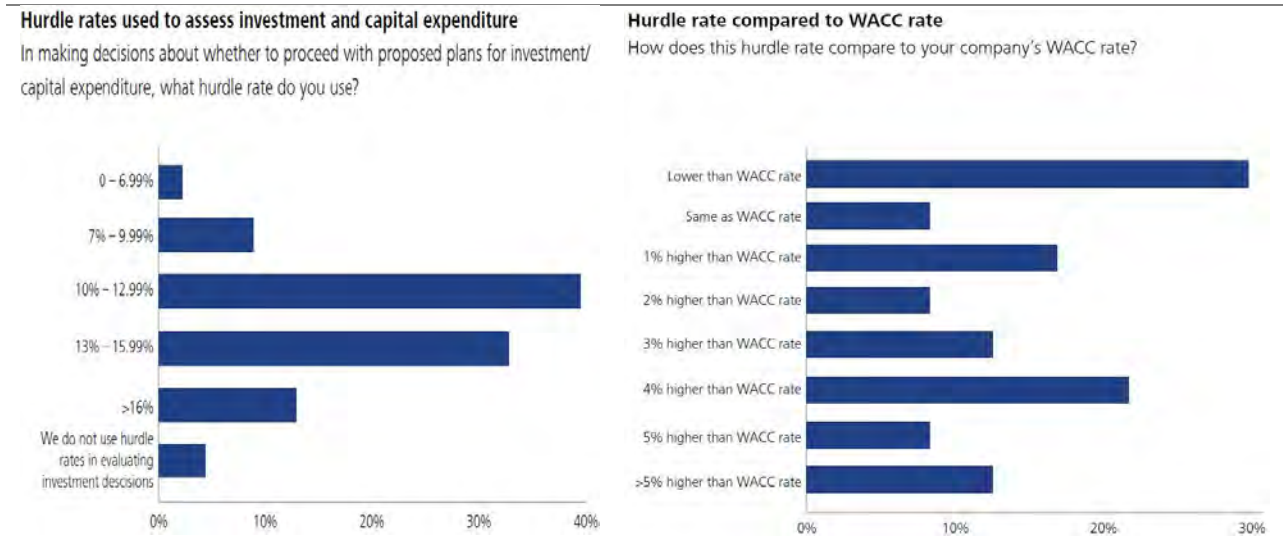
Additional information about market risk premium

Whilst there has been debate about the correct estimation of historical market risk premia, DBP considers that a far more important issue is whether the premium is relatively constant through time, or whether it changes; most particularly whether it should be relatively high when risk-free rates are relatively low.

The AER notes in its recent JGN Decision (p3-371) that the evidence on some kind of relationship between the risk-free rate and the MRP is inconclusive. DBP also considers that with Australian data, there is an absence of an absolute, deterministic relationship between the risk-free rate and the MRP. However, DBP does not believe that the MRP is therefore relatively constant through time. Instead, DBP believes that the AER needs to engage more fulsomely with evidence concerning the effect of low interest rates than is apparent in recent decision, most particularly when those low rates are driven (as at present) by monetary policy rather than market views on what the risk-free rate is. In support of this view, DBP presents two new pieces of evidence below.

The first piece of evidence comes from Deloittes,[1] and is summarised in Figure 2

Figure 1: CFO hurdle rates



Source: Deloittes 2014 p18

Although CGS rates are lower now than they were in Q3 2014, they were still low then compared with historical averages. The JGN Final Decision was made at a time when the ten-year CGS was at 2.53 percent or roughly 50bps lower than the rate prevailing at the time of the Deloittes report from which Figure One is drawn, and the AER believes that 7.1 percent is an appropriate return on equity in the JGN Decision. Even given the difference in risk-free rates, this is the bottom decile of results shown in the left-hand side of Figure One, and the 7.1 percent for JGN is a return on equity, whereas the Deloittes figures appear to reflect the total WACC. Even if the AER is correct in asserting that utilities represent relatively low risks compared to the market as a whole, it beggars belief that investors in utilities expect returns in the bottom decile of the market. This suggests that the AER is under-compensating the equity-holders of JGN, a conclusion further underpinned by the right hand side of Figure One which reflects company-wide, rather than new project expected returns.

[1] See Deloittes, 2014, *CFO Survey Q3 2014: Looking beyond the clouds*, available from http://www2.deloitte.com/content/dam/Deloitte/au/Documents/about-deloitte/deloitte-au-cfo-survey-2014-q3.pdf.

Deloittes publishes its CFO Survey regularly, but the questions shown in Figure One were only included in the Q3 survey from last year, and thus we do not have a time series of results. However, in the most recent survey, Deloittes (p19) asked CFOs how important a series of factors were in relation to the effect of an official interest rate cut on their investment decisions.[2] Out of a score of ten, the average for the choice "lower internal hurdle rates through a lower WACC" was only 3.92; the lowest amongst the factors listed. Moreover, when asked what effect the recent interest rate drop would have on their investment plans, fewer than 20 percent rated the impact above 5 (out of 10) and almost 50 percent rated it at two or lower (ibid, p18). This is suggestive that real-world investors, particularly in the current environment, are not changing their return expectations or their investment plans as CGS rates are changed by the RBA.

This is not something which would be news to the RBA, who are well aware of the divergence between official interest rates and hurdle rates; at a recent speech, the Governor of the RBA addressed the issue of expected returns in the marketplace not changing with declining government bond rates. These comments, and the graphic around which they are based, are shown in Figure Two. We note that the RBA graphic presents very similar information to Figure 3.24 (p3-382) in the recent JGN Final Decision, but that the AER has drawn conclusions (that a token shift in allowed MRP would be sufficient to encourage investment) very different from those drawn by the RBA.

Figure 2: RBA views on the divergence between hurdle rates and official interest rates

A striking feature of the global economy, according to World Bank and OECD data, is the low rate of capital investment spending by businesses. In fact, the rate of investment to GDP seems to have had a downward trend for a long time.

One potential explanation is that there is a dearth of profitable investment opportunities. But another feature that catches one's eye is that, post-crisis, the earnings yield on listed companies seems to have remained where it has historically been for a long time, even as the return on safe assets has collapsed to be close to zero (Graph 2). This seems to imply that the equity risk premium observed *ex post* has risen even as the risk-free rate has fallen and by about an offsetting amount. Perhaps this is partly explained by more sense of risk attached to future earnings, and/or a lower expected *growth rate* of future earnings.

Click to view larger

Or it might be explained simply by stickiness in the sorts of 'hurdle rates' that decision makers expect investments to clear. I cannot speak about US corporates, but this would seem to be consistent with the observation that we tend to hear from Australian liaison contacts that the hurdle rates of return that boards of directors apply to investment propositions have not shifted, despite the exceptionally low returns available on low-risk assets.

The possibility that, *de facto*, the risk premium being required by those who make decisions about real capital investment has risen by the same amount that the riskless rates affected by central banks have fallen may help to explain why we observe a pick-up in financial risk-taking, but considerably less effect, so far, on 'real economy' risk-taking.

Source: http://www.rba.gov.au/speeches/2015/sp-gov-2015-04-21.html

[2] *Deloittes, 2015, CFO Survey Q1 2015: Optimism returns as the dollar tumbles, available from http://www2.deloitte.com/au/en/pages/about-deloitte/articles/cfo-survey-2015.html*

The evidence above is not statistical in nature, and DBP would not assert that it contradicts the AER's own conclusion that there is not a systematic relationship between the MRP and the risk-free rate. However, it does suggest that the current climate requires more than a token move on MRP if sufficient incentives for ongoing investment are to be maintained.

Whilst the AER has yet to reach this conclusion, the ERA has arguably been taking a much more nuanced and objective view of available evidence, concluding in its recent ATCO Final Decision that:[3]

> *"it is not reasonable to constrain the MRP to a fixed range over time. The erratic behaviour of the risk free rate in Australia to date, and more particularly, its pronounced decline in the current economic environment, leads to a situation where the combination of a fixed range for the MRP and prevailing risk free rate may not result in an outcome which is consistent with the achievement of the average market return on equity over the long run."*

This has led not only to a change in the value for the MRP, but also to the approach the ERA uses. The AER notes that the Dividend Growth Model and the Wright Model are relevant information in respect of the MRP, but the extent to which they have actually been used to inform the final estimate of the MRP is debateable; DBP notes that the range of the AER's own DGM estimates start at 100 bps above the range of historical MRP estimates in the JGN Final Decision (p3-330 and 3-345) and yet this only leads the AER to choose a value at the top of its historical range. We question how much this evidence is actually being used by the AER to make a real difference to its conclusions.

The ERA, by contrast, explicitly uses both models to actually determine the MRP. It forms a range using the Ibbotson (historical) MRP and an MRP formed under the Wright approach, then it forms a range based on the DGM, then it considers a number of conditioning variables (the same conditioning variables that the AER uses) and whether they are above or below their historical means. It uses all of this information together to determine the estimates of the MRP.

The ERA's approach is not perfect; the description of the chain of logic followed as part of the use of regulatory judgement and the way the two different ranges interact is not clear, for example. However, the mere fact that the ERA has actually considered current economic conditions, and has used different models in a way that actually leads to different conclusions is a significant step forward for Australian regulators. We would urge the AER, to the extent that it continues to rely upon the SL-CAPM and not apply other models in the estimation of the return on equity and to the extent that it does not apply evidence on beta provided by service providers, to at least explore the question of the appropriate MRP for current economic conditions.

Other issues

There are also some smaller differences. In respect of the historical MRP, the AER has been unwilling to consider the problems identified by NERA in the Brailsford, Handley and Maheswaran (2012) study that underpins the AER's estimates of historical MRP.[4] By contrast, the ERA has been much more even-handed, noting:[5]

> *"Given the uncertainty surrounding the most appropriate adjustment to the market return series, the Authority will use an average of the two series to minimise any potential error with use of either series alone."*

Although DBP believes the problems with the BHM are sufficiently significant that it ought to be discarded, the compromise of the ERA on this point is a welcome step forward. The second difference relates to the question of the use of the geometric or the arithmetic mean, which is covered in much more detail in Appendix F. In respect of this debate, the ERA notes:[6]

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[3] *ERA, 2015, Final Decision on the Proposed Revisions to the Access Arrangement for the Mid-West and South West Gas Distribution Systems, p249*

[4] *Brailsford, TJ, Handley JC & Maheswaran, K, 2012, "The Historical Equity Risk Premium in Australia: Post-GFC and 128 Years of Data"*, Accounting and Finance*, 52, 237-47. Further evidence on issues with the BHM work has been recently produced by NERA, and is provided at Appendix F.*

[5] *ERA, ibid, p251*

[6] *Ibid p258*

> "The Authority notes that there are mixed views as to the best estimator of historic returns. Arithmetic average returns will tend to overstate returns, whereas geometric returns will tend to understate returns. An unbiased estimator is likely to lie somewhere between the two estimates. The Authority's view is that arithmetic means are preferred in most circumstances."

Return on debt

In respect of the return on debt, we note that the AER seeks to impose a different model on the East Coast than the ERA favours for WA service providers, and we note further that the ERA's preferred position has changed quite markedly over the course of the past year. There are, however, two points which are useful to draw out from the recent ATCO Final Decision. These are:

- The need for a transition period for the debt risk-premium.
- Whether the use of third party indices is appropriate or not.

The AER, in all of its recent decisions, has been adamant that there needs to be a transition to a trailing average, which appears to be largely based on a need to reverse an "overcompensation" received by regulated firms during the previous on-the-day approach, according to work by Martin Lally,[7] which has been disputed by several expert reports. The ERA has conducted its own analysis, and reaches the following conclusion:[8]

> *"The results indicate that there was possibly a small overpayment up to the start of AA4, of around 17 basis points per annum on average for the whole three periods. However, the Authority does not consider that this amount is significant, particularly given the indicative nature of the estimates. Furthermore, other factors, such as the spread of the BBSW to the risk free rate and hedging costs, have not been taken into account. Overall, the Authority concludes that this (limited) evidence does not support the occurrence of a significant under or over payment on the DRP or the return on debt.*
>
> *It is also clear that the benchmark efficient entity could be 'out of the money' over the AA4 period under the on the day approach, given the current low level of the on the day DRP, and the high levels of the DRP over the period 2008 to 2014, which will tend to lift the trailing average DRP over the next few years.*
>
> *For these reasons, the Authority is prepared to accept that it is more appropriate to move directly to the hybrid trailing average approach, without any phasing in transition."*

DBP accepts that the ERA has used a different approach to that used by Lally, but suggests that this shows that Lally's approach cannot be regarded as the only correct approach. DBP would urge the AER to consider a wider suite of evidence, much of which it already has in the form of various expert reports submitted through the different access arrangement processes, and examine more carefully the question of whether the purported gain to consumers from one analysis (that of Lally) is really so large, and the consequences to service providers of penalising them for engaging in precisely the debt management practices the AER itself believes are efficient are really so small that it is appropriate to effectively lock in current low rates for the next decade by imposing a transition mechanism.

In respect of the use of third party indices, there is a clear difference between the AER and the ERA. The AER has concluded that third-party indices are preferable to estimating yield curves from raw data, whilst the ERA has concluded the opposite.[9] In light of differing views from different regulators, United Energy makes a sensible proposal; to test the indices for their fit against yields calculated via yield curve approaches (the same approaches the ERA proposes to use). It also proposes to test different extrapolation methods. DBP can see no reason to oppose such an approach, as by opposing it, the AER would effectively be willing itself into ignorance about how well each index actually performs in reflecting

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[7] *See Lally, M, 2014, Transitional Arrangements for the Cost of Debt, report for the AER, November 2014, available from http://www.aer.gov.au/node/24741.*
[8] *ERA, 2015, Ibid, p351*
[9] *ERA 2015, ibid, pp330-1. Note that the ERA evaluated the RBA yield-curve approach against its own yield curve approaches, and did not consider the Bloomberg indices in its assessment.*

the actual cost of debt for the benchmark efficient entity. Quite apart from this running counter to the requirements of the ARORO to reflect the efficient financing costs of the benchmark efficient entity (which requires information on what these actually are), it is very poor regulatory policy to deliberately exclude information which might be capable of showing a chosen approach is in error.

Gamma

DBP notes that there has been some improvement in the AER's estimation of gamma since the publication of the its Rate of Return Guideline, in that it has now recognised that the information on the domestic ownership of Australian shares that it used in its own earlier analysis came from 2007. Rather than considering one somewhat unrepresentative point in time, the AER now considers the whole 15-year period. It notes in the recent Networks NSW and Actew AGL Decisions (Attachment 4) that the range for listed equity shares is from 0.38 to 0.55, whilst the range for all shares is from 0.56 to 0.68. It notes further that the distribution rate for listed equity is 0.8, and for all equity is 0.7. This leads the AER to conclude that an estimate of gamma based on listed equity would range from 0.31 to 0.44 and the range if all equity is used would be from 0.4 to 0.47.

NERA and SFG (see also Appendix G for an updated view) note that while the distribution rate may be a firm specific parameter, the value of a one-dollar credit distributed (theta) will be a market-wide parameter – that is, a single value will apply to all firms.[10] Thus the AER's insistence of pairing estimates of theta constructed using data on listed firms with estimates of the distribution rate for listed firms is misguided.

The AER concludes that the overall range suggested by the domestic share of equity ownership is between 0.3 and 0.5. It notes that evidence from tax statistics suggest a theta of 0.43, which would imply a gamma of 0.3, but gives this quantity little weight, aside from leading it to conclude that the relevant gamma estimate is likely to lie at the lower end of the intersection between the ranges implied by listed and all equity. Market valuation studies are given no effective weight, and the AER has explicitly excluded the "conceptual goalposts" approach from further consideration. Its final position is a gamma of 0.4. However, we would suggest that there are significant flaws in the AER's approach.

Firstly, the distribution rates for all firms and for what might be a benchmark efficient entity are not as different as the AER suggests they may be in its recent Final Decisions for Networks NSW and Actew AGL. The AER has previously stated that a benchmark efficient entity should not be viewed as a large listed company. As NERA and SFG point out in recent expert reports, the estimate of 0.8 for listed equity comes from an estimate made by Handley which covers all listed firms, both large and small.[11] Lally, in work for the QCA, finds an estimate of the distribution rate for the top 20 (by market cap) ASX-listed firms to be 0.84.[12] NERA use Lally's data together with data from the ATO to compute an estimate of the distribution rate for ASX-listed firms which are not in the top 20, and comes up with an estimate of around 0.7; the same as for all equity. Handley and NERA both find that the distribution rate for private companies is 0.5. Thus the evidence implies that the distribution rates for all firms and for what might be a benchmark efficient entity (which may be private or may be listed but not large) are likely to be approximately the same.

Secondly, in respect of utilisation rates (which we do not suggest are the same thing as theta; the *value* of imputation credits), this reached a peak in 2006-07 which has not been repeated subsequently. It is difficult to see what role a time period that is clearly an outlier, ought to play in considering the appropriate value of gamma for the coming five years.

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[10] See NERA, 2015, Estimating Distribution and Redemption Rates from Taxation Statistics, Report for Jemena Gas Networks, Jemena Electricity Networks, AusNet Services, Australian Gas Networks, CitiPower, Ergon Energy, Powercor, SA PowerNetworks and United Energy ,available from http://www.aer.gov.au/node/24741.and SFG, 2015, Estimating Gamma for Regulatory Purposes, Report for Jemena Gas Networks, Jemena Electricity Networks, ActewAGL, Ausnet Services, Directlink, Networks NSW (Ausgrid, Endeavour Energy and Essential Energy), Citipower, Powercor, ENERGEX, Ergon, SA Power Networks, Australian Gas Networks and United Energy, available from http://www.aer.gov.au/node/24441.

[11] See NERA, Ibid, SFG ibid and Handley, JC, 2014, Advice on the Value of Imputation Credits, Report prepared for the AER, September 2014, available from www.aer.gov.au/node/11482

[12] See Lally, M, 2014b, Review of Submissions to the QCA on the MRP, Risk Free Rate and Gamma, Report for the QCA, March 2014, available from http://www.qca.org.au/Other-Sectors/Research/Cost-of-Capital/Cost-of-Equity/Final-Report/Cost-of-Equity

Despite this, the AER uses data over the past 15 years to form an estimate of the utilisation rate in its recent Networks NSW and Actew AGL Final Decisions (p 4-73), on the basis that the series is volatile and thus a longer time series is needed to estimate it accurately. However, much of the volatility comes from including the abnormal period around 2007; if the last five years of data are used, the volatility of the listed equity series falls by a third, and that of all equity falls by half.[13] Moreover, the average over the past five years of all equity (0.6) and for listed equity (0.45) is almost identical to the most recent estimate of each, and thus there is no real conflict between historical and current information. Thus, if volatility is the AER's main reason for using an historical average, there are much better historical averages to use than the one it has chosen.

DBP does not believe that the AER's Guidelines represent an appropriate way to estimate gamma, compared to the dividend drop-off methodology accepted by the Australian Competition Tribunal, and we are unconvinced by the AER's arguments to the contrary. However, if it does deviate from the position of the Tribunal in respect of gamma, the AER should at least do so properly, and with relevant information. Instead of ranges based on somewhat irrelevant and misleading historical data, what one actually has using the AER's preferred approach is three estimates of gamma:

(a) One based on the share of ownership of all equity would give a gamma of 0.42 (0.6 for theta and 0.7 for the distribution rate).

(b) One based on the share of ownership of listed equity would give a gamma of 0.315 (0.45 for theta and 0.7 for the distribution rate; based on NERA's work).

(c) One based on taxation statistics would give a gamma of 0.3 (0.43 for theta, according to the AER, and 0.7 for the distribution rate).

The relevant range formed by these three estimates is not 0.3 to 0.5, but 0.3 to 0.42; the larger range is only created by using ranges for theta which give equal weight to outliers far from the mean and multiple instances of data-points close to the mean, effectively giving each outlier a much greater weight compared to each point close to the mean. Moreover, two of these estimates, including one which the AER's own advisor has previously suggested forms an upper bound for gamma,[14] are towards the lower end of the range and are in fact almost the same. This would suggest that a prudent, objective regulator, having regard to the information which the AER suggests it believes is most relevant, would form an estimate of gamma in the lower half of the range between 0.3 and 0.42, not at the upper end of that range as the AER has done.

Correcting the AER's mistakes using its own data, however, is not sufficient, for it ignores relevant information from market studies which seek to estimate the value of gamma. This issue is taken up in more detail in Appendix G, which contains a recent report by Frontier Economics on this topic, and also in Appendix H, containing a recent report by NERA which looks more specifically at the impact of foreign investors on the value of imputation credits and shows that the domestic equity ownership approach is at best an upper bound for the value of credits.

The AER, in its most recent decision, devotes a great deal of space to the views of its consultants about what Officer actually meant in respect of gamma in his seminal 1994 paper, due to the fact that he at one point uses the term "value", and at another, the term "proportion". This has also been debated by service providers, and the debate is somewhat perplexing, given that Officer himself is quite clear about what he means:[15]

> *"for example, if the shareholder can fully utilize the imputation credits then ("value") γ=1, eg, a superfund or an Australian resident personal taxpayer. On the other hand, a tax exempt or an offshore taxpayer who cannot otherwise access the value in the tax credit will set γ=0. Where there is a market for tax credits, one could use the market price to estimate the value of γ for the marginal shareholder, ie the shareholder who implicitly sets the price of the shares and the price of γ and the company's cost of*

[13] *Calculated as the standard deviation of the relevant time series divided by its mean.*
[14] *We note that the AER's adviser, Handley, has more recently reversed himself on this point, but his reasoning is not particularly convincing; see SFG (Ibid, p22-3) for a more detailed treatment.*
[15] *See Officer, RR, 1994, "The Cost of Capital of a Company Under an Imputation Tax System", Accounting and Finance, 34, pp1-17, footnote 5.*

capital at the margin, but where there is only a covert market, estimates can only be made through dividend drop-off rates"

The Officer quote above is not new, per se, but it seems to have been forgotten in the ensuing debate. The AER's approach, which relies heavily on an estimate of the share of Australian equities held by Australian investors is essentially an averaging approach; if each domestic shareholder values a credit at one and each foreign shareholder at zero, then the average value placed on a credit will be the proportion of domestic shareholders. Officer in the quote provided above argues that, just as in any marketplace, it is the *marginal*, not the *average* stakeholder, who sets the price. Mistaking the average for the marginal investor is a fundamental flaw in the AER's approach. The value that the marginal investor places on a one-dollar credit will, if equity markets are integrated, depend in large part on the values placed on credits by foreign investors who receive few – or even no credits (a point expanded upon in some detail in the NERA report in Appendix H). So, if equity markets are – aside from an inability of foreign investors to redeem credits – integrated, the value placed by a marginal investor on a one-dollar credit and the domestic ownership share are likely to differ substantially, even if every domestic investor, as the AER assumes, values the credit at $1.

In respect of market-derived estimates of gamma, dividend drop-off studies are not the only methodology which can be used. The AER will be aware of a report by NERA submitted recently to the Victorian Distribution Networks determinations.[16] Rather than use dividend drop-off studies, NERA uses a different methodology. It estimates directly the model that Officer suggests one use and that the AER uses – although NERA also uses versions of the Black CAPM and Fama-French model. NERA also describes the results of a study that examines whether equity prices reflect the discounted value of the imputation credits that the market expects to be distributed. These two methods of estimating the impact of credits on the cost of equity are intended to overcome a criticism of dividend drop-off studies that they are affected by "abnormal" trading around ex-dividend days. Both methods produce an estimate of gamma of zero – that is, below the estimates even of best-practice dividend drop-off studies.

DBP trusts that the new information summarised above and detailed in the attached appendices is useful in the AER's deliberations in respect of an appropriate rate of return for United Energy. If any of the information in this submission requires clarification, please contact Nick Wills-Johnson on 08 9223 4902.

Yours sincerely

Nick Wills-Johnson
Manager – Economic Regulation

[16] *See NERA, 2015b, Do Imputation Credits Lower the Cost of Equity? Cross-Sectional Tests, Report for United Energy, April 2015, mimeo (note that United Energy provided this report to the AER, but the AER did not put it on its website. It is, however, available on the ERA website at www.erawa.com.au/gas/gas-access/dampier-to-bunbury-natural-gas-pipeline/access-arrangements/proposed-access-arrangement-for-period-2016-2020).*