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Mr Warwick Anderson
General Manager – Network Regulation Branch
Australian Energy Regulator
GPO Box 3131
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Dear Mr Anderson

Please see attached submission on behalf of CitiPower, Powercor and SA Power Networks, in response to the AER's equity beta issues paper.

Please do not hesitate to contact Mark de Villiers on (03) 9683-4907 or Patrick Makinson on (08) 8404-5865 if you have any questions.

Yours sincerely

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GENERAL MANAGER
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Introduction and Overview

CitiPower, Powercor and SA Power Networks (**collectively, the Businesses**) welcome the opportunity to respond to the AER's equity beta issues paper (**Issues Paper**).

The Businesses support the ENA's proposed multi-model approach in preference to the AER's proposed foundation approach to estimating the return on equity because it more transparently provides regard to all relevant estimation methods, financial models, market data and other evidence and to the prevailing conditions in the market for equity funds. However, if the foundation model approach were applied to estimate the return on equity, then the equity beta ought to be determined such that when it is input into the standard CAPM formula it is likely to result in an estimate of return on equity that is most consistent with the allowed rate of return objective.

The issues paper proposes an equity beta range of 0.4 to 0.7. A critical assumption underpinning the AER's range is that the historical covariance between the stock returns of five ASX listed and four previously ASX listed firms and composite ASX returns adequately distinguishes a NSP's risks from the market average. There are a number of degrees of separation between the AER's assumption and market reality:

- Assumption 1 is that the only risk factor which distinguishes a NSP's risks from the market average is measured by only one factor - the covariance between stock returns and market returns. Empirical evidence overwhelmingly indicates that there has been at best a very weak relationship between return on equity and the covariance between the stock returns and market returns. It is widely agreed that other risk factors are priced by investors although there is no agreement on what these are. For instance, McKenzie and Partington indicate that most of the asset models surveyed in their paper theoretically allow for multiple risk factors to be priced[1].

- Assumption 2 is that systematic risk of NSPs in the future will be the same as that in the past, and that more history will inform a better estimate of the likely beta over the regulatory decision period. The AER indicates that, while there are changes to estimation of operating costs and interest payments under the Better Regulation program, "it is unclear to what extent these changes will reflect changes in the benchmark systematic risk of a benchmark efficient entity."[2] CEG shows that the re-geared Damodaran equity beta estimates for US listed energy utilities ranges between 1.34 and 0.72 over the period 2007 to 2013.[3]

- Assumption 3 is that the benchmark efficient entity is represented by five ASX listed and four previously ASX listed firms. The equity beta estimates of six of these nine ASX listed firms presented in Table 4.6 of the Issues Paper ranges from 0.05 to 1.20, which indicates that these firms cannot have the same characteristics in terms of the covariance of their returns and market returns. Business-specific events such as merger announcements, which by the AER's admission may create outlier observations and potentially lead to bias in the equity beta estimates, have been a common occurrence amongst these firms and is indeed the reason why four of these firms are no longer listed.

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[1] McKenzie and Partington, Risk, asset pricing models and WACC, Report to the AER, June 27, 2013, p18.
[2] AER, Equity beta issues paper, October 2013, p13.
[3] CEG, AER equity beta issues paper: international comparators, October 2013, p23.

- Assumption 4 is that a range defined by the simple average and portfolio average of the equity betas of the five ASX listed and four previously ASX listed firms, calculated using a number of permutations, provides a reasonable range. By the AER's own admission, such a small sample could cause problems associated with statistical reliability.[4] The Issues Paper therefore identifies reliability as a potential issue, but does not propose any means of addressing it. The Energy Networks Association (**ENA**) had previously submitted an SFG paper which provided evidence that regression-based estimates of beta, especially in samples as small as that relied upon by the AER, are highly unstable across samples and over time.

- Assumption 5 is that the market portfolio is adequately represented by composite ASX returns. Mckenzie and Partington quote a number of researchers who make the point that the market portfolio is much wider than traded stocks, it includes unlisted equities, debt, real estate, natural resources, art, precious metals and so on.[5] This is often quoted as a reason why empirical tests of CAPM are fundamentally flawed because they do not reflect the exact composition of the true market portfolio. If true, then the AER's implementation of the standard CAPM is also fundamentally flawed because it assumes that listed stocks are a reasonable proxy for the market portfolio.

- Assumption 6 is that LAD produces unbiased estimates and Vasicek/Blume adjustments are inappropriate (there is no reasoning in the Issues Paper on this point). The ENA had previously provided two SFG papers which provided evidence that LAD is inappropriate for beta estimation and the Vasicek adjustment is appropriate for beta estimation.

The ENA response to the Issues Paper provides further evidence why the above assumptions are likely to be invalid. The ENA proposes a wider range of evidence to be considered which includes US energy network equity beta estimates using a sample carefully selected by CEG, the dividend discount model, the Black CAPM and the Fama-French model.

The Businesses fully support the ENA response to the Issues Paper.

Investment signal resulting from AER's proposed equity beta

Under the AER's proposed foundation model approach, the equity beta is a key input into the estimate of the required return on equity of the benchmark efficient entity. This makes the AER's view on risk estimation a critical long-term signal for investment. The majority investor in the Businesses, the Cheung Kong Group, also own electricity and gas networks in the UK. They can direct investment where long-term expected returns are most attractive. It is concerning to the Businesses that, now with the AER's views on equity beta known, the return on equity which might be inferred from the draft guideline process may be insufficient to attract an efficient level of investment to the Businesses.

Comparing forecast returns from different countries is complicated by the fact that returns are denominated in different currencies. The difference in Australian and UK 10-year government bond yields reflects the relative currency risk. When denominated in a common currency, the returns expected from both Australian and UK 10-year government bonds are roughly equivalent (otherwise there would be an arbitrage opportunity). It is therefore useful to think of return on equity as consisting of two components:

[4] AER, Equity beta issues paper, October 2013, p19.
[5] McKenzie and Partington, Risk, asset pricing models and WACC, Report to the AER, June 27, 2013, p23.

- the current yield on a 10-year government bond; and

- the equity premium, defined to be the difference between the return on equity and the current yield on a 10-year government bond.

The first component is set by the market while the second component is set by the regulator. An investor in both Australian and UK energy networks is able to compare the equity premiums associated with investments in each country as a way of determining whether an investment in one country is more attractive than an investment in the other.

Over the last four years the AER has lowered the equity premium that it uses to compute the cost of equity for a benchmark energy network. In 2009, the AER announced that it would raise the value that it uses for the market risk premium (MRP) from 6 to 6.5 per cent per annum but, at the same time, lower the equity beta from 1 to 0.8. Thus the effect of the May 2009 decision was to lower the equity premium from 6 to 5.2 per cent per annum. In 2011, the AER announced that it would lower the MRP from 6.5 to 6 per cent per annum but retain a value for the equity beta of a regulated energy utility of 0.8. Thus the effect was to lower the equity premium from 5.2 to 4.8 per cent per annum. In its Issues Paper, the AER has announced that it will lower the equity beta for a benchmark energy utility from 0.8 to 0.7. In the absence of any known offsetting increase in the MRP, the AER will therefore cut the equity premium for a third time – this time from 4.8 to 4.2 per cent per annum. If the AER follows this path, the equity premium will have fallen 180 basis points from its pre-2009 level.

Ofgem follows a policy of keeping the real cost of equity relatively stable. It follows that as the yield on a 10-year UK government bond has fallen in recent years, the effective equity premium allowed by Ofgem has risen. Table 1 below summarises the results of recent Ofgem decisions for electricity and gas businesses. The table shows that as the equity premium offered by the AER has fallen, the equity premium offered by Ofgem has risen – at least until the recent rise in the yield on a 10-year UK government bond. Note that the equity premium that Ofgem has set is measured relative to the yield on a 10-year UK government bond prevailing at the time of each decision.

Figure 1 below shows the paths that the equity premiums offered by the two regulators have taken. As of 11 October 2013 the gap between the equity premium offered by Ofgem and the equity premium offered by the AER was 182 basis points. The equity premium that Ofgem would have set on 11 October 2013 is calculated by subtracting the yield on that date on a 10-year UK government bond from the return to equity that Ofgem set on 4 March 2013.

Therefore, from the perspective of a foreign investor in energy network assets in the UK and Australia:

- the current regulated equity premium in Australia may be estimated to be 182 basis points less than that in the UK;

- this understates the true gap because the equity premium that the AER computes includes a value assigned to imputation credits, but a foreign investor cannot redeem these credits; and

- an investor is likely to require a higher equity premium in Australia compared with the UK for regulated energy assets because the re-politicising of energy prices and less mature regulatory regime in Australia implies higher investment risk.

Table 1. Recent regulatory decisions made in Australia and the UK

Date	Regulator	Industry	Real cost of equity	Nominal cost of equity	10-year government yield	Equity premium
Panel A: Australia						
October 2006	ESC	Electricity	8.94	11.66	5.66	6.00
1 May 2009	AER	Electricity	7.20	9.88	4.68	5.20
June 2011	AER	Gas	7.33	10.01	5.21	4.80
11 October 2013	AER	Electricity & gas	5.63	8.27	4.07	4.20
Panel B: UK						
3 December 2007	Ofgem	Gas	7.25	9.40	4.63	4.77
7 December 2009	Ofgem	Electricity	6.70	8.83	3.76	5.07
17 December 2012	Ofgem	Gas	6.70	8.83	1.88	6.95
4 March 2013	Ofgem	Electricity	6.60	8.73	2.09	6.64

Applies the midpoint of the Reserve Bank of Australia's target range for inflation of between 2 and 3 per cent per annum as a forecast of Australian inflation over the next 10 years. Applies the Bank of England's target for inflation of 2 per cent per annum as a forecast of UK inflation over the next 10 years.

Figure 1. The equity premiums offered by the AER and Ofgem