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NERA Preliminary Response to the ESC Final Decision Multinet, Envestra and SP-AusNet

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1. Introduction

Multinet, Envestra and SP-AusNet (the Victorian gas distributors) have asked NERA to respond to the following aspects of the Essential Services Commission of Victoria's (ESC) *Gas Access Arrangements Review 2008-2012: Final Decision, 7 March 2008* (Final Decision):

- § the cost of capital matters matters on which NERA provided its reports for APIA, ENA and ETNOF;
- § the debt margin; and
- § any other matters in the cost of capital section that NERA believes is relevant to the Victorian gas distributors.

The review should also respond and comment on the two Allen Consulting Group (ACG) reports provided to and relied on by the ESC in its Final Decision.¹

The draft outline report is structured so as to present the issues:

- § first, as an overview of the main points of weakness in the ESC's decision; and
- § second, as a tabulated set of issues, indicating the arguments put by NERA in response to the ESC's draft decision, the ESC's final decision, and then our comments on that final decision.

¹ ACG, *Empirical evidence on the proxy beta values for regulated gas distribution activities: Response to submissions made to the Essential Services Commission*, February 2008. ACG, *Gas Access Arrangement Review 2008: updating estimates of debt margins for 20 trading days to November 2007 and December 2007*, February 2008

2. Overview

2.1. Equity Beta

§ The ESC Final Decision rejected all arguments presented to it on the equity beta and maintained that the plausible range for the equity beta is between 0.5 and 0.8. Furthermore, the Final Decision continued to set the equity beta at 0.7 for the Victorian gas distributors during the 2008 to 2012 period. We note that the ESC has made a transitional adjustment to the Victorian gas distributor's revenues equivalent to an extra 0.1 on the equity beta.

2.1.1 US evidence of the equity beta

§ The ESC states that the US evidence suggests that the beta is between 0.6 and 0.8, thereby rejecting NERA's analysis of US regulatory decisions and discounted cash flow analysis;

§ ACG dismisses the NERA review of US regulatory precedent which suggested that US regulators allow an equity beta in the range of 1.15 and 1.17 because it implies that over the analysis horizon there would have been:

“a 54 percent rising in the equity beta between 1996 and 2003 and then a 21 percent fall to 2007, when there is no market evidence to substantiate such shifts in the beta.” (page 18)

§ However, ACG omits that their own analysis indicates a substantially greater variance in the historical beta estimates. More importantly, there is an accepted body of economic/financial literature which suggest that the MRP is inversely related to the risk free rate (ie, when risk free rate falls the market risk premium increases, admittedly by a smaller amount, consequently the return on equity is positively correlated to but less variable than the risk free rate). This explains the variation that ACG has identified;

§ US regulators and courts are informed by submissions by financial experts on the current market evidence of the required returns on equity for US energy utilities. Using a conservative estimate of the US market risk premium of 6% (the likely lower MRP would lead to a higher equity beta estimates) and the ESC's adjustment for debt/equity ratio suggests an average equity beta of 1.15 and 1.17 for electricity and gas utilities respectively. NERA reaffirms its analysis that US regulatory decisions suggest that the beta for US gas and electricity utilities is above the range suggested by ACG;

§ ACG does not directly respond to the discounted cash flow (DCF) analysis carried out by NERA on the US gas distributors identified by ACG, which suggested a equity beta of 1.12 (again using a conservative estimate of the US market risk premium of 6%); and

§ In summury, ACG / ESC appears to have arbitrarily dismissed the evidence from accepted alternative methodologies for estimating the required rates of return on equity that suggest that the plausible range of the equity beta for US energy utilities extends above the 0.6 to 0.8 range.

2.1.2 Australian evidence of the equity beta

§ The ESC states that the Australian evidence suggests that the beta is between 0.5 and 0.7, thereby rejecting NERA analysis;

§ ACG accepts that merger activity will affect the estimates of the equity beta, however:

- ACG concluded that the activity is likely to raise the equity beta estimates; and
- that any problem of distortion of the underlying risk characteristics by takeover activity is essentially a problem associated with outlier observations that occur when the announcements are made about the proposal and this is dealt with through the re-weighted OLS, LAV estimation techniques that accounts for outliers;

NERA's position is that the impact of market activity goes beyond the period of its announcement and affects the whole period that an offer is on the market as the share price is likely to be strongly influenced the probability of the offer's success or the possibility of a rival offer rather than the underlying systemic risk of the business. We note that ACG has not responded to our point that it excluded US securities from its analysis on the basis of market activity.

§ ACG agreed that a number of the securities for which the beta estimates were made comprise stapled securities and trusts. However, ACG believes that from the point of view of systemic risk analysis the important question is whether the holder of a stapled share/loan note actually bears the residual risk.

NERA does not disagree that stapled securities bear the residual risk of the company. However, our point was that the security had characteristics of both equity and debt. As such the historical variation in returns (the ACG technique for estimating the equity beta) will underestimate the risks to equity owners since:

“As a result of adopting a stapled trust and company structure, distributions to Security holders will not be limited to the accounting profits of SP AusNet.”²

“SP AusNet aims to deliver sustainable, stable and predicible distributions to Security Holders”³

We note that ACG/ESC already make adjustments for debt structure of companies. We are arguing that the debt structure of the traded security should also be taken into account and those traded securities whose distributions are predominately expected to be composed of interest and loan repayments should therefore be excluded from any sample of comparable securities used to estimate the required return on *equity*. Alternatively, any beta estimates derived from such a security could, in principle, be adjusted for the dampening effect of the debt component.

§ A consequence of ACG not accepting our concerns with the Australian market evidence is that it has not addressed whether the removal of comparator securities or the periods of

² SP AusNet prospectus and Product Disclosure Statement, 14 November 2005, page 5.

³ SP AusNet prospectus and Product Disclosure Statement, 14 November 2005, page 2.

market activity means that no reasonable conclusions can be drawn from the Australian data; and

- § In summary, ACG / ESC have mischaracterised and dismissed our concerns with the data they relied on to estimate the Australian equity beta. In our opinion, the data relied on by the ESC contains a downward bias in the equity beta of a gas distribution business. More importantly, in our opinion the Australian data was not sufficiently robust to make any conclusion on the equity beta.

2.2. Inflation

- § The ESC concluded that:

“the evidence provided by each of the distributors, the statements of the RBA and Treasury, the views of financial market forecasters and historic indicators and the need for consideration of a ten year horizon consistent with the yield on ten year nominal CGS, the Commission has formed the view that the best estimate of inflation arrived at on a reasonable basis as required by section 8.2(e) of the Code is 2.70 per cent.” (page 460)

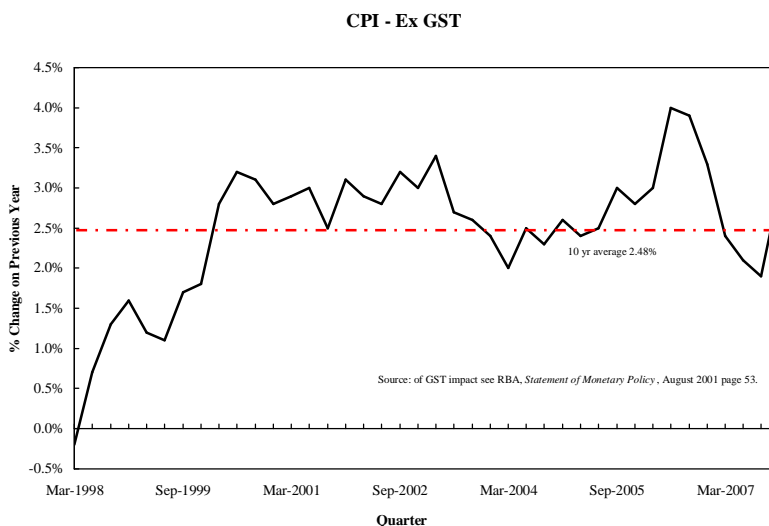
The evidence relied on by the ESC included:

- CEG – 2.5%;
- NERA – 2.5% to 2.6%;
- RBA long term - 2.5% short term - 3.0%;
- Treasury - 2.5%; and
- historical averages, ten year average - 2.71%, five year average arithmetic - 2.75% and compound - 2.70%.

- § NERA has the following comments on the ESC analysis:

- the use of ten year historical average includes the GST spike in 2001. Consequently using 2.71% as an estimate for future inflation is inappropriate; and
- the use of a five year average is unsuitable as it is too short a period to cover a full business cycle (normally held to be 7 to 8 years), furthermore it is inconsistent with the use of the ten year risk free rate;

- § Excluding the effects of the GST spike the 10 year historical average CPI is 2.48%.



§ We note that all estimates of the ten year inflation rate are below the ESC estimate, ie, 2.5% to 2.6%.

2.3. Debt Margin

§ The ESC states that the reasonable range for the debt margin is between 2.075% and 2.145%. Furthermore, the Final Decision set the debt margin for the 2008-2012 period at 2.145%;

§ The debt margin reasonable range was derived by adding 12.5 basis points to:

- a linear extrapolation of the 8 year Bloomberg BBB fair value yields. The extrapolation is of the 7 to 8 year Bloomberg BBB yields (195bp); and
- the 10 year CBASpectrum BBB+ fair value yields (202 bp);

§ ACG has provided no evidence that the extrapolation of the 8 yr Bloomberg BB yields leads to a robust estimate of the 10yr BBB fair value yield. We note that Bloomberg has indicated that it discontinued the 10 year BBB fair value yield because of lack of information necessary to make a robust estimate;

§ ACG's analysis of CBASpectrum data provides little evidence that the bias in the 10 year BBB+ fair value yields from CBASpectrum has been removed. NERA's 2005 paper found a bias in long dated/low rated fair value yields. The ACG analysis concludes that the bias has been removed after considering bonds with average term of 5.87 years not ten years. The conclusions of the ACG paper conflict with the findings of the AER which found that CBASpectrum was a poor proxy and under-predicted the Bloomberg BBB fair value yield over the 18 month sample. NERA confirms that the ACG analysis is insufficient to reject the allowance for the underestimation bias in CBASpectrum data.

3. Table of Issues

The ESC assessment is that the equity beta for a gas distribution business is between 0.5 and 0.8. The Final Decision set the equity beta for Victorian Gas distribution businesses at 0.7 for the 2008 to 2012 regulatory control period. The ESC’s Final Decision also included an inflation forecasts of 2.71% and a debt margin of 2.145%.

The following table sets out:

- § the arguments on the equity beta and inflation forecasts submitted by NERA to the ESC’s Draft Decision;
- § the comments by the ESC and ACG on the arguments presented by NERA in its Final Decision; and
- § our initial response to the comments made by ESC and ACG in the Final Decision.

Table 1
NERA’s Preliminary Response to the ESC Final Decision

NERA Arguments	ESC/ACG Comments	NERA Preliminary Response
ESC’s conclusion of the Equity Beta		
<ul style="list-style-type: none"> • ESC / ACG analysis concluded that the equity beta range is between 0.6 and 0.8. The analysis was solely derived from ex-post returns on a select group of US and Australian utilities. • ESC and ACG approach to estimating the required return on equity is not the accepted approach taken by US regulatory authorities, which have generally adopted a forward looking approach to estimating required equity returns. • If the ESC had regard to other methods for deriving the required rate of return on equity it would observe that its conclusion of an equity beta of 0.6 to 0.8 is low and is likely to be above 1.0. 	<p>The ESC’s final decision on the equity beta is that:</p> <ul style="list-style-type: none"> • the Australian data alone suggests a range of between 0.5 and 0.7; • US evidence considered by the ESC suggests a range of between 0.6 to 0.8; and • its best estimate of the prevailing conditions in the market and the risk involved in providing the service is an equity beta of between 0.5 to 0.8. <p>We note that the concluding paragraphs in the equity beta section have been taken verbatim from the ESC’s draft decision.</p>	<p>The ESC final decision has rejected all arguments presented to it on the plausible range of the equity beta. Furthermore, the Final Decision continued with an equity beta of 0.7 for the 2008 to 2012 period.</p> <p>The ESC makes no reference to the typographical errors in the tables presented in the initial equity beta report by ACG. These were relied on by the ESC to set the plausible range.</p> <p>It appears that the ESC has had only a cursory regard to the evidence presented in the submissions to its draft decision.</p>

NERA Arguments

ESC/ACG Comments

NERA Preliminary Response

US Regulatory Precedent

- Over the last 11½ years there have been 228 regulatory decisions on US electricity utilities and 194 regulatory decisions on US gas utilities.
- The average return on equity allowed by US regulators for electricity utilities is 10.90%. With the annual average varying between 10.36% (2006) and 11.66% (1998).
- The average return on equity allowed by US regulators for gas utilities is 10.86 per cent. With the annual average varying between 10.43% (2006) and 11.51% (1998).
- Using a conservative estimate of the US MRP of 6% (the likely lower MRP would lead to a higher equity beta) and the ESC's adjustment for debt/equity ratio this suggests an average equity beta of 1.15 and 1.17 for electricity and gas utilities respectively.

DCF of identified US gas utilities

- Using the FERC SoCal discounted cash flow (DCF) model of the US gas utilities identified by ACG suggest an average (median) equity beta of 1.12 (1.05). This contrasts with ACG who concluded that an average equity beta of between 0.53 and 0.64.
- The DCF analysis conducted by NERA is in the range suggested by regulatory precedent.

The ESC states that the US evidence suggests that the beta is between 0.6 and 0.8

ACG state that it is not possible to make direct comparisons between the betas implicitly adopted by US regulators and those adopted in Australia.

ACG also conclude that the higher rates of return provided for in the US does not have **any** direct bearing on the empirical analysis or the Commission's considerations of the empirical data in determining the equity beta.

ACG dismisses the NERA analysis because it implies that over the analysis horizon there would have been a *54 percent rising in the equity beta between 1996 and 2003 and then a 21 percent fall to 2007, when there is no market evidence to substantiate such shifts in the beta.*

This statement mischaracterises our report. Our analysis concluded that ACG's estimate of the equity beta for US gas and electricity utilities of between 0.6 and 0.8 is substantially lower than that allowed for by US regulators. Furthermore, our DCF analysis of US gas utilities identified by ACG suggested a return on equity consistent with the regulatory precedent. From this we concluded that if the ESC were to consider other accepted methods for estimating required equity returns the plausible upper range for the equity beta of US energy utilities is above 1.0.

This is demonstrably incorrect. The ACG range of the equity beta of US utilities of between 0.6 and 0.8 is used to justify the ESC's plausible range. However, if one had regard to the return on equity allowed by US regulators or DCF one would conclude that the plausible range of the equity beta is above 1.0.

Setting aside the substantially greater variance in the historical beta estimates derived by ACG, this statement is incorrect. There is an accepted body of economic/financial literature that suggest that the MRP is inversely related to the risk free rate (ie, when rfr falls the MRP increases, admittedly by a smaller amount, consequently RoE is positively correlated to but fluctuates less than the rfr). This explains the variation that ACG has identified.

NERA Arguments

ESC/ACG Comments

NERA Preliminary Response

Australian evidence of the equity beta

The analysis undertaken by ACG is not sufficiently robust to support the decision made by the ESC. The principal shortcomings with the ACG analysis are:

- ACG analysis includes periods when security returns are likely to be influenced by mergers, management buy outs and/or acquisitions.
- a number of the traded securities incorporated in ACG's exhibit characteristics of both debt and equity. The smoothing of distributions allowed by stapled securities is likely to lower the correlation between the returns of these securities and the market portfolio;
- When each of these shortcomings is addressed the mean equity beta estimate of the Australian portfolio increase from between 0.5 to 0.7 to between 0.7 and 0.9;
- Of greater concern is, after adjustments for the above sample and data selection problems, one is left with insufficient data from the Australian capital markets to reach any reasonable conclusion as to the equity beta of a regulated gas distribution business.

ACG accepts that merger activity will affect the estimates of the equity beta. However, it concluded that the activity is likely to raise the equity beta estimates. However, the problem of distortion of the underlying risk characteristics by takeover activity is essentially a problem associated with outlier observations that occur when the announcements are made about the proposal. This is dealt with through the re-weighted OLS, LAV and elimination of outliers estimation techniques.

ACG agreed that a number of the securities for which the beta estimates were made comprise stapled securities and trusts. However, ACG does not consider that the composition of these securities affects the estimation of equity beta values. ACG believes that from the point of view of systemic risk analysis the important question is whether the holder of a stapled share/loan note actually bears the residual risk. The security holder just have a right to the *residual cash flow* of the equity after other claims on the company's cash flows, which is common with conventional equity stock.

We strongly disagree with ACG's analysis of the effect of market activity (mergers/takeover etc). Our principal concerns are:

- that the impact of market activity goes beyond the period of its announcement. The impact of market activity occurs for the whole period that an offer is on the table. During this period the share price is likely to be strongly influenced the probability of the offer's success or the possibility of a rival offer rather than the underlying systemic risk of the business. ACG also did not address its internal inconsistency of removing US securities with market offers but not doing so in the Australian market; and
- re-weighted OLS, LAV and elimination of outliers estimation techniques may not necessarily remove the impact of the one off announcement of market activity as ACG beta estimate is of a hypothetical "basket" share (ie an average movement in a basket of shares). Consequently, any spikes in individual share returns will be dampened and identified as an outlier.

NERA does not disagree that stapled securities bear the residual risk of the company. However, our criticism is that an analysis of historical variation in returns is likely to underestimate the risks to equity owners since it will pick up the risk of both the equity and debt components of the stapled security. We note that ACG/ESC already make adjustments for debt structure of companies. We are arguing that the debt structure of the traded security should also be taken into account. Those traded securities whose distributions are predominately expected to be composed of interest and loan repayments cannot be used in a sample of comparable securities used to estimate the required return on *equity*.

Our response to the ESC decision would be to:

- provide greater detail to present the case that securities

NERA Arguments

ESC/ACG Comments

NERA Preliminary Response

Inflation expectations

The ESC's approach for deriving an inflation rate forecast of 3% has the following shortcomings:

- the use of a two year inflation rate forecast horizon is inconsistent with the ten year risk free rate;
- the ESC placed too great a weight on the upper bound of the RBA inflation target band;
- the composition and size of the inflation rate forecast sample set developed by the ESC has an upward bias when compared with a larger set of independent forecasts of future inflation; and
- In our opinion, an inflation rate of between 2.5% and 2.6% would accord with the current market expectations of the inflation rate.

The ESC concluded that (pg 460):

the evidence provided by each of the distributors, the statements of the RBA and Treasury, the views of financial market forecasters and historic indicators and the need for consideration of a ten year horizon consistent with the yield on ten year nominal CGS, the Commission has formed the view that the best estimate of inflation arrived at on a reasonable basis as required by section 8.2(e) of the Code is 2.70 per cent.

That is:

- CEG – 2.5%;
- NERA – 2.5% to 2.6%;
- RBA long term (2.5%) short term (3.0%);
- Treasury 2.5%; and
- historical averages, ten year average 2.71%, five year average arithmetic (2.75%) and compound (2.70%).

that include debt and equity have different characteristics than those that are purely equity;

- articulate the types of debt used by SP AusNet, Spark, APT, GasNet etc;
- undertake stylised modelling of free cash flows and profitability of capital intensive industries to make the point that free cash flows provide more certain distributions than profits which gives the security more debt like characteristics; and
- potentially undertake further work on stapled securities in other industries to demonstrate that stapled securities generally exhibit less volatility than other pure equity shares.

We have the following comments on the ESC analysis:

- the use of ten year historical average includes the GST spike in 2001. Consequently using 2.71% as an estimate for future inflation is inappropriate;
- the use of a five year average is unsuitable as it is too short a period to cover a full business cycle (normally held to be 7 to 8 years);
- two year forecasts of inflation is also inappropriate as it is inconsistent with the ten year risk free rate
- all estimates of the ten year inflation rate are below the ESC estimate.

NERA Arguments

ESC/ACG Comments

NERA Preliminary Response

Other Issues

Debt margin

ACG updated its estimate of the reasonable range for the debt margin for the 20 trading days to 30 November 2007 by:

- a linear extrapolation of the 8yr Bloomberg BBB fair value yield (195bp); and
- the 10yr CBASpectrum BBB+ fair value yield (202bp).

Plus 12.5 basis points for debt raising costs. The ESC's Final Decision of the debt margin for the 2008 to 2012 period was the top of the reasonable range, ie, 2.145%.

§ ACG has provided no evidence that the extrapolation of the 8 yr Bloomberg BB yields leads to a robust estimate of the 10yr BBB fair value yield. We note that Bloomberg has indicated that it discontinued the 10 year BBB fair value yield because of lack of information necessary to make a robust estimate;

§ the analysis of CBASpectrum does not make the case that the demonstrated bias has been removed. The 2005 NERA paper found a bias in long term/low rated fair value yields, the ACG analysis on CBASpectrum looks at bonds with average term of 5.87 years not ten years. Our discussions with CBASpectrum indicate that they have not changed their estimation technique since May 2006. However, the AER in the SP AusNet decision (31 January 2008) clearly demonstrated that the 10 year BBB+ CBASpectrum fair value yields tracked below those estimated by the 10 year Bloomberg BBB until the Bloomberg series was discontinued in October 2007 because of "concerns with the reliability of the estimates". This is in stark contrast with the ACG paper that found that CBASpectrum over estimated the yields.

Errors in the ACG report

No mention of the errors in the initial ACG report.

This at least should be discussed especially as some of the errors were material.