DRAWING A LINE-IN-THE-SAND FOR THE REGULATORY WACC

A Report for TransGrid

Prepared by NERA

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1 INTRODUCTION AND BACKGROUND

TransGrid has asked NERA to examine statements made by the ACCC and its consultants in the last 5 years and to determine from these statements what the ACCC's likely view is of the true WACC for electricity transmission companies. TransGrid has also asked NERA to review the extent to which the ACCC's views have been reflected in changes in allowed rates of return for regulated businesses.

The context for this analysis is that there has been a public debate between the ACCC, regulated businesses (and a debate by proxy between the ACCC, its consultants and regulated businesses' consultants) over whether the current level of the regulated WACC is reasonable. During this debate a number of claims and counter claims have been made in both regulatory proceedings and in other forums – including the opinion pages of the Australian Financial Review.

During this debate the ACCC has made a number of comments concerning the conservatism of its approach to the regulated WACC that are likely to have influenced businesses' expectations of future levels of the regulated WACC. However, in order to form an accurate expectation of the WACC the ACCC intends to allow in the future it is necessary for businesses to distinguish between:

- statements made "in the heat of argument" by the ACCC that purely reflect a defence against external attack on the reasonableness of its current values of regulatory WACC; and

- statements that signal a future change in the ACCC's position of the WACC.

Another important context to this analysis is that regulated rates of return allowed by the ACCC have been falling over the last five years and this was itself preceded by statements that, in hindsight, can be viewed as clear signals that the WACC would fall. If businesses expect that this will continue to be the case then they will rationally base their investment decisions not on the currently allowed regulatory WACC but on the average expected WACC over the life of an investment.

The purpose of this report is twofold:

- to attempt to determine an objective range for the rate of return regulated businesses can reasonably expect to receive over the life of long lived assets; and

- to assess the relative merits of reducing the level of uncertainty concerning the future WACC by drawing a "line-in-the-sand" around a particular level (more specifically, drawing a line-in-the-sand around a particular level of the margin above the risk free rate.

The structure of this report is as follows:

- Section 2 analyses statements/decisions made by the ACCC or its consultants in relation to each CAPM parameter and 'tracks' changes in those parameters over recent years. On the basis of these statements a range is determined for the ACCC's view of the value of each parameter. This is then used to determine the range for the average value of regulated returns a business can expect over the life of long lived assets. Attachment A provides a non-exhaustive list of statements relied on in this section;

- Section 3 discusses the policy implications of the empirical work in section 2. It is argued that, in the presence of asymmetric costs associated with setting the WACC too high/low, customers interests are best served by the ACCC acting to significantly reduce the range of future WACC businesses can expect. In particular, it is argued that in the current situation customers have the worst of both worlds. That is, customers pay a WACC at the top of the range businesses currently expect but get investment incentives at the bottom/middle of the range. A line-in-the-sand can only improve things for customers – as long as that line in the sand is above the current expectations of businesses.

2 ACCC COST OF CAPITAL STATEMENTS

The Australian Competition and Consumers Commission (ACCC) sets the rate of return on invested capital by reference to a "vanilla" post-tax weighted average cost of capital (WACC). The aim of this paper is not to comment the reasonableness of the ACCC's current WACC parameter values, but to identify a range of values that a TNSP could reasonable expect in future regulatory periods given the statements made by the Commission.

Table 2.1 below summarises the plausible future parameter values that a TNSP could reasonably expect from the ACCC in future decisions. These expectations of future returns on assets will influence TNSP's decision to invest today.

Table 2.1: Summary of Plausible Future Parameter Values

	TransGrid 1999	Transend (draft) 2003	High	Expected	Low
Term to maturity of risk free rate (difference with 10 year bond rate)	10 years (0.00%)	5 years (-0.20%)	5 year (-0.20%)	5 year (-0.20%)	1 year (-0.61%)
Debt margin	1.20%	0.80%	1.08%	0.68%	*less* than 0.68%
Equity Beta	1.0	1.0	1.0	0.8	0.5
MRP	6.0%	6.0%	6.0%	6.0%	5.0%
Value of Gamma	0.5	0.5	0.5	1.0	1.0
Total expected margin above the 10 year risk free rate*	3.69	3.26	3.49	2.21	1.11

*Calculated assuming 60 percent gearing with the impact of gamma on the total margin above the risk free rate calculated consistent with the officer post tax and the WACC parameters allowed in the Transend draft decision.

In the following sections, we review the ACCC's statements on each of these variables. On the basis of these statements we explain why we reached the above range for the expected value of each parameter.

2.1 Risk Free Rate (R_f)

The chosen term to maturity of the risk free rate proxy can significantly affect the allowed rate of return. The ACCC had previously used the 10 year Commonwealth bond rate but now uses a 5 year bond rate to set the risk free rate. The ACCC has firmly rejected arguments in favour of returning to the use of a 10 year bond rate. Furthermore, the ACCC has also published comments suggesting that a 1 year bond rate may be the most appropriate bond rate. We therefore conclude :

	High	Expected	Low
Term to Maturity	5 year	5 Year	1 year
Difference with 10 year bond rate	-0.20%	-0.20%	-0.61%

The risk free rate (R_f) represents the return that investors could earn from investing in a risk free asset. R_f is therefore the starting point for determining both the return on equity and debt.

In TransGrid's 1999 determination the ACCC, consistent with practice of Australian state regulators, used the 10-year Commonwealth bond rate. In all decisions since then the Commission has set the term of the risk free rate equal to the term of the regulatory period (ie, around 5 years). In the recent discussion paper by the ACCC on the Statement of Regulatory Principles the ACCC has stated that because the revenue cap is adjusted annually to adjust for outturn inflation it would be:[1]

> *"…more appropriate to adopt as a R_f the rate of return on a one-year government bond."*

Therefore, we conclude that a TNSP observing recent ACCC decisions and statements could reasonably expect that the term to maturity of the proxy risk free rate would most likely remain 5 years but may in the future change to a 1 year bond rate.

On this basis it appears unlikely that the ACCC will revert, of its own accord, to the use of the 10 year bond rate as the proxy for the risk free rate. However, we note that an appeal of the ACCC's WACC determination for GasNet may force such a change for the businesses regulated under the Gas Code. Our high and expected estimates of the term to maturity of the risk free rate are therefore 5 years. Our low estimate is 1 year consistent with the quoted statement from the SRP discussion paper.

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[1] ACCC, Discussion Paper, *2003 Review of the Draft Statement o Principles for the Regulation of Transmission Revenue*, p72.

The effect of moving to a shorter term to maturity was discussed by Professor Kevin Davis, a ACCC consultant, who suggested that:[2]

> *"long term interest rates will, on average, exceed short term interest rates for reasons other than expectations of future increases in interest rates, the use of the longer term interest rate as a proxy for the risk free rate will lead to higher regulatory cash flows than if the short term rate were used. "*

Using statistics provided by the Reserve Bank of Australia, Table 2.2 shows that on average yields are higher on longer term bonds.

Table 2.2: Monthly Risk Free Rates
July 1992 – Oct 2003

	Bank Bill	**Commonwealth Treasury Bonds**		
Term	**180 day**	**3 Year**	**5 Year**	**10 Year**
Oct-03 (%)	5.10	5.53	5.67	5.76
Average (%) Jul 92–Oct 03	5.70	6.28	6.57	6.94
Margin above the 10 year bond rate (%pts)	-1.24	-0.67	-0.37	0.00

Source: Reserve Bank of Australia Monthly Statistics

A similar trend would be expected to be seen in margins between indexed bonds with a term to maturity of 5 year and 10 year.[3] Although no 1-year bond rate is published by the Reserve Bank it is reasonable to assume that the rate would fall somewhere between the 180 day bank bill and the 3 year bond rate, this would imply an average discount on the 10 year bond rate of between 0.67 and 1.24 percentage points. Interpolating this value to estimate the discount on the 1 year bond rate relative to the 10 year bond rate gives a value of 1.13.

The ACCC has stated that the average historical difference in yields between 5 and 10 year bonds has been between 20 and 25 basis points. While we do not have the data series to confirm whether this is the difference between 5 and 10 year nominal or indexed bonds, we nonetheless adopt the lower end of this range in our analysis of the impact of adopting different maturities of the *indexed* risk free rate We calculate the impact of moving to a one year rate by assuming that the margin between 1 and 10 year indexed bonds is proportional to the margin between unindexed bonds in the same proportion as applies to the margin between 5 and 10 year bonds. That is, the margin between indexed bonds is equal to 1.13*0.20/.37=0.61.[4]

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2 Ibid, p72.

3 Potentially the relative riskiness of 10 year to 5 year indexed bonds is less than the risk differences observed in nominal bonds due to the greater variance of inflation estimates in more distant periods.

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2.2 Debt Premium (D_m)

Current ACCC practice is to benchmark the credit ratings of TNSPs against a set of 'comparable' regulated electricity and gas businesses. This benchmarking process does not adjust for government ownership or gearing within the sample. From this process the ACCC has, to date, derived a benchmark credit rating of A. This is then used to determine the debt premium that a regulated business would have to pay if they issued all their debt at a maturity of five years on a particular day. Many commentators have argued that this approach is unreasonable and the ACCC has not yet addressed their concerns in any meaningful manner. Consequently, we must give some probability to the ACCC altering its methodology. In doing so we arrive at the following range of potential expectations

	High	Expected	Low
Approach	Adjust for government ownership in benchmark sample and reflect commercial debt maturity in calculating debt margin.	Continue current approach	Continue current approach except estimate a margin 'as if' regulated businesses re-issues their entire debt annually
Likely current margin	1.08%*	0.68%*	*less* than 0.68%*

*All estimates based on the letter by Westpac attached to TransGrid's revenue reset application.

The debt margin represents the premium above the risk free rate that lenders would require to lend to regulated business.

In the recent draft Transend decision the ACCC arrived at an A credit rating by reference to a sample of ten credit ratings of electricity companies. This rating was then used by the Commission to estimate the premium on 5 year corporate debt over the corresponding Commonwealth bond. That is, the ACCC set the cost of debt 'as if' Transend could re-issue its entire debt portfolio every five years and still maintain an A credit rating on all that debt.

However, future expectations would need to weigh three potential changes to this current methodology:

(1) Re-sampling the companies used to benchmark the industry credit rating to correct for Government ownership bias.

(2) Calculating the debt margin to acknowledge that, as a matter of commercial reality, firms do not issue all debt in 5 year bonds.

(3) The possible move to the use of a 1 year risk free rate and the Commission then adopting a debt margin equal to the premium on 1 year corporate debt over the corresponding Commonwealth bond.

The ACCC arrived at an A benchmark credit rating in each decision by reference to a sample of ten credit ratings of Australian electricity lines companies. This sample is populated by both private and public companies which introduces potential biases. The Commission includes both as:[5]

> *"By simply using stand-alone and private entities, it would provide too small a sample to obtain an average credit rating for the electricity industry."*

As a result, the four companies with the highest credit ratings are all owned by their respective State governments. Removing these companies would lower the average credit rating to "A-" or "BBB+". The possibility that the ACCC corrects for this inconsistency has been included in our high debt margin estimate. However, our "expected" and "low" debt margin scenarios assume the ACCC continues with the current A credit rating.

The second uncertainty about future practice relates to the term to maturity of corporate debt upon which the debt margin is calculated. The Transend draft decision calculated the debt margin as the difference between 5 year corporate debt with an A credit rating and the corresponding Commonwealth bond yield. This methodology has also been specifically endorsed in the ACCC's discussion paper on the Statement of Regulatory Principles.[6] However, as a matter of commercial reality regulated Australian businesses do not issue all debt in the form of 5 year corporate bonds – despite the fact that, under CPI-X regulation, they have an incentive to do so if it would lower their costs. On this basis we assume that there is a reasonable possibility that ACCC will reverse this methodology in subsequent decisions.

Were the ACCC to do so, we would imagine that it would also perform a one-off calculation of the credit rating that a privately owned regulated business could be expected to achieve. This would involve providing an independent credit rating agency with pertinent assumptions concerning cash flows, debt ratio and the regulatory regime and asking that agency to provide a 'hypothetical' credit rating. The assumptions provided could based on TNSPs current cash flows. Once such a credit rating was provided we would not expect that there would be any need to revisit the issue unless a major change to the regulatory regime occurred.

Our high estimate of the debt margin assumes the ACCC calculates the margin on debt issued with a ten-year maturity and an A- credit rating (which is our estimate of the credit rating an independent rating agency would give a hypothetical stand-alone privately owned TNSP). , Our most likely estimate of the ACCC's future approach to the debt margin involves the assumed continuation of the current practice of setting the debt margin equal to the margin on five year debt with a credit rating of "A".

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5 ACCC, Discussion Paper, *2003 Review of the Draft Statement o Principles for the Regulation of Transmission Revenue*, p83.

6 Ibid, p83.

As discussed in section 2.1 the ACCC has suggested that the appropriate risk free rate is the 1 year bond rate. Adopting the ACCC current reasoning it could then be reasonable anticipated that the debt margin would be calculated as the difference between the yields on 1 year corporate bonds and 1 year Commonwealth bonds. This possibility has been incorporated in our estimate of the potential low range debt margin.

2.3 Equity Premium (β_e)

In all recent electricity transmission decisions the ACCC has set the equity beta equal to one. However, in the recent discussion paper on the SRP the ACCC has stated that its preferred position is "to move towards benchmarking an equity beta from current market evidence and incorporating an upper confidence interval". In that document the highest quoted estimate of the equity beta for a regulated business was 0.39. When the ACCC applied a 95% upper confidence interval the estimated range spread from 0.8 to below 0.5. As a result it would be reasonable to conclude that future ACCC decisions will incorporate a equity beta within the following range:

	High	Expected	Low
Equity Beta	1.0	0.8	0.5

ACCC revenue decisions for electricity transmission companies had previously set regulated electricity transmission firms an equity beta of one. This has compensated equity holders in transmission companies 'as if' they had the same systematic risk as holders of the market portfolio.

Nonetheless, the ACCC has consistently suggested that the current value of the equity beta is generous as:[7]

> "*electricity transmission businesses are less risky as their earnings are more stable than the market portfolio—suggesting an equity beta of less than one.*"[8]

The discussion paper on the SRP suggests that a sample of market data can be used to indicate a substantial reduction from the typical assumed β_e of one. As a conservative approach the Commission has suggested that statistical upper confidence interval of 95% and 99% based on the sample data.

[7] Also see supporting statements attached below.

[8] ACCC, *Draft Decision Tasmanian Transmission Network Revenue Cap 2004 – 2008/09*, September 2003, p 83.

In table 5.2 of the discussion paper the Commission analyses market data for an appropriate β_e.[9] Notwithstanding our criticism of statistical methods, the analysis suggest that with an upper confidence of 95% the equity beta would range between 0.5 and 0.8.

Prior to the release of this discussion paper the ACCC has consistently quoted its consulatants, the Allens Consulting Group, who have stated that market data suggests that the equity beta of regulated Australian gas businesses is less than 0.7.

> *"ACG recommended that a conservative approach to beta estimation be retained by Australian regulators with an equity beta estimate of 1.0. ACG noted:*[10]
>
> > 'In the future, however, it should be possible for greater reliance to be placed upon market evidence when deriving a proxy beta for regulated Australian gas transmission activities.'
>
> *For the reasons indicated by ACG, the Commission considers that it may be premature to rely on market data exclusively when determining the equity beta. Accordingly, the Commission considers that an equity beta of 1.0, while biased in favour of the service provider, is appropriate for ElectraNet." Page 37 of ElectraNet Decision 2002.*

Given the persistence of ACCC comments in this regard it would be reasonable to expect that in the most optimistic scenario for regulated businesses would be that current β_e of one is maintained into the future. The ACCC comments suggest that the more likely scenario is that the current market sample will be used to estimate the β_e this would imply a likely fall of the equity beta to 0.8 but may potentially fall as low as 0.5.

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[9] ACCC, *Discussion Paper 2003 Review of the Draft Statement of Principles for the Regulation of Transmission Revenues*, p77.

[10] ACG, Empirical evidence on proxy beta values for regulated gas transmission activities, Final report for the ACCC, July 2002, p43.

2.4 Market Risk Premium (MRP)

In past regulatory decisions the ACCC has consistently set the MRP at 6%. It has reaffirmed this position in its discussion paper on the SRP. Nonetheless, in that same document and in earlier documents it has stated that this approach appears to be conservative with evidence that the currently expected MRP by the market is below 5%. On this basis we assume the following range of expectations for the regulated MRP.

	High	Expected	Low
MRP	6.0%	6.0%	5.0%

The market risk premium represent the return, above the risk free rate, investors require to compensate them for the non diversifiable risks of the market as a whole.

The ACCC's assessment, based on historic data, is that the MRP lies between 5.0% and 7.0%.[11] In all electricity revenue decisions the ACCC has set the MRP at the mid point of this range, which is consistent with a comprehensive study by Lally commissioned by the ACCC, which recommended a MRP of 6% as reasonable.[12]

The ACCC, however, has indicated in recent decisions and the draft SRP their belief that MRP has recently fallen. To support this view they have relied on a survey by Jardine Fleming Capital Partners that which found that:[13]

> *"on average these participants thought the historic MRP for Australia was 5.87%. The survey also found the expectation for the future MRP is approximately 1.0% below this figure."*

The draft SRP states that the Commission's preferred position is for no change in the current approach for estimating the MRP. We take this statement on face value and conclude that the most likely outcome would be for the ACCC to maintain the MRP at 6%. We also conclude that there is little evidence to support the view that the ACCC may increase the MRP in the future, however, the ACCC continues to make statements that suggest a reasonable possibility that the it may lower MRP values to say 5%, at some future time.

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11 ACCC, *South Australian Transmission Network Revenue Cap 2003-2007/08*, December 2002, p29.

12 Lally M., *The Cost of Capital Under Dividend Imputation*, June 2002, p 34.

13 Ibid, p 29.

2.5 Gamma (γ)

The cost of company tax is not explicitly incorporated into the ACCC's WACC/CAPM calculation. However, decisions on the value that shareholders attach to franking credits (gamma) have significant impact to the returns to capital owners. Based on the recent ACCC decisions and statements it would be reasonable to expect future decisions to value gamma in the following range:

	High	Expected	Low
Value of Gamma	0.5	1.0	1.0
Compensation for tax (percentage pt in crease in WACC*)	0.56%	0.0%	0.0%

* Based on a post-tax nominal WACC proposed by Officer and the WACC parameters allowed in the Transend draft decision.

Under the imputation tax system, Australian resident taxpayers can claim a credit against income tax payable on dividends received from Australian companies, to the extent of the income tax that has been paid by those companies. Gamma (γ) is the assumed value placed by equity investors on imputation credits earned by companies when they pay corporate tax. A value of γ=1 implies that equity investors do not regard company tax as a 'cost' and, consequently, do not require any compensation for company tax in their regulated revenue streams.

To date the Commission in all regulatory decisions has set γ at 0.5. This means that equity owners are only compensated for half the firm's payable company tax liability.

The value of γ is a matter of considerable discussion by the ACCC. In 2002, the Commission commissioned Lally to conduct a comprehensive study of the impact of the imputation system on the cost of capital.[14] Lally concluded that in light of the changes introduced under the Ralph reforms γ should be at or close to 1 for most firms.

In its 2002 ElectraNet decision the ACCC stated that:

> *"The Commission believes that a more appropriate value for γ is closer to one. However, it recognises that further research is required and no consensus has yet developed among Australian academics and practitioners for adjusting the rate of use of tax credits. It is therefore inappropriate for the Commission to lead in this area and further work is required before altering its current position on γ. Accordingly, in line with recent Commission decisions, a γ of 0.5 is used in this decision."*

[14] Lally M., *The Cost of Capital Under Dividend Imputation*, June 2002.

The ACCC concluded that in the discussion paper on the SRP that, due to the lack of a clear consensus on how to adjust for the use of tax credits, their preferred position is to retain the assumed value of 0.5 for γ. We have adopted this value of 0.5 as the most optimistic value regulated businesses can expect in the long run based on ACCC statements to date. That is, we conclude that there is little evidence to support the view that the ACCC will increase the value γ in the future. Given the ACCC's repeated statements that it believes the true value of gamma is closer to one we have adopted this value as our expected and our low estimate of gamma's future contribution to regulated revenues.

In order to estimate the effect of changing γ we have used the Officer post-tax WACC combined with the other WACC parameters given in the Transend draft decision.[15] The Officer post tax WACC is expressed by the following formula:

$$WACC = R_e * \frac{(1-T)}{(1-T(1-\gamma))} * \frac{E}{V} + R_d * (1-T) * \frac{D}{V}$$

where:

R_e = required risk adjusted rate of return on equity, after company tax;

R_d = cost of debt;

T = company tax rate (30%);

γ = the value of imputation credits (gamma);

E = market value of equity;

D = market value of debt; and

V = market value of debt and equity.

Compensation for company tax has been calculated as the increase in the WACC relative to the case where γ equals one.

15 ACCC, *Draft Decision Tasmanian Transmission Network Revenue Cap 2004 – 2008/09*, September 2003, p 88.

3 POLICY IMPLICATIONS

3.1 Customers Aren't Getting What They Pay For

The allowed WACC plays two roles in the regulatory framework. The first is to provide a 'fair and reasonable' rate of return on sunk investments and the second is to provide sufficient incentive to undertake efficient new investments. Sunk investments are, by definition, unaffected by the WACC received on them (although the willingness to incur new sunk investments can be affected by the perception of whether previously sunk investments have been treated fairly by the regulator). However, in relation to new investments, if the WACC is set too low there is a risk that inefficiently low levels of investment will occur while if the WACC is set too high there is a risk that inefficiently high levels of investment ("gold plating") will occur.

It is important to note that it is the expected WACC over the life of an asset that determines the incentive to invest and not the WACC allowed in any given 5-year determination. Recognition of this fact mean that the ACCC influences TNSPs' incentives to invest *today* by:

- setting the level of the allowed WACC in a business's current regulatory period; and
- making comments on the WACC that inform businesses' expectation about what the allowed WACC will be in future determinations.

In industries where the economic lives of investments are very long (in excess of 40 years) it is clear that a business's expectations of the future WACC will be more important than the business's expectations of the WACC for the current regulatory period. On average, with five year regulatory periods, the current WACC is received on an investment for 2½ years. For an asset that has a 40-year life span this represents only 6% of its life. Moreover, it will often be more appropriate to treat the true life of many investments by TNSPs as infinite. This is because once invested in a meshed system it is likely that the asset will have to be replaced at the end of its life in order for the safe operation of the wider system to continue.

Unfortunately, in recent times regulated businesses and the ACCC have engaged in what may be regarded as an unhelpful public debate over whether the allowed WACC has been set too high or too low. Regulated businesses, or their consultants on their behalf, have made the case that regulated returns are below the level necessary to encourage sufficient investment in infrastructure industries. The ACCC has defended its position, in part, by making a number of comments suggesting that the ACCC believes that the allowed WACC is currently considerably above the true WACC for regulated businesses. It is important to recognise that defending the current WACC by stating that the true WACC is considerably below this level will, even if the intention is otherwise, reduce businesses' expectations about the future. The effect has almost certainly been to dampen investment incentives by regulated businesses. The effect of the ACCC 'talking down the WACC' is much the same as the effect the Reserve Bank Governor could be expected to have on financial markets if he

'talked up' interest rates or the Australian dollar. In NERA's view it would be appropriate for the ACCC to use the same level of circumspection in making comments about whether the current allowed WACC was too high as would be expected of the Reserve bank Governor when discussing the current level of the Australian dollar.

The importance of this issue can be highlighted by repeating the summary of the findings of section 2.

Table 3.2: Summary of Plausible Future Parameter Values

	TransGrid 2000	Transend (draft) 2003	High	Expected	Low
Term to maturity of risk free rate (difference with 10 year bond rate)	10 years (0.00%)	5 years (-0.20%)	5 year (-0.20%)	5 year (-0.20%)	1 year (-0.61%)
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Total expected margin above the 10 year risk free rate*	3.69	3.26	3.49	2.21	*less* than 1.11

*Calculated assuming 60 percent gearing with the impact of gamma on the total margin above the risk free rate calculated consistent with the Officer post tax and the WACC parameters allowed in the Transend draft decision.

It is clear from the above table that the ACCC allowed WACC has fallen considerably between the ACCC's 2000 TransGrid decision and its 2003 Transend draft decision. In the three-year period the margin above the 10-year bond rate has fallen by over 40 basis points (or over 10 percent). More importantly, a reasonable interpretation of ACCC public comments on the WACC would create the expectation that the WACC will continue to fall in the future and that the margin provided above the ten-year bond rate will be, on average, over 100 basis points lower than it currently is. This amounts to a fall of around 33% in the margin above the risk free rate. When compared with the 2000 TransGrid decision the fall is even larger. Moreover, a credible lower range estimate for the expectation of the ACCC's future allowed margin above the ten-year bond rate is around 200 basis points lower than is currently allowed (or around 66% lower).

Unfortunately for customers, this creates a situation where they are currently paying prices based on a margin above the ten-year risk free rate of around 3.26% (based on the Transend draft decision) but are receiving investment incentives potentially based on a perceived margin above the ten-year risk free rate of something lower than 2.21%. That is, the uncertainty created by the ACCC's public comments has created a wedge between what customers pay for and what they actually receive in the form of investment incentives.

The only way to ensure that customers actually "get what they pay for" is to minimise the range of expectations businesses have concerning the future allowed WACC parameters.

One way to do this would be for the ACCC to set the WACC on an asset-by-asset basis. This would involve the ACCC setting the WACC[16] associated with a particular asset and guaranteeing that this would be the return received on the depreciated value of that over its economic life. Such an approach would require a significant change to the regulatory framework and regulatory reporting arrangements.

A less radical and more practical way to achieve this result would be for the ACCC to, in the SRP process, clearly enunciate the values of the CAPM parameters and/or the process by which those parameters will be determined in future decisions. It could be made clear that the ACCC's intention is that these values/processes will not change over time except under exceptional circumstances and where extensive consultation on any changes is made. The ACCC would also make clear that evidence referred to in previous statements made by the ACCC would not in the future constitute 'exceptional circumstances'.

For example, the ACCC could state clearly that it intends to rely exclusively on the long run historically observed MRP and that the value it has estimated on this basis is 6.0%. Accordingly, it would make equally clear that its previous references to such evidence as the Jardine Fleming Capital Partners survey and its belief that the MRP is falling would not sway its decision on the MRP.

In NERA's view unless such a commitment is given the ACCC's 2003 statement in the discussion paper on the SRP that:

> *"The Commission considers no changes should be made to the current approach of estimating the MRP" p. 75*

Will run the risk of being ignored by regulated businesses who will focus on the statements that:

> *"The Commission notes a Jardine Fleming Capital Partners survey of professional market participants' MRP expectations, which found that on average these participants thought the historic MRP for Australia was 5.87%. The survey also found the expectation for the future MRP is approximately 1.0% below this figure."* ElectrNet 2003 p.29
>
> *The Commission recognises that the market risk premium has fallen over recent years, however the Commission is wary that this may reflect short-term market trends."* SPI PowerNet 2002 p27

[16] Or the margin above the risk free rate if it was considered desirable for customers to bear the interest rate risk associated with an investment.

3.2 Asymmetric Costs and a Line-in-the-Sand

A distinct reason for reducing the range for the expected WACC is that the costs of under and over investment are asymmetric. It generally recognised that the costs associated with under-investment in essential infrastructure are, in a probabilistic sense, higher than the costs associated with over-investment. This is a reflection of the fact that failure in an essential infrastructure, such as electricity transmission, will result in damage to a large number of downstream enterprises and households.

The ACCC appears to accept this view and is at pains to point out that it is conservative in the WACC provided to businesses. Unfortunately, such statements go a long way to undermining the benefits of any purported conservatism – unless they are accompanied by a commitment that the ACCC will continue to be conservative into the future. To date it is this commitment that has been missing from ACCC discussion of it 'conservative' approach to the WACC. As already discussed, the relevant expected WACC is that over the life of new investments and not the allowed WACC in any single decision. The ACCC's 'proofs' of its conservatism do little to engender the benefits that are intended to flow from conservatism if they simply lower businesses' expectations about the future WACC.

The asymmetric costs of under and over investment mean that it is vital that the *expected* regulatory WACC over the life of an asset is at least set equal to the true cost of capital. However, with the current range for the expected WACC as outlined in Table 3.2 above there is a real danger that some businesses currently expect to receive a WACC that is below their true WACC. If this were the case then more damage to investment incentives may be occurring at the moment than a casual observations of allowed rates of return would suggest.

ATTACHMENT A – ACCC STATEMENTS

Return of Equity

Beta

ElectraNet 2002

A report prepared by Allen Consulting Group (ACG) for the Commission suggested an equity beta for Australian gas transmission companies of just below 0.7.

ACG recommended that a conservative approach to beta estimation be retained by Australian regulators with an equity beta estimate of 1.0. ACG noted:[17]

> *In the future, however, it should be possible for greater reliance to be placed upon market evidence when deriving a proxy beta for regulated Australian gas transmission activities.*

For the reasons indicated by ACG, the Commission considers that it may be premature to rely on market data exclusively when determining the equity beta. Accordingly, the Commission considers that an equity beta of 1.0, while biased in favour of the service provider, is appropriate for ElectraNet. p37

SPI 2002

Repeats ACG statements in ElectraNet. p22.

Murrylink 2003

Repeats arguments put forward in the ElectraNet decision quoting the Allen report. However, maintained the equity beta at 1.0 due to immature Australian market data.

Transend 2003

However, there is a view that gas and electricity transmission businesses are less risky as their earnings are more stable than the market portfolio—suggesting an equity beta of less than one. p83.

The ACCC notes the sample betas calculated in Transend's application. It also derived betas from comparable Australian firms, using data from the Australian Graduate School of Management (AGSM) for December 2002 and March 2003.

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[17] ACG, Empirical evidence on proxy beta values for regulated gas transmission activities, Final report for the ACCC, July 2002, p43.

To derive equity betas, the ACCC first started with unadjusted betas of a small sample of companies. It de-levered and then re-levered the equity beta, assuming the debt beta to be zero and using Standard and Poor's[43] (corresponding) gearing levels. The resulting estimates, shown in table 6.5 (Equity beta average in 2002 of 0.19 and 0.17 in 2003), suggest that the ACCC has been generous in its previous decisions. p85

Discussion Paper: Draft Statement Transmission Pricing Principles 2003

Although the sample of comparable firms is still relatively small, the market evidence suggests that the Commission has been generous in its previous decisions. This generosity is evident given current market beta estimates, which are lower than those adopted by the Commission. In determining past revenue caps for TNSPs, the Commission has sought not to deter new investment and has been biased towards the TNSP.

Market Risk Premium

ElectraNet 2002

The Commission has noted the research indicating that the MRP has fallen over recent years. However, the Commission is wary that this may only reflect short-term market trends. Based on the more traditional views, the Commission's assessment of the MRP suggests that it lies between 5.0% and 7.0%. For this decision, the Commission chooses the mid-point of this range, which is a MRP of 6.0%.

The Commission also maintains that the current MRP of 6.0% is on the high side and therefore sufficient to compensate for the difference between the five and 10-year bond yields.

The Commission notes a Jardine Fleming Capital Partners survey of professional market participants' MRP expectations, which found that on average these participants thought the historic MRP for Australia was 5.87%. The survey also found the expectation for the future MRP is approximately 1.0% below this figure. However, the Commission acknowledges that these expectations reflect substantial uncertainty. If the Commission is satisfied that the MRP is trending downwards in the longer term, it will adopt a lower MRP. p29.

GasNet 2002

The paper from MIC referred to by Amcor, PaperlinX and EUCV was prepared for the ESC. MIC noted that while it does not generally provide advice on market risk premium to clients, an implied ex-ante premium could be determined from its forecast of returns for Australia shares over the next 10 years. As a result, MIC derived an estimate of the market risk premium of 3.0%. While MIC noted that this is much lower than estimates derived from historical data, it did not argue that one method is more correct than the other. In fact, MIC considered that there is considerable divergence of opinions in regard to estimating the market risk premium and 'there is as yet no emerged consensus'.

The Commission [ESC] remains of the view that the weight of evidence discussed above provides a sound basis for adopting an estimate of the equity premium that is below the point estimate provided by the average of the historical premia, but which otherwise is within the range provided by historical returns, given the variability associated with this measure. Indeed, the evidence discussed above (including the new information received since the Draft Decision) would suggest that many market practitioners would adopt an assumption about the equity premium that is lower than the assumption of 6% that the Commission has adopted in previous decisions and in the Draft Decision.[18]

In determining an appropriate estimate of the market risk premium for this Final Decision the Commission has carefully considered the additional information provided in recent submissions. In addition, the Commission has considered GasNet's legitimate business interests pursuant to section 2.24(a) of the Code. The Commission acknowledges the studies that suggest that the appropriate estimate of market risk premium is less than the 6.0% the Commission has generally used to date in its regulatory decisions. However, the impact of altering the estimate at this time to 3.0%, for example, may be unduly harmful to GasNet's legitimate business interests. p97.

SPI 2002

Under a classical tax system, conventional thinking suggests a value for the MRP of around 6.0%. In a consultancy to the Commission, Kevin Davis derives figures based on a dividend growth model of between 4.5% and 7.0% with further indication that the MRP may be trending downward……

The Commission recognises that the market risk premium has fallen over recent years, however the Commission is wary that this may reflect short term market trends. p27

Repeats the Jardine Fleming Capital Partners tthe historic MRP was 5.87. p28.

Powerlink 2001

Further, the Commission believes that the current market risk premium of 6.0% is on the high side and therefore sufficient to compensate for the difference between the five and ten year bond yields. p20.

NSW and ACT 2000

Professor Bob Officer also provided support for the view that the MRP may be trending downward.[19] Evidence from outside Australia obtained at the time also suggested that the

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18 ESC, Final Decision: review of gas access arrangements, October 2002, p. 336.

19 ACCC, 'Access Arrangement by Transmission Pipelines Australia, Final Decision,' Octover 1998, p53.

premium had fallen as investors' perception of risk changed. For example, OFWAT, the UK water regulator, had asserted that the MRP was in the region of 2.75 to 3.75 percent. p18.

Murrylink 2003

Repeats arguments from ElectraNet 2002.

Transend 2003

Repeats arguments from ElectraNet 2002 but adds that the 6% MRP is:

- This is consistent with the Lally study for the ACCC, which recommended an MRP of 6%.

- A number of surveys have supported the ACCC's MRP estimate. For example, the Jardine Fleming capital markets survey on professional market practitioners' MRP expectations found that it was 5.87% on average.[20] The survey also found the expected future MRP is about 1% below this figure. However, the ACCC considers that these reduced expectations reflect substantial uncertainty and are not persuasive enough to revise its estimate.

Murrylink 2003

Repeats arguments from ElectraNet that MRP is currently to high but additional research is still necessary.

Return on Debt

Debt Margin

ElectraNet 2002

- credit rating of A was deemed appropriate, but included Government and private companies actual credit ratings,
- noted that gas companies rating of BBB+, which is lower than electricity companies, could be explained by a wide range of factors. Including, regulatory risk, counter party risk and overall volume risk.

Murrylink 2003

[20] Jardine Fleming Capital Partners, *The Equity Risk Premium – An Australian Perspective*, September 2001.

- The Commission has included both private and government entities in its sample in determining the average credit rating for the electricity industry. The Commission considers that simply using stand alone and private entities would provide too small a sample to obtain an average credit rating for the electricity industry.
- Accordingly, the Commission considers that an A credit rating represents an appropriate proxy credit rating for the benchmark electricity company.
- As the Commission has adopted a 10-year regulatory control period, it considers it appropriate to determine the debt margin based on a 10-year term. Therefore the current 10-day moving average benchmark spread over the government bond yields, for A rated corporate bonds with a maturity of 10-years, is 086 bp.

Transend 2003

- Accordingly, the ACCC considers that an A credit rating represents an appropriate proxy for the benchmark electricity company.
- The term of the bond should match the length of the regulatory period. In the case of Transend it is five-and-a-half years.

Gamma

ElectraNet 2002

the Commission believes that a more appropriate value for γ is closer to one. However, it recognises that further research is required and no consensus has yet developed among Australian academics and practitioners for adjusting the rate of use of tax credits. It is therefore inappropriate for the Commission to lead in this area and further work is required before altering its current position on γ. Accordingly, in line with recent Commission decisions, a γ of 0.5 is used in this decision. p31

GasNet 2002

This last point is to be expected when a significant portion of the shareholder base is not subject to Australian taxation. However, the observation is essentially irrelevant to the regulatory framework which consistently maintains the assumption that the equity investor is domiciled in Australia. This allows for consistency in applying the CAPM in the context of the Australian market and the fact that regulated services are provided to the Australian market. If the assumption were to be relaxed, it is not sufficient to merely adopt a different value of gamma. Instead, the whole CAPM framework would need to be revised to recognise the international context in which the foreign investors are operating. As a first step this involves the adoption of an international version of the CAPM model and reconsideration of the relevant CAPM parameters. Lally considers this issue in detail and

provides strong evidence to show that reducing the value of gamma as a means of recognising the existence of foreign investors provides a perverse result.[21] Instead, his analysis shows that the costs of capital for foreign investors is somewhat less than their Australian counterparts and that setting gamma to 1.0 would not compromise the benchmark returns they require if their foreign status is fully considered.

Lally June 2002

Model that assumes that national equity markets are segmented rather than integrated (such as the Officer model) is recommended. It follows that foreign investors must be completely disregarded. Consistent with the disregarding of foreign investors, most investors recognized by the model would then be able to fully utilize imputation credits. p42

Powerlink 2001

This approach ensures the optimal utilisation of tax deductions and franking credit rebates. Therefore, in line with these changes, the Commission believes that a more appropriate value for gamma would be closer to 1.0. p 21

21 M Lally, *The cost of capital under dividend imputation*, a paper commissioned by the ACCC, April 2002.

REFERENCES

ACCC, *Australian Rail Track Corporation Access Undertaking: Decision*, May 2002.

ACCC, *South Australian Transmission Network Revenue Cap 2003-2007/08*, December 2002.

ACCC, *GasNet Australia access arrangement revisions for the Principle Transmission System: Final decision*, November 2002.

ACCC, *Victorian Transmission Network Revenue Caps 2003-2008: Decision*, December 2003.

ACCC, *Queensland Transmission Network Revenue Cap 2002-2006/07: Decision*, November 2001.

ACCC, *NSW and ACT Transmission Network Revenue Caps 1999/00-2003/04*, January 2000.

ACCC, *Discussion Paper 2003 Review of the Draft Statement of Principles for the Regulation of Transmission Revenues*,

Lally M., *The Cost of Capital Under Dividend Imputation*, June 2002.

Lally M., *Determining the Risk Free Rate for Regulated Companies*, August 2002.

ACCC, *Murrylink Transmission Company Application for Conversion and Maximum Allowable Revenue*, October 2003.

ACCC, *Draft Decision Tasmanian Transmission Network Revenue Cap 2004 – 2008/09*, September 2003.