SPI POWERNET
A subsidiary of Singapore Power International

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Acting General Manager
Regulatory Affairs - Electricity
Australian Competition and Consumer Commission
PO Box 1199
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Dear Sebastian,

Response to ACCC Draft Decision on ElectraNet SA Revenue Cap

The purpose of this letter is to provide SPI PowerNet's comments in relation to the ACCC's Draft Decision on the South Australian Transmission Network Revenue Cap for 2003-2007/08. SPI PowerNet has a strong interest in the approach taken by ACCC in this Draft Decision as the ACCC is currently undertaking a parallel review of SPI PowerNet's revenue cap. It is in this context, rather than as a direct stakeholder per se, that SPI PowerNet makes this response.

Our comments on the Draft Decision are focussed on a number of aspects of the cost of capital (WACC), specifically:

- the term of the risk free rate;
- the sampling period for the risk free rate;
- the debt margin;
- debt and equity raising costs;
- the treatment of dividend imputation; and
- the overall approach to setting the WACC.

SPI PowerNet is concerned that the ACCC's Draft Decision in relation to the cost of capital requires modification in so far as it (variously):

- relies on unrealistic assumptions;
- does not reflect the latest market data;
- is not consistent with modern finance theory; and
- is at variance with the direction being endorsed by the Commonwealth Government in the wake of the Productivity Commission's review of Part IIIA.

The term of the risk free rate

In the Draft Decision the ACCC has adopted a 5½ year 40 day moving average as its estimate of the risk free rate. The argument for using a 5½ year rate instead of the more conventional long term 10 year Commonwealth Government bond rate is that it matches the term of the regulatory period. The Draft Decision goes on to state that: *"While there is considerable support for the use of bond rates with terms corresponding to the life of the assets, the Commission has stated in previous decisions that they are not appropriate approximations of the risk free rate. The CAPM model used by the Commission is a single period model and given that investors review investments over short periods, a shorter term bond rate is the appropriate measure of the risk free rate."* This is, verbatim, the same explanation that the ACCC provided last year in its Draft Decision on Powerlink.

There is a twofold impact of choosing this shorter bond rate, as compared to the benchmark 10 year rate:

- first, it reduces the return on equity and the return on debt by approximately 25bp (this being the difference between 5 year and 10 year Commonwealth Government securities on average); and
- second, it reduces the return on debt still further, by reducing the debt margin (which is a function of the term assumed for the risk free rate) by approximately the same amount (this is discussed further in the debt margin section below).

Taken together, the impact of the ACCC's Draft Decision on the risk free rate is to reduce the WACC by at least 40bp (note that the effect on the debt margin has only a 60 per cent effect on the WACC due to the gearing assumption).

While there has been a long running debate with the ACCC about the merits of selecting a bond rate with a term equal to the regulatory period, it is notable that other Australian utility regulators use the 10 year bond as their benchmark. As was remarked upon at the WACC forum sponsored by SPI PowerNet, ElectraNet SA and GasNet on 24 June 2002, the ACCC essentially stands alone on this issue.

In the context of the revision of the Access Arrangements for GasNet, the ACCC commissioned a paper by Associate Professor Martin Lally entitled "Determining the risk free rate for regulated companies". Lally's conclusion is that the risk free rate should indeed be chosen to align with the regulatory period. In its 14 August 2002 Draft Decision on GasNet, the ACCC has relied (solely) on Lally's paper for maintaining its use of a five year bond rate.

In view of this, SPI PowerNet asked Professor Bob Officer to review and critique the Lally bond rate paper. Officer's critique is attached and should be read together with Officer's paper of 28 February 2002 entitled "A weighted average cost of capital for a benchmark Australian Electricity Transmission Business", which was submitted as an appendix to SPI PowerNet's own revenue cap application to the ACCC.

Officer's finding is that: "In short, all of Lally's examples for using a five year bond rate are equally applicable to using the changes in the ten year rate of each regulatory period and yet this rate is the rate consistent with the MRP and therefore consistent with the CAPM. The Lally approach is not consistent with the CAPM ... "

Lally's conclusion, and therefore the ACCC's, would only be correct if the regulator provided the utility with a capital guarantee. That is, if the utility was absolutely sure

that its investment would be returned in full. In reality, the ACCC cannot make such a guarantee (certainly the framework provided by the National Electricity Code in concert with the Trade Practices Act 1974 does not allow for it) and even if the ACCC tried it would not be credible in the context of the investment horizon of electricity transmission (up to 70 years).

This point is not new – it was made by Officer in the paper lodged as part of SPI PowerNet's revenue cap application (refer p.32) and was made again in the course of the 24 June WACC forum. Indeed, the experts who know and understand it invariably conclude that the term of the risk free rate should match the term of the underlying investment in the assets of the business, regardless of the fact that the business is subject to 5-yearly regulatory reviews.

Furthermore, there are many well established reasons (refer to Officer's critique of Lally and to Officer's paper included in SPI PowerNet's revenue cap application) in favour of using a 10 year basis for the risk free rate:

- the long term nature of infrastructure investment;
- consistency with the estimation basis for the MRP; and
- greater reliability of estimates because the market in 10 year bonds is much deeper than for shorter term Commonwealth Government Securities.

Against this background, SPI PowerNet believes that the ACCC's Draft Decision on ElectraNet SA, as with its Draft Decision on GasNet, is based on an assumption (that there exists a capital guarantee) that could never hold. The ACCC therefore has no support for using a five year risk free rate. The Lally analysis that the ACCC is relying on has been shown by Officer to be empty, in so far as it actually provides as much support for the use of a 10 year rate as for a 5 year rate. In fact, Lally implies that the ACCC is offering a capital guarantee, for example*: "Finally, Officer (2002b) argues for the ten rather than the five year rate because the regulated firm cannot walk away if compensation is inadequate. Clearly, if the ACCC fails to adjust allowed prices in the light of prevailing interest rates, then the argument for the five year interest rate evaporates."* (Lally, section 2.3)

In view of the many well established reasons cited both here and in previous regulatory proceedings, the ACCC should adopt a 10 year basis for the risk free rate in its Final Decisions for both ElectraNet SA and GasNet, and indeed for all subsequent utility decisions.

Sampling period for the risk free rate

As was noted above, the ACCC has based its Draft Decision on a 40 trading day sample of the risk free rate. SPI PowerNet believes that this sample period is too long having regard to both theoretical and practical considerations. A 5 to 10 trading day sample, with the timing to be notified in advance to the utility, would be more appropriate because it:

- does not unduly distort the information value of the sample, relative to the theoretical ideal of taking a one day sample – refer to Officer's comments on the risk free rate, in which he recommends 5 trading days on this basis; and
- is more tractable should the utility seek to hedge over the sample period – while not impossible, a 40 trading day sample is a lot more difficult to hedge, from an administrative viewpoint, than a shorter period such as 5 to 10 days.

Ultimately, however, there is no basis for believing that a utility would be systematically advantaged or disadvantaged by the length of the sampling period, as long as the utility can hedge appropriately over the sample period. In view of this, SPI PowerNet believes that the ACCC should be flexible on this issue, because the decision made will not systematically advantage or disadvantage consumers. In this regard it is notable that there is in fact some diversity amongst Australian regulators in terms of the length of the sample period they use. For example, the Victorian Essential Services Commission uses 20 trading days.

Debt margin

In the Draft Decision, the ACCC allowed ElectraNet a debt margin (exclusive of debt raising costs) of 130bp over the risk free rate (five and a half years in ElectraNet's case). This is same as the debt margin determined by the ACCC in its GasNet Draft Decision, which is also based on a BBB+ rated utility. However, in each decision, the ACCC has relied on different data sources.

In the ElectraNet Draft Decision, the ACCC relied on Reserve Bank of Australia (RBA) data that indicates a range of 90 to 140bp in relation to bonds issued by firms with credit ratings from A to BBB. SPI PowerNet understands that these corporate bonds have terms between 2 and 4 years, 2 years less on average than the 5 year term that the ACCC is seeking for its benchmark. In reaching its determination, while no further evidence was presented, the ACCC concluded that "a benchmarked industry wide cost of debt, in the region of 90 to 160 basis points above the nominal risk free rate of return is appropriate for ElectraNet." (p.17)

In the GasNet Draft Decision, the ACCC has relied on two pieces of evidence:

- ABN Amro data on debt margins for a range of BBB+ Australian bond issues with varying maturities– as at 5 July 2002, the ACCC noted that the data indicate a debt margin of between 125 and 129 bp for a 5 year maturity; and
- CBA Spectrum data published by Standard and Poors – this showed a debt margin of 132bp for a BBB+ 5 year maturity as at the end of June 2002.

In the GasNet Draft Decision (and with words to similar effect in the ElectraNet Draft Decision), the ACCC made the statement that "it will continue to monitor capital markets for further evidence that the debt margin for a benchmark BBB+ entity is increasing or decreasing." (p.64) SPI PowerNet supports the ACCC's approach in this regard because, just like the risk free rate, debt margins can vary significantly over time, even in the couple of months between draft and final decisions.

To aid the ACCC in refreshing its data on the debt margin, SPI PowerNet would like to draw the ACCC's attention to two sets of information:

- CBA Spectrum data for BBB+ rated entities – as at 4 October 2002, this indicates a debt margin for 5 years of 148bp and for 10 years of 165bp (see www.cbaspectrum.com/pricing); and
- indicative quotes from UBS Wargurg, Westpac and the National Australia Bank, specifically for BBB+ 10 year utility issues – these show a debt margin (exclusive of debt raising costs) of 166 to 210bp.

As noted earlier, SPI PowerNet believes that the risk free rate should be based on a 10 year rather than a 5 year bond, which flows on to the debt margin being defined on a 10 year basis. This would be consistent with the ESC's recent Final Decision

for the Victorian gas distributors, which used a 10 year BBB+ debt margin of 165 bp (excluding debt raising costs). SPI PowerNet believes that the appropriate 10 year debt margin at the time of writing is in the range of 165 to 210 bp, and is more likely to be at the upper end, given that this represents utility-specific quotes of debt margins.

Debt and equity raising costs

In its Draft Decision on GasNet, the ACCC allowed for:

- debt raising costs of 8bp – this was based on estimates of bank fees of 5bp and swap costs of 3bp, which SPI PowerNet understands were both sourced from Westpac; and
- equity raising costs equivalent to 48bp on the value of equity, which were allowed for in the cash flows, separate to the CAPM estimate of the post-tax nominal return on equity – this was based on a paper by Lee et al, which was referred to in GasNet's submission.

However, even though these are benchmark allowances, quite divorced from the capital financing activities of GasNet, the ACCC did not make these same allowances for ElectraNet. SPI PowerNet supports the ACCC in making allowances in its GasNet Draft Decision for both debt and equity raising costs, and believes that the same types of allowances should be made in all such regulatory decisions, with the quantum to be determined based on evidence available at the time. In this regard, SPI PowerNet notes that GasNet has recently provided the ACCC with evidence to support debt raising costs of 30bp.

Treatment of dividend imputation

In the ElectraNet Draft Decision, the ACCC has continued to value franking credits at 50 per cent (gamma of 0.5), consistent with its previous decisions and those of other Australian regulators. However, the ACCC has also contended that "*a more appropriate value for γ would be closer to one."* (p.20) The ACCC did not act on its contention because it acknowledges that *"…further research is required in this area and no consensus has yet developed amongst Australian academics and practitioners for making an adjustment to the rate of utilisation of tax credits."* Indeed, *"the Commission considers then that it is inappropriate for it to lead in this area and believes that it would be prudent that further work is undertaken before altering its current position on γ."* (p.21)

While SPI PowerNet certainly agrees with the ACCC that there is as yet no consensus on gamma, and supports the continued use of the estimate of 0.5, the Company believes that the reasons cited by the ACCC in support of an estimate closer to one are not persuasive. In particular,

- official tax statistics indicate a figure of 0.5;
- in reality few businesses pay out all of their profits as dividends; and
- franking credits are a wasting asset, so it is very unlikely that gamma would ever be at or even close to one.

In the context of the GasNet Draft Decision, the ACCC commissioned Associate Professor Martin Lally to write a paper entitled "The cost of capital under dividend imputation". Lally concludes in this paper that if the ACCC is to continue to use the

domestic version of the CAPM then it should adopt a gamma of one. Alternatively, if the ACCC moves to the international CAPM then gamma should be zero.

SPI PowerNet asked Professor Bob Officer to critique this paper by Lally, and his findings are attached to this letter. Officer's key observation is that in reality Australia's capital markets are neither completely segregated from nor completely integrated with the world capital markets. This means that neither of Lally's polar solutions is literally relevant.

The problem is, however, that there is no finance theory that adequately deals with the phenomenon of imperfectly integrated capital markets. Officer concludes that compromise is required and that the current approach of using the domestic version of the CAPM together with a cash flow tax allowance reduced by the average rate of utilisation of franking credits (0.5) is a pragmatic means of approximating the actual situation.

Approach to setting WACC

Over the course of this year, there has been a renewed focus on how the objectives of utility regulation should be expressed. Following the Productivity Commission's review of Part IIIA and the Commonwealth Government's response to it, it now seems clear that the job of utility regulators is to ensure (together with meeting other objectives) that the rate of return to utility owners is at least sufficient to attract and maintain required investment. In this enlightened environment, which recognises the asymmetry of community costs in relation to under and over investment, it was disappointing to read that the ACCC has not updated its approach.

"The Commission's regulatory regime attempts to ensure that the return on capital allowance in the revenue cap is equivalent, and only equivalent, to the risk adjusted market rate of return required to maintain investment." (p.20)

Concluding remarks

SPI PowerNet believes that there are a number of aspects of the ACCC's Draft Decision on ElectraNet that need to be revised, in particular the term of the risk free rate, the debt margin and the allowance for debt and equity raising costs. If the ACCC is looking for ways to demonstrate to utility investors that it has recognised the more explicit direction that is now to be provided to it by the Commonwealth Government, then it must at the very least take up the comments in this submission, specifically:

- set the WACC based on a 10 year risk free rate;
- allow for the debt margin using the latest market evidence of BBB+ 10 year corporate bond issues, with specific regard to the utility sector; and
- make an appropriate allowance for debt and equity raising costs in all utility regulation decisions (taking the GasNet Draft Decision as a starting point).

In addition, as SPI PowerNet said at the ElectraNet Public Forum, many of the outstanding issues on the cost of capital, such as the term of the risk free rate and the appropriate treatment of dividend imputation, are highly complex. If the ACCC is not persuaded by the arguments made in this submission, then SPI PowerNet urges the ACCC to convene a workshop of the relevant experts, including in particular Associate Professor Lally, on whose work the ACCC is apparently relying. In the timeframe for finalisation of the ElectraNet and GasNet decision, SPI PowerNet

believes that at the very least the ACCC should engage Lally to respond to the critiques that have been made of his work, and publish this response as soon as possible. It would be unproductive to leave unresolved significant differences of view on an issue as significant as the WACC.

Should you have any questions in relation to any aspect of this letter then please don't hesitate to contact Matthew Cole on 03 8635 7318.

Yours sincerely,

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COMMENTS ON LALLY:
DETERMINING THE RISK FREE RATE FOR REGULATED COMPANIES

R.R. OFFICER

30th September 2002

The Appropriate Term for the Risk Free Rate

The numerical illustration used by Lally to argue that the term of the regulatory decision was the appropriate term is perfectly consistent with using a non regulatory term for the period of the risk free rate. The Lally example is a basic illustration of the following proposition: If the entity's cost of capital is reset at each regulatory period then by definition the value of the asset will not change and the initial investment will be recovered. This example is no different to pointing out that a floating rate note will maintain its value because their interest rates rise or fall and the coupon provided by the note rises and falls along with interest rates so that the value of the note is maintained.

The real issue, in the context of the current matter, is whether it is the company's cost of capital is the one being applied by the regulators and changed at each regulatory period, as distinct from some other rate. Moreover, in this context, the issue is whether it is the yield on a five year government bond or a ten year government bond when used in CAPM estimate gives the best estimate of the entity's cost of capital.

The CAPM and the Consistency with the Term of the Risk Free Rate with the MRP.

Lally correctly points out that the CAPM model is a single period model where theory does not indicate any particular term or duration for the model. The argument for using a ten year bond rate rather than a bill rate, which is occasionally used (particularly in the US), is that the bond rate better represents an investment's duration and therefore implied

period for the risk free rate is one of a long duration as distinct from a bill rate which better represents a trader's duration. Therefore, by implication, the risk free rate in the CAPM should a long duration such as a ten year government security.

"*The claim that the risk free rate used to determine the market by them must be consistently applied throughout the CAPM valuation formula is false*." (Lally, page 12). Once again the illustration used by Lally to support this claim does not prove his point because if we used the same example with an annualized and then a two year period for the CAPM using a ten year risk free rate, we would get the same result.

By proposing a five year risk free rate with the MRP based on a ten year risk free rate what Lally is proposing is a different model to the CAPM. While we can derive a market risk premium taken from the difference between the return on the market and a ten year government bond yields and then use as the risk free rate the (R_f) rate on a government five year bond yield but this is not the CAPM model.

In short, all of Lally's examples for using a five year bond rate are equally applicable to using the changes in the ten year rate of each regulatory period and yet this rate is the rate consistent with the MRP and therefore consistent with the CAPM. The Lally approach is not consistent with the CAPM and although the difference in the market risk premium estimated using five year rates relative to ten year rates would not have a profound influence on the ultimate value, it misses the point. The longer term investment will show a greater premium because of the normal shape of the yield curve than a shorter term investment.

Further support for using a ten year rate is that the market is much deeper in ten year risk free securities issued by government than five year securities and therefore the estimates are more reliable. Moreover, all the estimates of the MRP generally have used ten year bond yields to estimate the MRP and to re-estimate for the five year premium would require a great deal more work than has been done to date on that particular premium.

Averaging the Yields to Estimate the Risk Free Rate.

Where an average of bond yields is used to estimate the risk free rate the resulting number will have lower variance than simply using the last observed rate. However, the average will also contain more historical and less relevant information i.e. it will be a poorer forecast of future rates than the last prevailing rate. The tradeoff is between a lower variability and less information and higher variability and greater information in such an estimate.

It is subjective but in my opinion averaging over five days would not be a significant compromise to the information effect, whereas averaging over a month or longer, which has been previously proposed, I believe could compromise to a much greater extent the information contained in the rate.

COMMENTS ON LALLY:
"THE COST OF CAPITAL UNDER DIVIDEND IMPUTATION"

R.R. OFFICER

24th September, 2002

A large number of interesting and complex issues are raised by Lally in this paper. A substantial piece of work would be required to address all of them in a satisfactory manner and, clearly, this is well beyond any current task. Instead, my intention is simply address those issues raised by Lally which gives rise to different parameter estimates in his analysis from those parameters used in calculating the weighted average cost of capital (WACC) in my paper *A Weighted Average Cost of Capital for a Benchmark Australian Electricity Transmission Business A Report for SPI PowerNet*. R.R.Officer 28 February, 2002.

Lally refers to the "Officer" approach; there are several different aspects of this approach which Lally criticizes and comments on and it is instructive to clearly separate them in order to understand the extent to which his criticisms are valid.

The Value of Imputation Tax Credits.

Lally refers to the apparent "ambiguity in definitions" (Lally p. 6) in the Officer approach to the different ways tax and the effect of tax can be treated in valuation. The ambiguity or more accurately the chance of error is significantly reduced if the so called "Vanilla WACC" equation as the WACC equation. The ACCC has recognized the benefits of using the approach that incorporates this equation and its associated definition of net cash flows. Adopting this approach to valuation, all corporate tax and its effects (such as any relevant differential between capital and income taxes) are taken into account in the cash flows and these can vary period by period to reflect the tax status of the company. Moreover, the Vanilla WACC equation can also be estimated and varied on a period by

period basis. It is this property of the Vanilla WACC approach which enables gamma to vary period by period in the estimate of the net cash flows as distinct from the WACC.

Lally (p.8) distinguishes the value of the tax credits (γ) into 1. the "utilization rate" and 2. the "ratio of imputation credits assigned to company tax paid". There are, in fact, three stages in the "life" or value of a tax credit and not two as implied by Lally.. The most recent version of the Hathaway and Officer paper (an earlier version of the paper is referred to by Lally as Hathaway and Officer (1995)) discusses the three stages in the life of an imputation tax credit. They are:

1. when it is generated as company taxes are paid;
2. when it is distributed to shareholders in the form of franking credits attached to a franked divided; and
3. when the tax credits are claimed by the investor against their tax liabilities.

The estimate of gamma is taken into account in the net cash flows when these cash flows are generated by the company (stage 1) but the value of γ is not released until stage 3.
The time delay between stages 1 and 3 can significantly reduce the value of the franking credits. Franking credits are a wasting asset in that they cannot be invested and compounded at the cost of capital as the retained earnings of a company can be. If there is a delay between the time the tax credit is generated (stage 1) and the time that the credit is redeemed (stage 3) then the present value of the credit when it is generated is less than its face value because of the opportunity cost of the taxes being credited against personal tax liabilities.

The company that pays no dividends and never pays a franking credit will have no value in their imputation tax credits but clearly the company will still have value because of the retained earnings and the associated assets of the company. This of course an extreme example. However, for example, if a company typically has a dividend payout ratio of 60% and a cost of equity capital of 12% then the value of the tax credits as they are generated will be about 83cents in the dollar.[1] The lower the payout ratio and the higher

[1] Let $D_1.\alpha$ = a franking credit at time 1, E_1 earnings and k the dividend payout ratio and $\alpha=t/(1-t)$.
Then the present value of a dollar of franking credits generated at time 0 is

the cost of equity capital this number would be further reduced, with the recent change in the differential between capital gains tax and income tax in Australia resulting in an expectation that companies will have a much lower divided payout ratio in the future than historically because of the tax shield afforded by the lower capital gains tax relative to income tax.

Evidence indicates there are significant foreign investors in the Australian share market and in these circumstances it should be incumbent to take into account the effect of such foreign investors on the CAPM. The question, as recognized by Lally, is how to take into account foreign investors when the evidence would suggest that the Australian equity market and the international market are not completely integrated. The evidence is consistent with a partial integration of these markets in that foreign investors are well represented in the top 50 stocks listed on the Australian market but almost not at all represented in stocks outside of the leaders, hence one could argue for a partially segregated/integrated equity market. The problem is how to take this into account when such an approach, which really implies separate models depending on the nature of the company or equity, is being examined.

Lally assumes a completely segregated market and therefore no foreign investors and he argues that the franking credits can be fully utilized by domestic investors. But I have pointed out above this fails to take into account the wasting nature of a tax credit and the failure of companies to pay out all their taxable earnings in the period that the tax is paid on them.

The quandary involves assuming only domestic investors and therefore a domestic CAPM or a fully integrated market with foreigners and therefore an international CAPM. At an empirical level, as I indicated above the market is probably only partially

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$$\text{PV}= \text{k.}\alpha \sum_{i=1}^{n} \frac{E_1(1-k)^i}{(1+r)^i}$$

And let $n \rightarrow \infty$,

Then PV=k.α/(r+k).

So that setting, k=0.6, r=0.12, t=0.3, and let α=1.0 (a dollar of franking credit) then PV=0.83.

segregated/integrated. The betas of Australian stocks estimated using a domestic CAPM typically will be higher than those of betas estimated using an international CAPM.

Whether to recognize the presence of foreign investors and the associated inability of them to get significant value from franking credits is probably incumbent on us to re-estimate the betas of such firms or industries in the context of a "more integrated" CAPM.

There appears to be no obvious solution to the quandary other than one of compromise. It would be a mistake to ignore the effect of foreigners investing in Australian equities, it is an equally an extreme decision to ignore Australian betas (betas from the domestic CAPM) and only rely on a betas estimated using the international CAPM. Lally could legitimately argue that it would be a mistake to believe that Australian investors were not influential and if we include the influence of foreigners to ignore the international CAPM.

A "solution" would be to ignore the quandary and treat the domestic betas as an approximation for their international counterparts and to continue to value the franking credits in the context of their average value in Australia i.e. around 50cents a dollar, reflecting the influence of both foreign and domestic investors. Even if the extreme version of the Lally recommendation was adopted that is to ignore foreigners, as I have already pointed out, valuing the franking credits. Even ignoring foreigners, the value of the credits are likely to be significantly less than 1.0 to investors because of the significant proportion of current earnings that are not paid out as franked dividends.