ElectraNet SA

Revenue Cap Application

Response to Submissions from Interested Parties

19 July 2002

ElectraNet SA
electricity transmission network

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1. Introduction

The Australian Competition and Consumer Commission (ACCC), in accordance with its responsibilities under the National Electricity Code (Code) is currently conducting an inquiry into the appropriate revenue cap to apply to the non-contestable elements of ElectraNet SA's transmission network.

ElectraNet SA submitted a revenue cap application to the ACCC on 16 April 2002 setting out its total revenue requirement for the five and a half year regulatory period from 1 January 2003 to 30 June 2008[1].

To assist in the ACCC's consideration of the application, interested parties where invited to comment on issues relating to the determination of an appropriate revenue cap for the ElectraNet transmission network.

In response to the ACCC's call for submissions on ElectraNet SA's application, submissions where received from:

- Energy Users' Association of Australia;
- Energy Action Group;
- TransGrid;
- AGL;
- TXU;
- NRG Flinders;
- SA Water;
- Origin Energy;
- Electricity Consumers Coalition of South Australia;
- WMC Copper Uranium; and
- Conservation Council of South Australia.

During the past 10 weeks, ElectraNet SA's opening asset base and proposed capital and operating expenditure allowances (capex and opex) have been the subject of detailed review by the ACCC through its consultant Meritec. A report on the Asset Base Review was made available for public comment on 11 July 2002[2]. We understand that reports of the capex and opex reviews are close to finalisation and that these reports will be made available by the ACCC for public comment as soon as they are finalised.

For this reason, ElectraNet SA has not attempted here to address all the issues raised by interested parties in their submissions, recognising that the consultant reports and subsequent steps in the review process will address many of these issues.

1 "ElectraNet SA Transmission Network Revenue Cap Application 2003 – 2007/08", submitted to the ACCC on 16 April 2002.

2 www.accc.gov.au

2. Information Disclosure

ElectraNet SA's revenue cap application sets out its revenue requirement based on the elements of the building block approach adopted by the ACCC. This approach is based on establishing an opening asset base, the cost of capital and capital and operating expenditure allowances for the period.

A number of submissions expressed concern that ElectraNet SA's application does not provide sufficient information to justify or establish the merits of its proposals to the ACCC or interested parties.

However, ElectraNet SA believes that its application is comprehensive in setting out the requirements for each element of the ACCC's building block approach and the arguments that support these requirements.

While not all of the supporting analysis and data was included in the application at the most detailed level, this information has been subject to review by the ACCC and their expert consultant.

As noted earlier, ElectraNet SA's opening asset base and proposed capex and opex requirements have been the subject of a detailed review conducted by the ACCC and Meritec during the past 10 weeks. The review has included detailed questioning of the merits of ElectraNet SA's proposals and examination of supporting analysis and data, including information on electricity demand and volume, asset values and asset lives, asset management plans, and detailed breakdowns of capex and opex requirements. The reports of these reviews are being made available by the ACCC for public comment as soon as they are finalised.

3. Transmission Cost Comparisons

A number of submissions have expressed concern about the comparative cost of transmission in South Australia.

This concern is driven by cost comparisons with other States, which fail to take into account the key transmission cost drivers and the unique features of the operating environment in South Australia. Furthermore, a number of submissions fail to distinguish between cost drivers and cost recovery mechanisms and substitute these, incorrectly, when comparing networks. The cost comparison issue is addressed in Section 3.8 of ElectraNet SA's revenue cap application, but warrants further discussion here given the concerns that have been raised.

The Energy Users' Association of Australia (EUAA) submission acknowledges that peak demand is a key driver for transmission costs.

> *"Transmission capacity is essentially added to meet the peak demand placed on the transmission system each year. Therefore comparative measures related to peak demand are the most informative when comparing different TNSP's"*[3].

This point is supported by WMC who state that:

[3] "Submission by The Energy Users' Association of Australia on the Proposed Transmission Revenue Cap Applications from ElectraNet SA, SPI PowerNet and VENCorp", June 2002, p10.

> *"transmission investment is largely determined by the peak load of the system concerned and therefore measures which relate to the peak load are the most relevant"*[4]

The EUAA submission presents graphs comparing transmission networks on a physical asset to peak demand basis.

The conclusion drawn from these comparisons is that:

> *"One would also expect that Queensland and South Australia would have higher transmission charges than the other States, but that the difference between them should be relatively small"*[5].

We agree with the first part of this conclusion that one would expect efficient transmission costs in Queensland and South Australia to be higher than in the other States. However the second part of the EUAA conclusion is incorrect because it relies on inappropriate benchmarking comparisons as explained below.

The error in the EUAA analysis is that it has used total installed MVA of transformer capacity in each state as a primary indicator of relative substation investment. This is an inappropriate indicator as transformer costs are only some 10% to 20% of total substation costs and exhibit very significant economies of scale which cannot be captured in South Australia because of its much smaller scale and geographical spread. A more valid comparator of total substation investments required in each state is the "number of substations". This comparator recognises that South Australia does not have the very high load densities that permit large bulk supply substations with large transformers as occurs in Queensland and the other Eastern states. Instead ElectraNet SA has to supply an almost equal number of load centres without the benefits of the significant economies of scale available to the larger and more compact transmission networks.

The EUAA conclusion that one would expect efficient transmission costs in Queensland and South Australia to be higher than in the other States is strengthened by the following graphs, which show that relatively higher lengths of transmission line and numbers of substations are required in South Australia and Queensland compared with the other States.

The graphs confirm that the second part of the EUAA's conclusion, that one would expect the difference in South Australian and Queensland transmission costs to be relatively small, is not valid. Again this is because EUAA used an inappropriate indicator to compare TNSP performance.

One would expect transmission costs in South Australia to be higher than in Queensland. This is because of the relatively longer lengths of transmission line (25% more) and higher numbers of substations (100% more) required in South Australia to service the more remote and sparsely populated regions of the State.

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4 "Submission to the ACCC on the ElectraNet SA Transmission Revenue Cap Application 2003-2007/08", by WMC Limited, 23 May 2002, p10.

5 EUAA submission, p12.

Figure 1: Comparison of Transmission Line Length/ MW Peak Demand (2002/03)

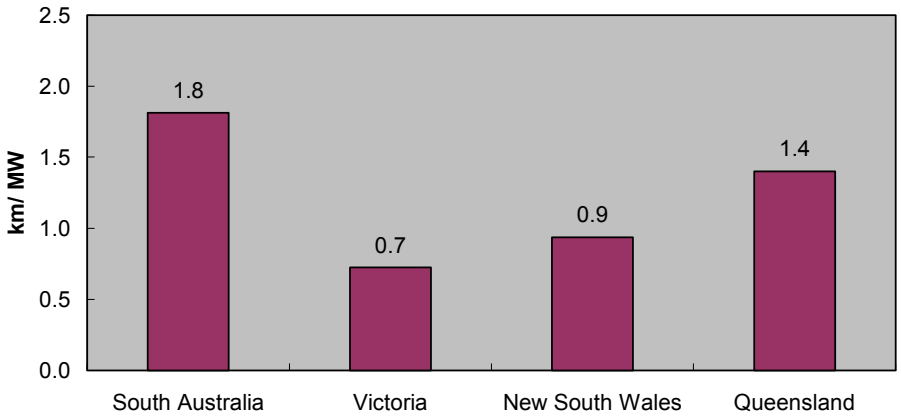
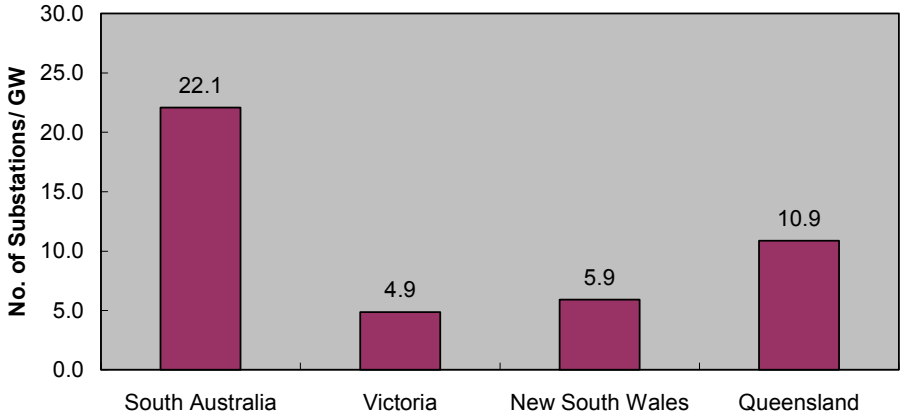


Figure 2: Comparison of Number of Substations/ GW Peak Demand (2002/03)



Source: Peak demand – NEMMCO 2001 Statement of Opportunities; other data compiled by ElectraNet SA from ESAA data and TNSP revenue cap applications.

One would also expect South Australia to have inherently higher transmission costs and charges than the Eastern States, including Queensland, because the transmission network in South Australia includes extensive 132 kV transmission lines and substations that in the other States belong to distribution networks. For example, in both Queensland and New South Wales more than 3,000 km of 132 kV and 110 kV transmission lines are excluded from the transmission network and are owned by distributors. This difference in the boundary between transmission and distribution networks together with the more remote and sparsely populated regions in South Australia result in South Australia having relatively longer lengths of transmission line and higher numbers of substations and hence inherently higher transmission costs.

There can be no question of the transmission network being overbuilt. A recent optimisation of the transmission network in South Australia identified all transmission assets surplus to customer requirements and excluded these assets from the permissible regulated asset base.

In summary, what the above comparisons show is that South Australia requires longer lines (25% more than Queensland) and higher numbers of substations (100% more than in Queensland) to provide the same level of service to customers, leading to significant diseconomies of scale and consequently higher inherent transmission costs when compared to the other States.

Cost comparisons, which fail to take into account these unique features of the operating environment in South Australia, are not meaningful and can be very misleading. The Productivity Commission provides this caution in a recent staff paper on cost factors in electricity prices:

> *"The usefulness of benchmarking as a guide to relative performance depends critically on an ability to compare like with like, or to make allowance for differences in operating environment that may be outside a utility's control"*[6]

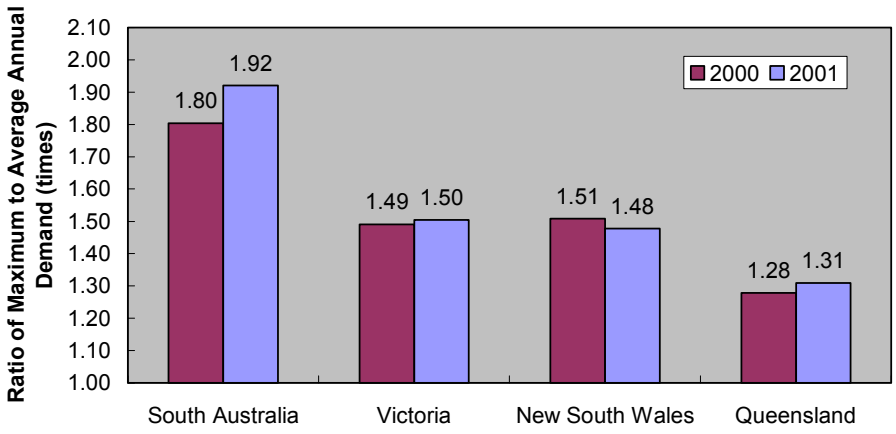
The conclusion from all of this is that any comparative assessment of transmission costs must recognise the following:

- The key driver for transmission costs is peak demand; and
- The unique operating environment in South Australia requires significantly more transmission assets to provide the same level of service when compared to other States.

Unfortunately, having correctly recognised the first point and concluded that measures related to peak demand are most informative when comparing different TNSP's, the EUAA then made the mistake of comparing transmission costs on a $/MWh basis. A number of other submissions made this same mistake.

The graph below shows how much higher South Australia's peak demand is compared to average demand on the network. This reflects the fact that the network carries lighter amounts of energy for much of the year, compared to the more heavily loaded networks in other States.

Figure 3: Ratio of Peak to Average Demand



Source: Data from NEMMCO 2001 Statement of Opportunities.

6 Sayers, C. and Shields, D. 2001, *Electricity Prices and Cost Factors,* Productivity Commission Staff Research Paper, AusInfo, Canberra, August.

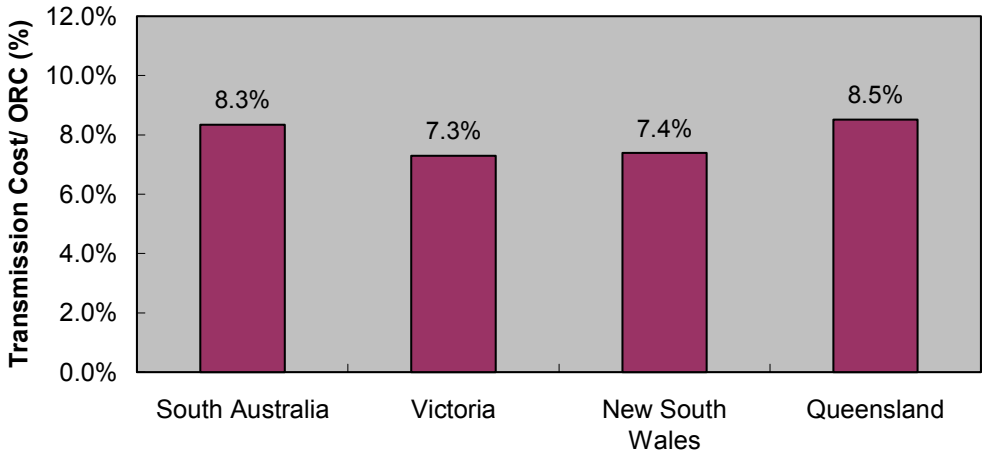
The graph shows that the ratio of maximum to average demand in South Australia is almost 50% higher than in Queensland. This means that even if one were to assume that the transmission networks and all other aspects of the operating environments in South Australia and Queensland were identical, on a $/MWh basis, one would expect efficient transmission costs in South Australia to be almost 50% higher than in Queensland.

Taking into account the other aspects of the less favourable operating environment in South Australia (including 25% longer lines, 100% more substations, and an older network), which add approximately 50% to the required investment per MW of peak demand, one would expect efficient transmission costs in South Australia to be approximately 100% (i.e. 50% plus 50%) higher than in Queensland (on a $/MWh basis).

A more valid comparator of transmission costs, which takes into account many but not all of the differences in operating environment between the States, is total transmission cost per optimised asset replacement cost.

The following figure shows that, on this basis, the proposed transmission costs in South Australia are more comparable with those in the other States.

Figure 4: Comparison of Average Transmission Costs/ Asset Replacement Costs (2002/03)



Source: Data compiled by ElectraNet SA from TNSP revenue cap decisions and applications

Again while comparing transmission costs on the basis of optimised asset replacement cost is much more valid than comparing them on the basis of energy throughput ($/MWh), it is important to recognise that even this comparison does not take into account all of the relevant cost factors (e.g. different regulated rates of return, the impact of different asset age profiles on opex, accounting treatment of expenditures as capex/ opex etc.).

4. Cost of Capital

The submissions from interested parties question a number of aspects of the cost of capital proposed by ElectraNet SA.

ElectraNet SA has presented strong and detailed arguments for the required cost of capital in its application based on expert advice from the Network Economics Consulting Group (NECG). These include arguments for the ACCC to change its treatment of some WACC parameters compared with recent revenue decisions.

ElectraNet SA together with SPI PowerNet and GasNet jointly sponsored a forum on key WACC issues that was held in Melbourne on 24 June 2002. The purpose of this forum was to provide an opportunity for the ACCC and interested parties to hear first hand from the experts (including NECG) and for interested parties to participate in the debate on key WACC issues.

The following section provides a summary of outcomes from the WACC forum. Sections 4.2 to 4.10 address some of the specific questions raised in the submissions from interested parties.

4.1 WACC Forum

An invitation to the forum was sent to each of the interested parties who have made a submission on ElectraNet SA's revenue cap application (with the exception of the Energy Action Group and EUAA whose submissions were not received until later).

Mr Paul Baxter, Partner with PricewaterhouseCoopers chaired the forum. The forum's expert panel comprised of:

- Professor Bob Officer, Professorial Fellow at the Melbourne Business School;
- Mr Henry Ergas, Managing Director of the Network Economics Consulting Group;
- Mr Chris Thomas, Director UBS Warburg Australia;
- Mr David Van Ryn, Head CPI Sales Westpac Institutional Bank; and
- Mr Greg Houston, Director n/e/r/a.

While the discussion at the forum showed that there are still a number of unresolved issues in relation to WACC and the application of the Capital Asset Pricing Model (CAPM) there was consensus amongst the experts on a number of key points:

- Risk free rate – All the experts presented arguments for why the 10-year bond rate should be used in determining the risk free rate rather than the 5-year bond rate. The unanimous conclusion on this point was that the ACCC essentially stands alone on this issue and should change its position.
- Market Risk Premium – The consensus was that, on the available evidence, there is no basis for reducing the MRP below 6.0%. Analysis of

historical trends and international benchmarking suggests that a higher MRP may be justified. Officer pointed to detailed analysis of historical data done by Hathaway who recommends 6.5 (Officer indicated that he tends to round this down to 6 to avoid the perception that there is a great deal of precision in estimating the MRP). NECG presented both analysis of historical data and an international benchmarking approach, which provide evidence for a MRP towards the upper end of the range 6.3% to 8-9%. Overall there was support for a conservative increase in estimated MRP from 6.0% to 6.5%.

- Debt margin – Advice from investment bankers is that debt margin is currently in the region +150 basis points plus issue and other costs (estimated at 30-40 basis points) over the 10-year government bond for BBB+ issuers.

- Gamma - The consensus was that the value of imputation credits should remain at 50% of their face value for regulatory purposes and that no new evidence has been presented to justify changing this value either up or down.

- Asymmetric risk – Regulators need to recognise that asymmetric risks do exist (e.g. regulatory risk) and allow for these in the determination of operating cash flows if they are not explicitly allowed for in the cost of capital.

The experts also agreed that the economic consequences of setting the regulated cost of capital too low (in terms of under-investment in infrastructure) far outweigh those of setting it too high. In other words in the face of uncertainty the regulator best serves consumer's interests by erring on the side of setting prices high rather than low because the allocative efficiency loss from some customers using less of the service is dwarfed by the efficiency loss from not having the facility provided at all. This is particularly so when transmission costs represent only in the region of 10% of end-user electricity prices.

In summary, it is essential that ElectraNet SA receive a fair and reasonable risk adjusted rate of return that provides sufficient incentives for further investment in the transmission network if benefits to market participants and consumers are to be maximised.

4.2 General Comments

The EUAA state that the WACC should be set at the lowest possible level to sustain an efficient regulated sector. This statement ignores the fact that where there is uncertainty (which clearly represents the current state of the industry), there is an asymmetry in the consequences of over- and under-compensating investors – a point noted by the Productivity Commission and included in ElectraNet SA's revenue cap application.

Origin Energy notes that the real WACC proposed by ElectraNet SA is significantly above the figure applied by Ofgem to the National Grid Company (NGC). While Origin accepts that international comparisons have difficulties, it encourages the ACCC to undertake such work. It should be noted that the ACCC has already done this work (see the paper presented by NERA to the ACCC's March 2001 conference. A critique of this work by NECG was

submitted to the Productivity Commission review of the Part IIIA system of Access[7]). The NERA and NECG reports are discussed in Section 4.2 of ElectraNet SA's application.

WMC claims that the profits made by TNSPs are above those of listed companies, and that there is little evidence of a lack of incentives to invest. However, it is dangerous to draw conclusions on a comparison of company profitability, given the number of factors that influence profitability (growth, position on business cycle etc) and the fact that regulatory returns represent a truncated outcome. In other words, even if businesses in competitive markets have in fact experienced low profitability in particular years, the reality is that they will not suffer from a regulator truncating cash flows and profits by setting a maximum return in profitable years as is the case for regulated businesses.

4.3 Benchmark WACC against the "real world"

The Electricity Consumers Coalition of South Australia (ECCSA) submission raises two main issues: firstly that returns should be commensurate with risk; and secondly that the returns of regulated monopoly businesses are being inflated compared to commercial counterparts. ECCSA say that this second point is due to the regulated asset base being determined on the basis of DORC, which has a higher value than the Depreciated Actual Cost (DAC) utilised by commercial businesses.

We agree with the first point – the very aim of any WACC model is to provide a business with a return commensurate with the risk faced. It is worth noting that risk involves both undiversifiable and diversifiable risks – to the extent that the latter are not normally distributed (as they are unlikely to be) the WACC should be increased.

In relation to the second point, ECCSA are confusing asset valuation and the rate of return. The purpose of asset valuation for regulatory purposes is to reflect forward-looking service potential. Pricing in competitive markets is determined on what the market will bear, not a mark up on depreciated historic cost.

4.4 Risk free rate of return

The ECCSA supports the ACCC's adoption of the 5-year bond for the risk free rate. In doing so, it counters the arguments raised in ElectraNet SA's application with the following points:

- *"the purpose of using the CAPM approach for regulatory returns is to provide a "vanilla" WACC, allowing the regulated enterprises freedom to act to source their funds in the most cost effective way to their particular financial structure";*
- *"enterprises in true competition have their performance assessed over shorter periods than the 5 year window proposed, despite these enterprises having an expectation of a longer life due to the value of their assets. Some funds managers review corporate performance on a three month window, although most would assess performance over a 2-3 year period"; and*

[7] http://www.necg.com.au/pappub/papers-necg-rates-jul01.pdf

- *"many investments in the competitive world are made with a long term perspective (there are a number of manufacturing enterprises that have existed longer than ElectraNet), but these enterprises still need to comply with the market signals appropriate to their operation. In this regard it should be noted that such competitive enterprises do not have their sunk capital valued at replacement costs!"*

In relation to the first point, the ECCSA appears to misunderstand that the regulatory rate of return provides two key roles: to remunerate past investment; and to send a signal about the return for new investment. In relation to both of these roles the key issue is the nature and duration of the investment – this has nothing whatsoever to do with the length of the regulatory period.

The second point confuses frequency of trading (or performance review) and efficient financing. To the extent that the comments relate to the concept of a performance review, it is clear that regulatory processes are not performance reviews (even if operational efficiency is assessed as part of a process). The review period for an investment is not relevant to return expected from holding an asset over its life. Consider the following example from Hathaway quoted by the QCA:

> *Assume an investor held a bond portfolio with an expected life of 10 years and monitors the portfolio daily. The benchmark applied would be the 10-year bond rate as opposed to the official overnight cash rate. To apply the daily rate would be inconsistent with the life of the asset and the risk in the equity risk premium.*[8]

In relation to the third point, ECCSA are again confusing asset valuation and the rate of return. The purpose of asset valuation for regulatory purposes is to reflect forward-looking service potential. Pricing in competitive markets is determined on what the market will bear, not a mark up on depreciated historic cost.

SA Water notes use of the 10-year bond rate is one factor that produces a WACC that is 'excessive'. EUAA support the 5-year bond and make a number of claims as to the appropriate value of the risk free rate and inflation, which is supported by comparisons with UK rates. The value of bond rates in different countries cannot be compared due to differences in market arrangements, budgetary position, sovereign risks, inflation and exchange rates. In reality, the only relevant benchmark is the maturity of the bond. In this light it is worth emphasising that in its decision on NGC that Ofgem based the risk free rate on a basket of bond rates, which gave prominence to the 20-year bond. Accordingly, when seen in this light, it is clear that the EUAA position provides support to the arguments raised in ElectraNet SA's revenue cap application for the adoption of a 10-year bond, which is the longest dated, adequately traded, bond available in Australia.

NRG Flinders and Origin Energy support the ACCC's use of the 5-year bond on the grounds that:

- It is consistent with ACCC's recent determinations (NRG, Origin); and

[8] QCA Working Paper 4, Issues in the Estimation of Queensland Rail's Below Rail Coal Network Expected Rate of Return, December 2000, pp14-15.

- Consistent with need for periodic refinancing of debt (NRG).

In relation to the first point, while the ACCC has consistently applied the 5-year bond for the risk free rate in recent decisions, it is worth noting that its practice is inconsistent with other regulators and in addition, consistency does not make it right. Note that the drawbacks of the ACCC's approach have been set out at length in the revenue cap application.

In relation to the second point, efficient financing of debt is likely to equate the debt period to the life of the asset – which will be longer than the regulatory period for an industry such as electricity transmission. Given the uncertainty and transaction costs in re-issuing debt and the long-lived nature of infrastructure assets, short-term financing is likely to increase overall costs to the company. This is noted by a number of commentators. As stated in our application, Brigham and Gapenski note:

> *"For all these reasons, the best all-around financing strategy is to match debt maturities with asset maturities. In recognition of this fact, firms generally do place great emphasis on maturity matching, and this factor often dominates the debt portion of the financing decision." (emphasis is in the original text)*

Similarly, Ross, Westerfield and Jaffe emphasise the issue of interest rate risk:

> *"Firms may also hedge interest-rate risk by matching liabilities with assets. This ability to hedge follows from our discussion of duration."*

Shapiro and Balbirer make a similar point:

> *"As a time-honored guide to setting financial policy, the matching strategy is based on the idea that firms should match the maturity of the fund source with the maturity of the asset being financed."*

Even if one accepts the "periodic refinancing" argument, its application by the ACCC must be corrected. The ACCC must compensate the regulated entity on an "all-in" cost of funds basis, which recognises issue, rating, liquidity and other costs in determining a benchmark cost.

4.5 Interest rate risk

ECCSA objects to ElectraNet SA's inclusion in its cash flow of an amount corresponding to protection against interest rate risk on new capital expenditure. Its main grounds for criticism appears to be that, in their view, the risk free rate factors in the best estimate of future fluctuations and that hedging protects ElectraNet SA against the downsides, but with no offsetting benefits to customers.

Such a position ignores the fact that interest rates are floating and set on a daily basis and that the ACCC fixes a rate of return for the whole of the regulatory period based on interest rates prior to the commencement of this period. This action exposes the business on two primary fronts. Firstly, the rate granted is ex-post for the business and not capable of direct replication and, secondly, the rate given is not adjusted for any differential between fixed and floating interest rates. Furthermore, ElectraNet SA's exposure is in the future. The capex program occurs throughout the regulatory period and funding of it occurs

progressively with the consequent need to borrow funds at the prevailing interest rates at the time. The purpose of swaptions is to enable ElectraNet SA to lock in the allowed rates, as much as possible, and thereby still undertake its capex program at future dates within the financing parameters set by the ACCC. If the hedging support is not allowed then ElectraNet SA may not undertake investment projects when the market price average funding costs are beyond those allowed by the ACCC.

Hedging interest rate risk represents standard business practice. In any case, hedging is not costless and the regulated business has no way of revisiting this during the regulatory period. The simple reality is that the modelling undertaken as part of the regulatory process assumes that the current risk free rate applies to future investments – clearly there are hedging costs associated with ElectraNet SA legitimately protecting its exposure to movements over this time. Therefore, we believe the ECCSA criticism is unfounded.

4.6 Market risk premium

The ECCSA argues that ElectraNet SA should have the bottom end of the appropriate range for the MRP because of its low revenue risk compared with "risk taking enterprises".

This argument reflects an incomplete understanding of the concept of the MRP, which reflects the amount an investor expects to earn from a diversified investment in the market above the return earned on a risk-free investment. Therefore, the ECCSA is confusing the risk of a particular investment (for which the systematic risk is captured in the beta) with the risk of the market as a whole.

EUAA and Origin Energy argue for a lower MRP than previously allowed by the ACCC for a number of reasons:

- The precedent set by the adoption of lower MRP by UK regulatory bodies. However, these figures cannot be directly compared with the Australian MRP. As noted in our Application, to benchmark a MRP from that of another market requires a number of adjustments (e.g. taxation, market composition, country risk and estimation time horizon);

- Declining MRP in recent years – this comment was addressed in our application where we noted: the lack of statistical reliability of estimates with short term horizons; the fact that there have been many periods in history where the ex-post MRP has been below the long term MRP only to be followed by periods where it is much higher than the long term MRP; and the need to distinguish between ex-ante and ex-post MRP;

- Lower inflation - what is not made clear in the submissions is why the return available on a market portfolio should reduce in relation to other available investments, in particular the risk free rate, which has reduced significantly over the past decade. Whilst of course lower interest rates reduce the return on the market as a whole, it is not clear why it would reduce the return of the market relative to the risk free rate. Indeed, available empirical

evidence suggests precisely the opposite effect – interest rates and the MRP are negatively correlated[9]; and

- EUAA point out that the ACCC has noted that the premium should have fallen to reflect the value of franking credits. To the extent that gamma is relevant it would be incorporated in the cash flows under the post tax revenue model – therefore incorporating an impact on the MRP would involve double counting. In addition, it is worth noting that the QCA has noted that there is no statistical evidence to support the claim that the MRP should be reduced to reflect the value of franking credits - which is consistent with the marginal investor in the market being an overseas investor unable to access franking credits.[10]

4.7 Asset beta

ECCSA questions the appropriate asset beta proposed by ElectraNet SA because:

> *"To present electricity transmission companies as having a higher systemic risk than gas distribution companies (which are more exposed to by-pass) is entirely unfounded due to the inelastic nature of electricity consumption";*

The ECCSA confuses supply and demand elasticity – where the former is relatively elastic due to competition from gas, but the latter is inelastic. ECCSA incorrectly quotes ElectraNet SA's Application, which doesn't attempt to compare systemic risk between electricity transmission and gas distribution. The view expressed was that electricity transmission is exposed to a higher risk than electricity distribution due to the risk of bypass from gas transmission and gas fired power stations. In relation to ECCSA's claim, the value adopted (0.45) is towards the lower end of the range adopted for gas distribution businesses (0.40 to 0.60).

ECCSA and NRG Flinders question whether ElectraNet SA is a small company. The main claim in the revenue cap application was that ElectraNet SA was small in relation to other transmission companies and was small in relation to international companies. The ECCSA agreed with the former claim, and neither party has questioned the latter claims.

NRG Flinders question that the systematic risk for transmission businesses is greater than for distribution businesses. NRG claims that local distribution is susceptible to embedded generation alternatives, local bypass risk, and greater susceptibility to weather and other risks. One issue that NRG hasn't addressed is that the impact of stranding part of the transmission network is substantially greater than for a distribution network given the larger relative impact of a

[9] See Fama, E., and G Schwert (1977), "Asset Returns and Inflation," *Journal of Financial Economics* (v5), pp 115-146; Campbell, J. (1987), "Stock Returns and the Term Structure," *Journal of Financial Economics* (v18), pp 373-399; Ferson, w. (1989), "Changes in Expected Security Returns, Rick, and the Level of Interest Rates," *Journal of Finance* (v44), pp 1191-1217; Shanken, J. (1990), Intertemporal Asset Pricing, *Journal of Econometrics* (v45), pp 99-120; Brennan, M. 1997, "The Term Structure of Discount Rates," *Financial Management* (v26), pp81-90.

[10] See QCA Working Paper 4, Issues in the Estimation of Queensland Rail's Below Rail Coal Network Expected Rate of Return December 2000, p72.

particular customer and the greater vulnerability of assets comprising the transmission system to stranding.

Origin Energy questions the relevance of AGL as a comparator given that it runs a retail business with 'higher risk'. However, given that much of the risk associated with retailing is diversifiable and not asset derived it would not be reflected in AGL's asset beta, which should reflect the risks, largely within its network businesses. To draw sensible comparisons would require an assessment of how the economy as a whole affected each component of AGL's business. As a result, the submissions do not refute the claim that the beta should be higher than for TransGrid and Powerlink.

4.8 Cost of debt

ECCSA claim that the cost of debt proposed by ElectraNet SA is both high and inconsistent with the ACCC adoption of the 5-year bond for the risk free rate. This claim is deficient for two reasons:

- The ECCSA does not provide data to support its claim that the market price of debt is high or that the assumed credit rating (BBB+) is incorrect; and
- ElectraNet SA didn't say that it would be forced to issue debt on the basis of a 5-year regulatory period, rather that if it did, the financial cost would be high and would incur the additional transaction costs of debt issuance and liquidity premia.

NRG Flinders notes that the proposed debt premium is significantly higher than the value applied to Powerlink. SA Water claims that the proposed premium is above the industry benchmark. EUAA also note that a range of 100-150 basis points is appropriate.

However, it must be recognised that the cost of debt margin cannot be applied as an industry benchmark unless the ACCC is prepared to adjust the revenue cap outcome to ensure that all regulated companies achieve the target rating of "A" quoted in the *Draft Regulatory Principles*. Such an outcome would significantly lift the revenue needs of ElectraNet SA above the "BBB" figures contained in Chapters 9 and 10 of the Application. The alternate suggestion that is embodied in the Application is that the debt margin be incorporated as a company specific factor.

Furthermore, no evidence is provided by any of the interested parties to refute ElectraNet SA's proposed value, which is based on actual observed and interpolated market conditions.

4.9 Asymmetric risk

ECCSA claims that asymmetric risk is either minimal or included in the market risk premium. As noted earlier, the second point is plainly wrong – the market risk premium refers to the risk of the market as a whole compared with a risk-free investment.

ECCSA makes a number of specific points, which are addressed in turn:

> *"The use of gas has little impact on electricity consumption due to the inelastic market for electricity, and ElectraNet has noted that it expects*

> *electricity demand to increase over the regulatory period, thus the likelihood of asset stranding from growth in gas demand is unlikely".*

The above quote, while probably true for domestic customers, fails to recognise demand and supply substitutability, nor appreciates the greater impact of competition from gas-fired generation. Also, a rising demand forecast is not inconsistent with asymmetric risk, given not all asymmetric events can be anticipated (e.g. change in regulatory policy) – the key issue is the assumptions made about demand growth in the regulatory process and the implications to the business of variations in those expectations.

> *"Any review by ACCC will only impact on the next regulatory period rather than that involved with the current application, therefore the ElectraNet claim of the risk of regulatory change has no validity for this application".*

While the current regulatory review may not result in re-optimisation of the asset valuation, investors will factor into their valuation the potential for re-optimisation in future reviews. Even if appropriately discounted, this value may be significant given that three quarters of the value of the company is likely to be its revenue generating potential in subsequent regulatory periods.

> *"The impact of the CoAG review (as with possible changes to other government policies) will not impact on the current application. However, we are not opposed to trigger mechanisms to re-open the ElectraNet access proposal if this is what ElectraNet wish".*

While the COAG review may not result in policy change prior to the ACCC's final decision, it is likely that the review will result in regulatory changes during the price control period, the uncertainty over which introduces regulatory risk.

> *"ElectraNet was aware of the intrinsic characteristics of the network when it purchased the right to the assets and consumers should not be expected to underwrite any shortcomings in ElectraNet's commercial decisions".*

The first point is correct, but the implication drawn by ECCSA is that an expectation of write down was incorporated through a lower sale price than would otherwise be the case. This is inconsistent with the aims of the regulatory framework both in South Australia at the time of sale and for the ACCC.

> *"The review of the ACCC's Draft Regulatory Principles should not affect the current review, as the completion of the review of the Regulatory Principles is scheduled for later completion than the review of this application".*

The fact that these principles are scheduled for completion later than the review of ElectraNet SA's Application increases potential risk, given the finalisation of the principles may introduce unforeseen policy change – note the ACCC does not consider that the draft principles currently tie its hand. Indeed, to the extent that the ACCC has made errors in the past, it is critical that they be corrected.

NRG Flinders makes a number of points in relation to asymmetric risk:

- risk of asset stranding due to competition from gas should be captured in the asset beta;
- asset valuation risk is a key component of the regulatory framework that provides appropriate incentives for efficient investment;
- impact of policy review on the NEM translates to all companies operating in the NEM. Similarly uncertainty over transmission regulatory policy applies to all transmission companies; and
- intrinsic characteristics of the network need not be rewarded as general and specific risks were factored into business valuation.

The first point misunderstands that the risk of asset stranding is asymmetric due to the truncation of revenues, which violates the assumption in the CAPM that returns are normally distributed. Accordingly, this risk is not incorporated into the asset beta.

The second point can be challenged on two grounds. Firstly, it omits the fact that the key risk to businesses is the stranding of prudent investment in assets already sunk by regulatory decisions. Secondly, if asset valuation is to be a fundamental part of the regulatory framework, a return that covers the risk it entails should be provided.

The third point doesn't invalidate the justification of a premium – rather it suggests that it should be widely provided, which would not be unreasonable given the criticism of the NEM by a number of parties (including regulators).

In relation to the fourth point, as noted in our comments on ECCSA, the implication is drawn that an expectation of write down was incorporated through a lower sale price than would otherwise be the case. This is inconsistent with the aims of the regulatory framework both in South Australia at the time of sale and for the ACCC.

SA Water claims that as asymmetric risk is not part of the CAPM, the allowance should be excluded. This ignores the fact that asymmetric risk is a legitimate business risk and would be rewarded in a market environment.

4.10 Market inelasticity

ECCSA make a number of points in relation to 'market inelasticity'. Many of these relate to the inelastic nature of customer demand for electricity, which is not an issue raised in the submission. ECCSA appears to confuse supply and demand side elasticity.

5. Opening Asset Base

The submissions from interested parties question a number of aspects of the opening asset base proposed by ElectraNet SA. A number of commentators appear to be forgetting that the core reason for using an ODV (or ODRC) valuation including optimisation and modern equivalent asset approaches in the NEC was to replicate equivalent new entrant costs to ensure intergenerational and other pricing issues are appropriately considered on an equity basis.

5.1 Varying the Jurisdictional Asset Valuation

A number of submissions claim that the ACCC does not have the power to vary from the jurisdictional asset valuation in the current review process.

Considerable work has been done on this issue since the ACCC's Powerlink Decision. A number of legal opinions have been obtained in relation to the National Electricity Code requirement to value sunk assets (those assets generally in service on 1 July 1999) consistent with the jurisdictional asset base established in the jurisdiction. Based on advice from Senior Counsel, Stephen Gageler, the ACCC has interpreted this Code obligation as follows:

> *"The Commission has construed the requirement to value sunk assets 'consistent with' the RAB established in the jurisdiction to mean that, where a judgement was made by the jurisdiction in establishing the RAB, and where that judgement is still applicable, the Commission cannot substitute its own judgement for that which was made by the jurisdiction".*[11]

While the South Australian Government made a provision for easements in the jurisdictional asset valuation, the Government also acknowledged that this provision was deficient and that its methodology for valuation of easements was inconsistent with the ACCC's Draft Statement of Regulatory Principles.

Therefore, according to the ACCC's interpretation of the Code it does have the power to make an appropriate adjustment to the jurisdictional asset valuation for easements, in ElectraNet SA's particular circumstances.

5.2 Valuation of Easements

ElectraNet SA provided the ACCC with a supplementary submission on the cost of easements[12].

The ACCC's consultant has reviewed all of the details of ElectraNet SA's easement valuation and included the relevant findings in their report.

5.3 Consistency with Audited Balance Sheets

ECCSA expressed concern that asset values taken from ETSA Transmission and Transmission Lessor Corporation annual reports for the 1997/97, 1998/99 and 1999/2000 financial years are markedly different to those in Table 5.3 of ElectraNet SA's revenue cap application. They also claim that the amounts for capex and depreciation in Table 5.3 bear little relationship to the actual values included in the audited balance sheets.

ElectraNet SA started its roll forward of the regulated asset base from its fixed asset register as of 1 July 1998, reconciling this with the independent valuation by Sinclair Knight Merz (SKM) referred to in the 1999 annual report. Capital additions and disposals in the roll forward period are based on audited financial statements and asset movement schedules (but with timings adjusted to reflect

[11] Letter from the ACCC to ElectraNet SA on the subject of Valuation of Sunk Assets, dated 6 March 2002.

[12] "Regulated Costs of Easement Acquisition", ElectraNet SA supplementary submission to the ACCC, 6 May 2002.

that assets must only be rolled into the regulated asset base once they are in service). Asset class original and remaining lives were derived from the financial fixed asset register. The ACCC's consultant has reviewed all of these details and has included the relevant findings in their report.

Closer examination of the figures shows that ElectraNet SA's roll forward of the regulated asset base is not inconsistent with the audited balance sheets. For example, the roll forward in Table 5.3 gives an asset value of $688.0 million at 30 June 1999 (excluding the financing costs which ElectraNet SA has claimed) compared with a value of $687.7 million in the annual report.

Capex and straight-line depreciation figures are similar to those used in the roll forward. Any differences can be accounted for by differences in timing between when project costs are capitalised and when projects are placed into service (which is when they are allowed to be rolled into the regulated asset base) and differences in treatment.

CPI figures used for indexation of the asset base are those published by the Australian Bureau of Statistics. The asset base roll forward has not been over-inflated by inclusion of the impact of the GST. The CPI in 1999/2000 has been reduced by 2.5% to remove the GST effect in accordance with the ACCC's final assessment of the GST spike.

6. Capex

The submissions from interested parties question ElectraNet SA's capital expenditure (capex) requirement for the regulatory period on the basis that the application provides little detail of the proposed capex in terms of expenditure breakdowns, and the cost and timing of individual projects.

However, the ACCC's consultant has reviewed all of the details of ElectraNet SA's capex requirements and included the relevant findings in their report. We understand that this report will be made available for public comment as soon as it is finalised

The following points address specific questions raised by interested parties:

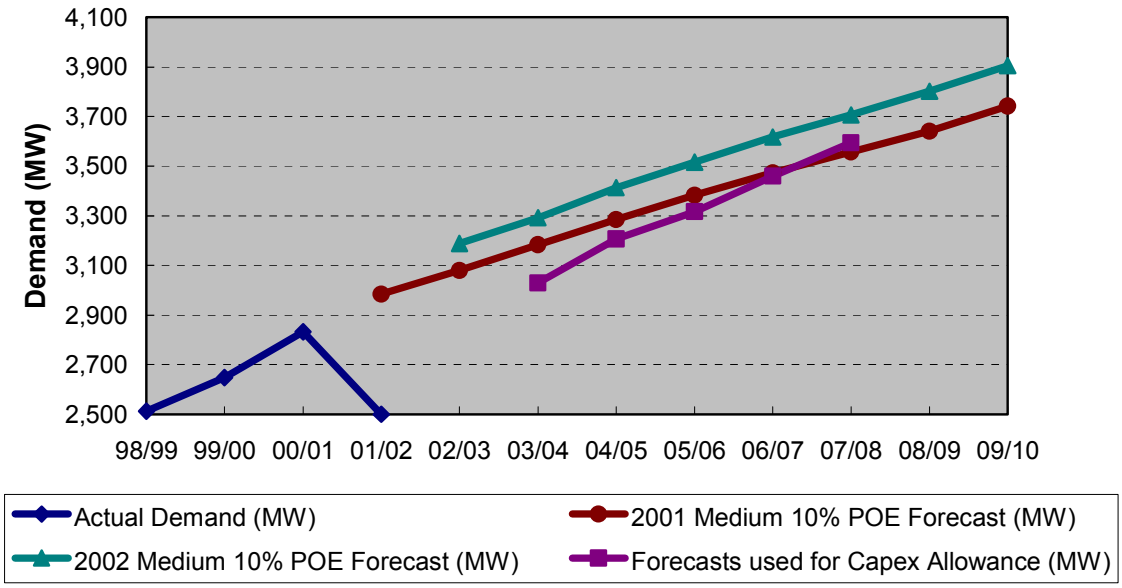
- While ElectraNet SA has applied a probabilistic approach to determine a capex allowance for each year of the regulatory period, this approach is based on an underlying set of network projects. These projects are consistent with the information recently published by the Electricity Supply Industry Planning Council (ESIPC) in its Annual Planning Report[13].

- The ESIPC Annual Planning Report provides new information on maximum demand forecasts for South Australia[14]. The following graph shows that the revised ESIPC 10% probability of exceedance forecasts (for the medium or economic base case) are significantly higher than the forecasts used by ElectraNet SA for developing the requirements of its proposed capex program (on average 190 MW higher in each year of the regulatory period). While ElectraNet SA has not yet had time to analyse the impact of this increase in demand forecast, it clearly indicates that the proposed capex program is conservative.

[13] "Annual Planning Report", Electricity Supply Industry Planning Council, June 2002, Appendix 4 (available from www.esipc.sa.gov.au).

[14] Ibid, Table 4.B – Summer Maximum Demand Forecasts, p11.

Figure 5: Comparison of South Australian Peak Demand Forecasts



Source: ElectraNet SA Revenue Cap Application, NEMMCO 2001 Statement of Opportunities and ESIPC 2002 Annual Planning Report

- Before any capital projects are built they will have to pass the regulatory test and undergo the public consultation processes required by the National Electricity Code. This process provides the necessary checks and balances to ensure that investments are prudent and efficient, and that non-network options are properly considered. Any capex under spend will be clawed back by the ACCC at the end of the regulatory period.

- ECCSA suggest that the age profile of ElectraNet SA's assets "*would appear to be the total extent of the justification for capex needs*". This is not the case. The large majority of the capex requirement is driven by load growth and the requirement to maintain the service standards mandated in the Transmission Code and the National Electricity Code.

- ECCSA also point to ElectraNet SA's claim for additional opex and say: "*One of the prime reasons for capex is to reduce opex needs*". While ElectraNet SA's capex program includes prudent expenditure of this type, as stated above, the vast majority of capex is required to meet load growth and to remove network constraints. This capex will increase the size of the network and the number of assets to be maintained, operated and managed, therefore it follows that opex will increase rather than decrease.

- NRG Flinders question the pool price benefits of the capex program noting recent regional boundary analysis undertaken by NEMMCO, which has identified few network constraints in the SA region (though apparently enough to justify a draft recommendation of another region within SA), and the decline in recent times of pool price separation between South Australia and Victoria. ElectraNet SA's capex program is driven by load growth and the requirement to maintain service standards. Some of the proposed augmentations will also relieve network constraints. Each augmentation will be subjected to the ACCC's Regulatory test and undergo public consultation in accordance with the requirements of the National Electricity Code. Capex that is likely to reduce pool price differences

between SA and Victoria is limited to the augmentation of the SA-Victorian interconnector and works associated with the SNI interconnector. The ESIPC has determined that the latter works are needed in any case during the forthcoming regulatory period to support load growth in the Riverland area.

- Market Participants would be aware that the region boundary review is confined to analysis of historical data and "committed" projects. ElectraNet SA, on the other hand, is required to take a forward-looking perspective in its assessment of network requirements. It is well recognised that history is not necessarily a good indicator of future needs. In particular, the recent South East Transmission Study by ESIPC and the Eyre Peninsula Infrastructure Investigation indicate that significant augmentation even beyond that allowed for in the ElectraNet SA Application may be necessary in the regulatory period, which further reinforces the conservative nature of ElectraNet SA's proposed investment program.

- ElectraNet SA can understand that customers are concerned to ensure that network construction costs reflect the latest cost effective and efficient designs and modern construction industry practices, while at the same time ensuring that they are appropriately sized and timed and, in crude terms, not "gold-plated". ElectraNet SA not only shares these concerns but also is directly exposed under the regulatory regime if its decisions ignore these imperatives. The principles of Modern Equivalent Asset Values and Optimisation are designed to ensure that customers are protected by only allowing into the regulated asset base, going forward, appropriately sized, timed and efficient construction costs irrespective of what size, timing or costs that ElectraNet SA actually incurs itself. These principles are a "check and balance" process on TNSPs that exist to protect customers.

7. Opex Allowance

The revenue reset has provided an opportunity for ElectraNet SA to review its operational revenue needs for the next 5½ years taking into account past performance, future demands and the evolving and uncertain regulatory and NEM environments. It has also provided an opportunity to align asset management strategies with the regulatory framework. This alignment is essential if customers are to receive the maximum benefit of efficiency gains while minimising risks to ElectraNet SA.

Several submissions make comment about other TNSPs having similar network ageing issues and question why ElectraNet SA needs a step increase in refurbishment expenditure? The answer is a combination of the fact that other Australian TNSPs have already been spending at a reasonable level on asset re-investment and ElectraNet SA changing its treatment of this expenditure from capex to opex. ElectraNet SA is proposing an average refurbishment program of only 1.3% of the asset replacement cost. Given ElectraNet SA's asset age profile, this is at the low end compared with other NEM TNSPs that are spending in the range from 1.0% to 1.7% of asset replacement cost. ElectraNet SA's proposed refurbishment expenditure of 1.3% is about half of the level of expenditure expected in the longer term. Given an average asset life of 40 years, then this represents a smoothed re-investment cost of 1/40th (or 2.5%) of the asset replacement cost per year. On this basis, one might conclude that ElectraNet SA is being too optimistic in forecasting its refurbishment plans.

The service standards set out in the SA Transmission Code are high level and by their nature lagging indicators. During the course of developing its asset management plan, ElectraNet SA undertook a study of leading performance indicators to assess whether there were any "cracks starting to appear". These findings, in conjunction with recent

international maintenance benchmarking results show a declining trend that must be addressed by a responsible refurbishment plan.

ElectraNet SA has only been responsible for the SA transmission network since October 2000, following its purchase from the SA government. ElectraNet SA has developed a comprehensive asset management plan, which identifies the level and type of expenditures necessary to maintain customer service levels going forward. Equally, ElectraNet SA is has been constrained by the level of revenue allowance provided in prior regulatory and government decisions to support service levels and customers should not expect that recovery and re-investment expenditures should be made by ElectraNet SA without compensation.

ElectraNet SA re-iterate that regulated transmission businesses provide networks to meet peak demands and therefore costs are driven by the size and dispersion of the network **NOT ENERGY THROUGHPUT** (refer to Section 3 of this paper on Transmission Cost Comparisons). It is, therefore, incorrect and misleading to compare operating and transmission costs on an energy throughput basis for the purpose of benchmarking.

A number of other statements have been made relating to opex cost drivers that warrant clarification.

- South Australia's low load profile does impact on opex. This is because the network has to be built to accommodate peak demand in accordance with the SA Transmission Code. Therefore in comparison to networks with a higher load profile, more assets are required in South Australia per unit of energy throughput (MWhr), which leads to comparatively higher maintenance costs.

- Comparisons of cost ratios between different TNSPs must reflect cost drivers such as load density, jurisdictional regulatory requirements, load profile, asset age profile, level of outsourcing and different accounting treatments.

- There are many comments inferring that historical expenditures ought to factor heavily in determining future allowances. ElectraNet SA has effectively inherited the previous owner's asset management plans via the Electricity Pricing Order (EPO) and associated Performance Incentive (PI) scheme. The EPO drove transmission prices artificially low by omitting allowances for critical capital and operating expenses that are clearly now required for the benefit of SA customers. As these expenses were omitted in the EPO and combined with perverse incentive arrangements in the Performance Incentive scheme, there has been inadequate support under the EPO for an asset refurbishment program to maintain a highly reliable transmission business in the long term. The effects of under spending in maintenance and refurbishment are now becoming apparent in the leading indicators of network performance that demand an increase in expenditure now. There are many other relevant changes to the environment that ElectraNet SA is operating within that have had an impact on operating costs, including a change in economic regulator (and the changing rules that go with it), changes in TNSP responsibilities and risks in the NEM and higher insurance costs. ElectraNet SA has formulated its opex forecast in a manner that will provide a sustainable level of supply reliability for its customers.

- Some criticism was levelled at the validity of conducting a benchmarking study of non-network costs using the Victorian ORG Distribution Pricing Review

benchmarks. This is the most recent applicable and independent benchmarking that has been carried out for regulated network businesses in Australia.

8. Conclusions

ElectraNet SA has prepared this document in response to submissions from interested parties on its revenue cap application.

Many of the issues raised in the submissions will also be addressed in the ACCC's consultant reports

During the past 10 weeks, ElectraNet SA's opening asset base and proposed capital and operating expenditure requirements (capex and opex) have been the subject of detailed review by the ACCC and its consultant Meritec. A report on the Asset Base Review was made available for public comment on 11 July 2002[15]. We understand that reports of the capex and opex reviews are close to finalisation and that these reports will be made available by the ACCC for public comment as soon as they are finalised.

ElectraNet SA will be making separate public submissions in response to the consultant reports.

ElectraNet SA's revenue cap application is built on comprehensive analysis of the future requirements of the transmission network in South Australia. Detailed asset management plans have been developed to ensure that growth in customer electricity demand is satisfied while maintaining the ongoing reliability of the transmission network.

The proposed revenue cap has been determined to provide funding for ElectraNet SA to undertake the major investment program that is required to upgrade and expand the network during the regulatory period, without jeopardising the ongoing financial viability of the business and thereby adversely affecting transmission network services in South Australia.

[15] www.accc.gov.au