SPI PowerNet Submission to Discussion Paper on the ACCC Statement of Regulatory Principles

28 November 2003

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1. INTRODUCTION

The purpose of this submission is to outline SPI PowerNet's views on the ACCC Discussion Paper for the *2003 Review of the Draft Statement of Principles for the Regulation of Transmission Revenues*.

SPI PowerNet believes TNSPs are currently subject to a variety of regulatory uncertainties and risks for which they receive no compensation under the current regime. The current review is a great opportunity to lessen the impact of many of the uncertainties and risks.

Therefore, SPI PowerNet has not attempted to address all the issues raised but has limited its comments to those it sees of most value for framing future regulation. In particular, it has focused on ways to increase regulatory certainty for the TNSPs in the future and simplify the current regime. Where the ACCC has indicated a preferred position, SPI PowerNet has directly indicated its support or opposition followed by the reasons why.

The submission broadly follows the structure of the Discussion Paper, however, incentives and benchmarking are covered with-in the expenditure sections. It is set out as follows:

Section 2 addresses improvements to the revenue cap decision-making process;

Section 3 addresses treatment of the asset base;

Section 4 addresses the treatment of capital expenditure including benchmarking and efficiency benefit sharing;

Section 5 addresses the treatment of operating and maintenance expenditure including benchmarking and efficiency benefit sharing; and

Section 6 addresses issues relevant to the return on capital for assets in the regulatory asset base.

2. REVENUE CAP DECISION MAKING PROCESS

The ACCC outlines the following preferred position for changes to the process surrounding a revenue decision for a TNSP.

The Commission's preferred position:

The Commission proposes to extend the regulatory review period to twelve months, with associated changes to the:

- regulatory review procedures;
- the operations and procedures of a public forum;
- treatment of late submissions; and
- confidentiality requirements.

SPI PowerNet supports both the extension of the review period from 6 months to 12 months and the time allocated to the various stages of the review. We also suggest the revised Statement of Principles (SRP) clearly state that the ACCC be able to vary the proposed time line to suit interested parties where good reason can be shown to do so.

SPI PowerNet also supports the ACCC's proposed approach for the:

- treatment of late submissions;
- conduct of public forums; and
- confidentiality requirements.

However, SPI PowerNet believes the clarity and fairness of the review process could be improved by the following three proposals.

2.1.1 Modelling

The revised SRP should explicitly grant a TNSP access to the specific quantitative model used to model that TNSP's revenue requirements for the future regulatory period (not the general Post-tax Nominal PTN Model already released for review).

Previously, without access to the specifics of ACCC modelling, the TNSPs have had to rely on their own models to predict regulatory outcomes. This has created confusion when the outcomes from the TNSPs own modelling of ACCC Decisions differ from those generated by the ACCC approach. This confusion is often compounded when information given to the ACCC is not used as expected (because of unknown differences in modelling approach) creating erroneous outcomes.

For example, during SPI PowerNet's process, problems and frustrations (for both the Company and the ACCC) caused by lack of direct access to the modelling included:

- the exact form a TNSP needed to provide input data to suit the ACCC model (ACCC required write-offs to be provided as a separate asset class to incorporate them in their model while the Company provided them as additional depreciation);
- confusion over definitions leading to unintentional misuse of data (the ACCC initially treated our forecast write-offs as disposals);
- unclear CPI assumptions for escalation of the asset base and costs for the period prior to the start of a new revenue period as these were handled outside the model (probably only an issue for the first ACCC Decision);
- differences in depreciation calculations (the Company modelled depreciation for each assets separately while the ACCC used aggregated asset classes);
- arithmetic errors by both parties that could have been easily corrected by allowing review by the other party; and
- the inclusion of shared efficiency benefits (which is a return on capital payment) in the opex in the draft and final Decision making it difficult to establish exactly what had been allowed for opex alone.

While most (but not all) these issues were resolved prior to the Final Decision, it consumed a large amount of time and resources unnecessarily. It should be emphasised, none of these issues would have been apparent from examining the simple general PTN model released for public scrutiny by the ACCC.

2.1.2 Revenue protection in absence of decision

The revised SRP should allow some mechanism for a TNSP to continue to collect revenue in the absence of a decision by the ACCC at the end of the current regulatory period. The ACCC should also indicate support for code changes to the NEC to give this effect. This would provide certainty to both the TNSP and its customers during appeal processes or other delays associated with a revenue decision.

2.1.3 Appeal process

Currently, regulated transmission companies have access to a limited administrative appeal for revenue decisions made by the ACCC under the NEC. In layman's terms, this type of appeal is limited to considering simple errors of process or errors of fact and is not open to consider particular decisions or opinions expressed by the regulator on their merits.

Therefore, unlike the gas industry, the electricity transmission industry has no access to a merits based appeal of a revenue decision made by its regulator.

SPI PowerNet believes TNSPs should have recourse to appeal ACCC revenue decisions identical to the Gas Code Sections 2.26 and 2.48. Furthermore, this appeal should be to a third party body of similar structure, functions and powers to that set out under the Gas Pipelines Access Act 1997 Sections 17 and 42-46.

The ACCC should indicate its support for TNSPs to pursue a code change to the NEC that constitutes such an appeals body and allows a revenue decision to be appealed to such a body. These new appeal rights should then be incorporated into the process section of the revised SRP.

3. ASSET VALUATION

The treatment of the regulatory asset base (RAB) affects approximately 70-80% of a TNSP's revenue, therefore, it has been major item of scrutiny for the regulator during the first round of revenue decisions and continues to represent the largest regulatory risk for TNSPs into the future.

Given SPI PowerNet's support for the ACCC's preferred Option 2 - locking in the asset base, the company has limited its comments on Option 1 - regular revaluations, to a series of high-level observations. However, if Option 1 was favoured by the ACCC in the future, SPI PowerNet would seek to submit a much more detailed submission on appropriate ODRC guidelines for such a framework.

It has also been useful in places to differentiate between the treatment of the sunk capital at the time of entering the NEC regime under ACCC regulation and the treatment of capital expenditure that is added to the asset base after the start of the first regulatory period.

This section outlines SPI PowerNet's views on:

- the three options for treatment of the asset base proposed by the ACCC;
- the treatment of easements and land;
- the treatment of optimised assets; and
- depreciation of the asset base.

3.1 The ACCC's Options for the Treatment of the Asset Base

The ACCC has sought comment on three options for treatment of the sunk asset base at future revenue determinations. The three valuation options are:

1. revalue assets on a periodic basis (for example, each five-year regulatory period) using the ODRC methodology;
2. in each regulatory period the rate base is determined by adopting the initial jurisdictional valuation and adding in new investment at cost; and

3. one off revaluation of the jurisdictional asset base using ODRC, however, in subsequent regulatory periods the Commission will simply roll in new investment at cost.

The ACCC has also outlined a preferred position on future asset valuation.

The Commission's preferred position:

The Commission's initial view is to consider each revenue cap on a case-by-case basis but with the preferred position to lock-in at this stage, as there is no evidence to suggest that there are significant problems with the jurisdictional valuations. The Commission notes that the asset base includes both fixed assets and easements.

The Commission's preferred position is to lock-in the asset base but if Option 1 or 3 is adopted the Commission is likely to adopt historical cost when revaluing easements.

3.2 Comments on Option 2 - Locking in the Asset Base

SPI PowerNet strongly supports the ACCC's preferred position to lock in the value of sunk assets (Option 2), where both the TNSP and ACCC are comfortable that valuations for sunk assets should remain permanently fixed (the sunk assets being those in place as at 1 January 2003 for SPI PowerNet). In the Victorian Jurisdiction, there have been detailed reviews of SPI PowerNet's asset base valuations by the ACCC during the 2002 Revenue Determination and reasonable values were verified or established (although disappointingly low in the case of easements). The reasonableness of the valuation outcomes in Victoria is supported by the observation that the Jurisdiction was the only State to avoid real price rises in the first year of the new regulatory period and achieve stable real prices over the remaining period as a result of the initial revenue setting process.

The list of advantages from adopting Option 2 is significant in SPI PowerNet's view and would greatly improve the workings of the regulatory regime and alleviate some the major uncompensated regulatory risks faced by private companies investing in transmission infrastructure in Australia. These are outlined below.

Uncertainty and Regulatory Risk

Adoption of Option 2 would remove one of the most significant regulatory risks overhanging TNSPs: the risk of a regulator appropriating business value through regular revaluation (from a business with a large sunk asset value faced with falling replacement costs). Currently, TNSPs bear this distinctly asymmetric risk with no compensation (that is no allowance is made in the low return on capital set by the ACCC in its current round of revenue decisions).

Simplicity

Adoption of Option 2 would greatly simplify the regulatory regime, allowing ACCC, customer and TNSP resources to focus on getting the incentives right for future investment in the transmission system and minimising future operating costs. In the initial round of reviews, valuing sunk assets consumed the majority of allocated time and resources for all parties.

It should be emphasised that SPI PowerNet is not seeking to avoid examination of the capital expenditure during a regulatory period which would continue to be subject to ex-ante and ex-post regulatory oversight.

Intent of the NEC

While recognising that Clause 6.2.3 (4) (iv) of the NEC clearly allows the ACCC to implement any of the proposed valuation options, SPI PowerNet is strongly of the belief that adoption of Option 2 is the most sensible interpretation of the admittedly opaque NEC code clauses on sunk asset valuation. That interpretation being:

- to use a deprival value (which in practice has meant using the ODRC methodology adopted in all Jurisdictional Valuations) to set a proxy opening value for the Depreciated Actual Cost (DAC) of the TNSP's sunk assets for the new National Regime. This being necessary due to the very poor records of actual costs kept by the majority of then vertically integrated State Electricity Authorities; and

- once this sunk asset value was determined either by the Jurisdictional Regulator (the ACCC was appointed in this role for NSW) or the Jurisdiction directly, an ACCC review under Clause 6.2.3 (4) (iii) of the NEC operated as protection

against inflated valuations, allowed omissions to be included and allowed a new optimisation study to be performed.

- the final financial value established be protected, although it was unclear if this included protection from optimisation risk.

It is SPI PowerNet's view that this interpretation of the code is the only one consistent with the ACCC's insistence on using historical costs (DAC) rather than ODRC to value easements for the initial asset bases it has approved in its current round of Revenue Decisions.

Future investment

While in theory a business will continue to respond to the incentives for new investment regardless of the treatment of sunk capital, the reality is that the regulators treatment of a private business' sunk capital will greatly influence the current owner's and any future owner's willingness to engage in future investment.

3.2.1 NEC code changes to lock in sunk asset value

In addition the ACCC should indicate its support for TNSPs to pursue code changes to Chapter 9 (Jurisdictional Derogations) of the NEC to lock in asset base values.

3.3 Comments on Option 1 (regular revaluation)

SPI PowerNet is opposed to the adoption of Option 1 which it believes greatly increases the regulatory risk faced by a business while achieving little long-term benefit to consumers in return. Observations and criticisms of Option 1 are set out below.

3.3.1 Option 1 as outlined in issues paper

The issues paper divides future revaluations into two components:

- the replacement of the existing assets with modern equivalent assets (thus incorporating the cost effects of technological change); and

- the removal of assets that no longer contribute to the delivery of services (optimisation).

Furthermore, the ACCC indicates it believes that it is appropriate that any rise or fall in the value of the asset base due to a revaluation not be compensated for through positive or negative valuation. That is, it will allow windfall losses and windfall gains to accrue to the TNSP.

This raises several issues that are addressed below at a high level, however, any ODRC guidelines written to support the use of Option 1 by the regulator would have to be subject to further detailed input from the TNSPs.

The use of modern equivalent assets during a revaluation

The use of modern equivalent asset valuations for iron and steel assets (that is towers, wires, transformers, switchgear, etc.) at each revaluation in effect imposes consistent windfall losses on a business over the long-term. This is because:

- replacement costs for the iron and steel assets tend to fall gradually over the long-term for a given level of service due to the gradual incorporation into the network of technology change and improvements in secondary systems (note, service levels have tended to rise over time);

- any revaluation done on a 'greenfields' basis systematically removes the 'brownfield' costs incurred on a TNSPs capex during the period between valuations. These 'brownfields' costs arise because capex has to be incorporated into the network given the (sometimes severe) constraints of existing infrastructure which can inflate costs from 20-50% above 'greenfields' construction costs; and

- the ACCC is seeking to exclude from the ODRC methodology proposed for revaluation, the only asset classes whose replacement costs are likely to increase substantially in value in real terms over time – land and easements.

These three factors lead to an asymmetric downside risk to the TNSP which would act as a unfair penalty to existing owners and a significant deterrent to new investment without a very large increase in the WACC to compensate for this risk. Implementation as proposed could also lead to accusations of cherry picking by the regulator, again adversely impacting on future investment in the Australian transmission network.

Optimisation during a revaluation

Optimisation as part of a revaluation also has the potential to inflict constant windfall losses on a business unless the underlying assumptions of the study account for the historical development of the network. This is because if a network was designed from scratch for a city the size of Melbourne some very different decisions on the location of connection points and lines may be made if the designers are not limited to the existing land and easement holdings.

Therefore, if an optimisation is to be performed during a revaluation (or as an assessment of existing sunk assets under Options 2 and 3), it should be conducted according to the following two principles:

- It should assume the current pattern of load and demand resulting from the historical incremental development of the network. This means the current location of connection points (terminal stations and generator switchyards) and easements (line lengths and pathways) should be used as part of the assessment.

- It should at least use the same planning horizon referred to in the NEC and in Jurisdictional planning (10 years) and a case can be made that a longer horizon is appropriate for very long life assets such as transmission lines which can last up to 70 years. Additionally, a much longer planning horizon for land and easements is necessary for integration into broader land use planning, particularly in urban areas.

3.3.2 Theoretical benefits of option 1

The ACCC states the three major benefits from periodic revaluations are:

- a check on the rigour of the Jurisdictional Valuation;

- potentially improves allocative efficiency outcomes; and

- addresses concerns in regard to possible over investment or gold plating.

SPI PowerNet makes the following brief observations on these perceived benefits.

Rigour of Jurisdictional valuation

SPI PowerNet believes any concerns have been addressed in the first review of the Victorian Jurisdictional asset base valuation and therefore this concern is also met by adoption of either Options 2 or 3.

Allocative efficiency

Allocative efficiency is the major theoretical driver for considering frequent revaluations. SPI PowerNet shares the ACCC's view that there are few allocative efficiency gains to be made from regular revaluations of sunk assets. This is largely due to the slow rate of technological change in the industry and the relatively fixed operating environment.

Over-investment

Any over investment inherent in the sunk assets has been addressed through the initial optimisation used to set the initial ODRC values. Concerns over gold plating in new investments are specifically addressed by ex-ante and ex-post prudency reviews by the regulator and the regulatory test outlined in the NEC.

3.4 Valuation of Easements and Land

The ACCC's preferred position on easements (similar arguments were used for the valuation of land in the Sydney Airport Decision) is only supportable if the ODRC methodology is being used to set an initial proxy for the depreciated actual costs (DAC) of sunk assets to allow a building block approach to be applied in a new regime (the situation faced by the ACCC in Australia for the first round of revenue decisions with the NEC only coming into existence in 1997).

However, if regular ODRC valuations are going to be performed for allocative efficiency reasons, then there are no economically sustainable arguments to not use replacement costs values for all assets used to deliver the service including land and easements. The proposal to exclude easements from this process appears to be attempted cherry picking by the regulator for nebulous equity reasons and as such compromises the future investment environment, an outcome clearly at odds with the objectives of the code.

3.5 Optimisation

TNSPs are subject to two optimisation processes under the current regime. Firstly, an optimisation has been performed on the sunk assets as part of determining their opening ODRC value. Secondly, capex during the regulatory period is subject to a prudency review by the regulator where, if found not prudent at the time of investment, the value of the capex can be optimised down from its actual cost before being included in the RAB.

3.5.1 Optimisation of sunk assets

Currently, the asset valuations of the TNSPs have very low levels of optimisation (generally, less than 2% of the RAB value). This indicates that, given the incremental development of the network, historical investment has proved to be prudent to meet the network demands at the time of entering the NEC regime.

However, the TNSPs carry optimisation (stranding) risk on their sunk shared network assets, for which they receive no compensation in the WACC. This means that despite historical investment decisions being considered prudent, capital loss can still result from changes to the transmission system's load and demand profiles incorporated into an optimisation study decades after the investment decision was made.

The current *Draft Statement of Principles* allows some mitigation of this risk through identification of assets at risk of stranding and accelerated depreciation of those assets. This is unlikely to suit the majority of situations where stranding of assets is likely to occur. For example, some large customers, such as smelters, will not signal closure sufficiently well in advance in order to limit political and industrial relations fall out or conversely threaten closure to extract favourable Government treatment when no closure is intended.

Instead, SPI PowerNet believes the financial value of the RAB should be protected and that where an asset stranding occurs that was not identified before-hand the capital value be recovered after the stranding event. This recovery could be achieved using accelerated depreciation over subsequent periods or by allowing the assets to remain in the RAB until reaching their forecast lives (the latter option prevents price impacts from large stranding events).

This approach was endorsed by the ACCC when used for the Powerlink Revenue Decision:

> "The Commission acknowledges that there is sufficient uncertainty in the Queensland market, making it difficult for Powerlink to identify with a high degree of precision which assets will face stranding over the regulatory period. In light of the present uncertainty, at the [next] regulatory reset, the Commission will conduct an assessment of those assets Powerlink has identified, to determine whether elements of its network were stranded during this current regulatory period. Where the Commission identifies that an asset (already identified by Powerlink) has been stranded, it will provide an additional depreciation allowance to compensate for lost revenues. It will therefore, not adjust the depreciation profile during this regulatory period." (p. 26, *Queensland Transmission Network Revenue Cap 2002-2006/07*)

However, in addition the revised SRP should also address the treatment of these optimised assets in the future. In particular, where assets that have been optimised out of the RAB but become utilised at some future point in time, the remaining (optimised out) depreciated value should be rolled into the RAB at that point in time.

While this appears to be an asymmetric treatment – that is optimised assets can re-enter the asset base but existing un-optimised assets should not be optimised out after the initial valuation, it should be noted that the current penalty is also asymmetric – that is companies only receive a penalty (the lower return on the optimised asset value). Furthermore, the penalty is permanent – that is even after an asset re-enters the asset base at some later point in time the lost return and depreciation is never recovered.

3.5.2 Optimisation of capex

SPI PowerNet agrees with the ACCC's preferred position that after capex completed during regulatory period has been subject to the ex-post review by the regulator and determined to be prudent given the information available at the time of investment, it should not be subject to optimisation in the future.

However, as for sunk assets case above, the revised SRP should also address the treatment of these optimised assets in the future. That is, where assets that have been optimised out of the RAB but become utilised at some future point in time, the remaining (optimised out) depreciated value should be rolled into the RAB at that point in time. In effect, the assets cease to be optimised out of the asset base but the initial penalty remains.

3.6 Depreciation

SPI PowerNet does not believe there is any benefit from moving away from the straight-line Current Cost Accounting (CCA) depreciation methodology used for current revenue decisions. Indeed, given that the regulatory standard in Australia is straight-line CCA, a move to an annuity depreciation profile would mark a fundamental change if implemented.

It is critical to recognise the role of depreciation as a risk management device when used in revenue setting. A network owner faces material risk in terms of recovering the capital invested in a network asset that may have a technical life of over 50 years. Looking so far into the future, quite apart from technological obsolescence and changes to demand patterns, there is significant uncertainty about the general economic and political environment and also the specific environment for transmission regulation. In responding to this uncertainty, network owners, like most investors, seek to manage their exposure to the risk of non-recovery of capital. If given the choice, they would do this by adopting pricing and investment strategies that return capital progressively and return most if not all of the capital value well before the end of an asset's technical life.

Straight-line CCA depreciation provides for a progressive and significant return of capital over time. This lessens the exposure to long-term capital recovery risk and does so in a way that is comparatively simple.

Annuity depreciation

Annuity depreciation is justified in terms of equalising the capital charge between similar assets of different vintages. This is an advantage where there is concern about the stability of transmission charges over time or there are differences in charges between neighbouring networks caused by differences in the age profile of assets providing service.

However, the perceived theoretical advantages of annuity depreciation profiles are not as apparent in practice. There are a number of reasons for this.

First, the annuity depreciation method delays capital recovery until right at the end of an asset's life. This is because annuity depreciation profiles tend to lower revenue substantially in the short term through lower depreciation allowances (when the

return on capital cashflow is higher). While this revenue would be regained later through correspondingly higher depreciation allowances towards the end of an asset's life, this dramatically increases a network owner's risk exposure to the uncertain environment that will prevail 40 or 50 years into the future. Therefore, the step change in depreciation method represents a significant variation from the assumptions on which the financing of SPI PowerNet and similarly placed network owners was established.

Second, the concern for equalising capital charges between similar assets of different vintages (the problem of a saw-tooth pattern in capital charges) is too narrowly focussed in the context of a network industry in which every service is provided using a multitude of assets. Indeed, the concern for equalising capital charges should be applied more widely to all the group of assets used to provide a transmission service. However, the fact there are multiple assets with diverse vintages and asset lives involved in providing a transmission service when looking at a real TNSP (as opposed to the theoretical simple one asset model), will lessen the problem of a saw-tooth pattern in capital charges.

Third, when applied to an asset base that has been valued using CCA linear depreciation, the annuity depreciation approach will result in a long-term trend of increasing transmission charges, completely contrary to customer expectations. This is a mathematical result of the fact that at each point in an asset's life, accumulated depreciation under the CCA linear depreciation method will exceed that under the annuity depreciation method. As transmission assets have very long technical lives, it may take over 50 years for the increasing trend in transmission charges to even out. In practice, therefore, the annuity depreciation method will not provide the claimed smooth transmission charges for the provision of a set group of services. Moreover, the transition to annuity depreciation will take place over an extremely long period and will involve significant differences in transmission charges between new and existing assets and, as a consequence, between otherwise similar networks with different asset age profiles.

Regardless of the merits of a particular approach, SPI PowerNet does not believe that there is a need for ACCC to prescribe a depreciation method at all. Instead, ACCC should focus on the outcomes that a depreciation method should seek to

achieve, which must account for the risk management role that depreciation plays in regulated pricing.

Indeed, there are ample incentives for network owners to select an appropriate depreciation method. A network owner will not be seeking an overly aggressive return of capital provided the rate of return is adequate but rather will be seeking to balance effective risk management and diminution of business value. For the transmission user, this balance will provide reasonable outcomes in terms of the level and profile of capital charges over time.

Depreciation of Easements

The perpetual nature of easements means that generally they should not be depreciated. However, if an easement has been identified as surplus to requirements for future system development or is unlikely to be required after the removal of existing lines, then a TNSP should be able to depreciate the easement in order to recover the capital value. While this approach can be used where individual easements have been assigned a capital value, as in Victoria, it may not be suitable where the capital value has been assigned to the entire easement portfolio rather than on an individual basis.

4. CAPITAL EXPENDITURE

Capital expenditure (capex) is one of the biggest drivers of a TNSP's revenue requirement during a regulatory period. The high variability and 'lumpy' nature of much of the expenditure, even when smoothed can have significant impacts on prices in regulatory period, particularly if a TNSP is in a significant expansion phase. The most important input into investment decisions is the expected capital return. Therefore, a regulator must ensure that it sets a WACC that encourages investment in the network. However, once this is achieved, the regulator must also ensure that a TNSP's expenditure is prudent and cost effective.

The regulator has two powerful tools that act as a check on a TNSP over-investing in its network:

- the ex-ante review of capex plans when setting the revenue cap for a regulatory period; and
- the rigours of the regulatory test itself, combined with the ex-post review of the application of the test at the end of a regulatory period (optimisation risk) including the application of competitive tendering during the construction of major projects arising from a TNSPs capex program.

The regulator has at its disposal a third tool with which it can encourage a TNSP to minimise capex costs. This is via an incentive payment that rewards a TNSP for management initiatives that minimise these costs. Outside a specific payment to Powerlink for an efficiency achieved on the Queensland–NSW Interconnector project the ACCC has not chosen to exercise its right to grant efficiency benefit sharing for a TNSP's capex program.

This section outlines SPI PowerNet's views on:

- the extension of the coverage of the regulatory test process to replacement and refurbishment capex;
- the treatment of underspends and overspends of the forecast capex allowances in a regulatory period;

- the limited use of benchmarking in assessing a TNSP's capex forecasts or efficiency; and
- a set of principles that can be used to reward capex efficiencies in the absence of benchmarking.

4.1 The Regulatory Test

The Commission's preferred position:

The Commission's preferred position is to adopt the regulatory test when assessing and reviewing revenue proposals associated with augmentation and non-augmentation capex programs.

TNSPs who voluntarily assess replacement or refurbishment capital expenditure against the regulatory test will not face optimisation risk.

SPI PowerNet supports the ACCC's preferred position that the regulatory test be used when assessing both augmentation and replacement capex programs.

It is also reasonable that capex assessed and found prudent under these procedures not face optimisation risk going forward as the decision to invest was made using the best solution known at the time of investment.

A 10-year planning horizon is referred to in the NEC and is also used in Victoria, SPI PowerNet believes this continues to remain the most suitable time horizon for assessing capex plans. However, a 'whole of life' assessment of costs is also appropriate in many circumstances where replacement and refurbishment is being considered. A longer time horizon should also be used when assessing the purchase of easements or land for future expansion as city planning must incorporate future infrastructure development many decades in advance.

4.2 Under or over spends on the allowed capex from the previous period

SPI PowerNet believes the treatment of under or over spending of capital expenditure during the regulatory period should be symmetric. The Company would also observe that large over and underspending is likely to be a more significant issue for TNSPs that include forecasts of augmentation projects in their capital

expenditure allowances than just replacement and refurbishment expenditure, as is the case for SPI PowerNet in Victoria. This is because of the far higher level of variable factors that can influence the accuracy of an augmentation forecast.

Where overspending has been found to be prudent, after applying the regulatory test and being reviewed by the ACCC at the end of the period, the capital expenditure should be rolled into the regulatory asset base at cost. In addition, the lost return on capital (using the in-period WACC) and lost depreciation should be capitalised into the regulatory asset base or recovered as a specific cash flow over the subsequent regulatory period.

Conversely, where underspending has occurred, the regulatory asset base must reflect this and the overcompensation (capital return and depreciation) from the previous regulatory period recovered during the subsequent regulatory period.

Where overspending has been found not to be prudent the ACCC should calculate an optimised value to be rolled into the asset base. However, the un-optimised value should be recorded in the event that the optimisation is reversed in the future – for example, where an investment that was deemed by the ACCC to be an over-investment in capacity becomes fully utilised due to faster than expected increases in demand.

Where underspending against approved capex is apparent, a TNSP must be given the opportunity to show this was a result of efficiency rather than because of deferral or cancellation of projects expected and approved at the start of the previous regulatory period.

4.3 Assessing Capex Efficiency and Benchmarking

SPI PowerNet does not believe that the benchmarking of capex is feasible either between companies or against a companies historical capex levels.

4.3.1 Historical Capex as an indicator of future expenditure needs

Augmentation Capex

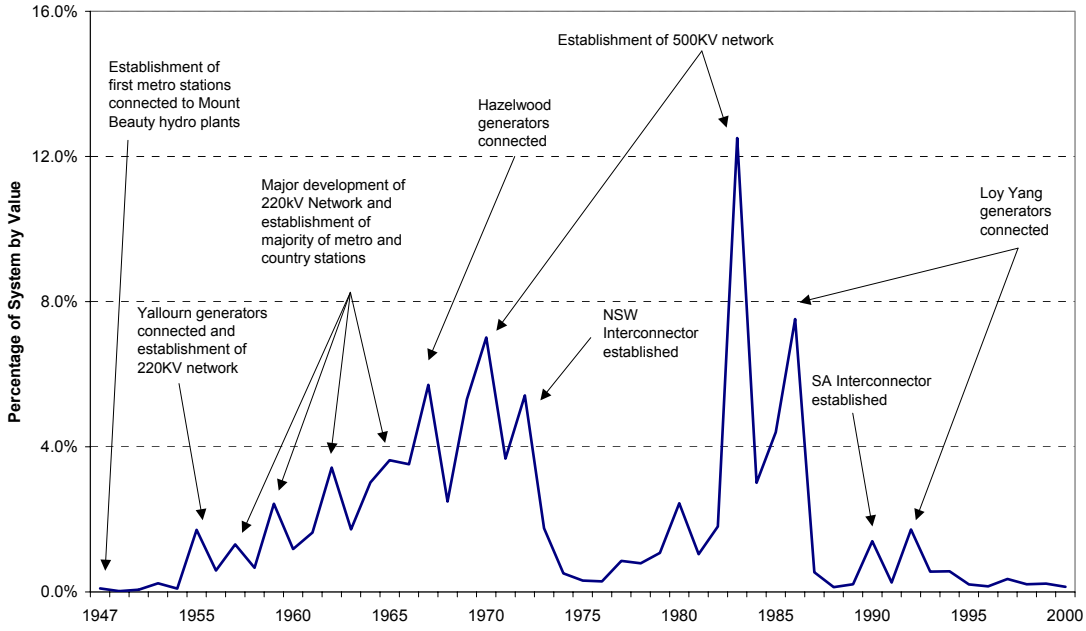
The level of augmentation capex is highly variable as transmission systems are developed with very large discrete investments of high value relative to that of the

entire system. This is because large increases in capacity with a period of under utilisation are cheaper than many small increases in capacity in the long run.

Figure 4.1 illustrates the development of the modern Victorian Transmission system since the 1950s. Augmentation capex in any given year is shown as a percentage of the total asset value. In effect, this generates the augmentation capex profile over the last 50 years.

As can be seen, attempts to benchmark augmentation needs for a future 5-year regulatory period from a historical 5-year regulatory period are very difficult.

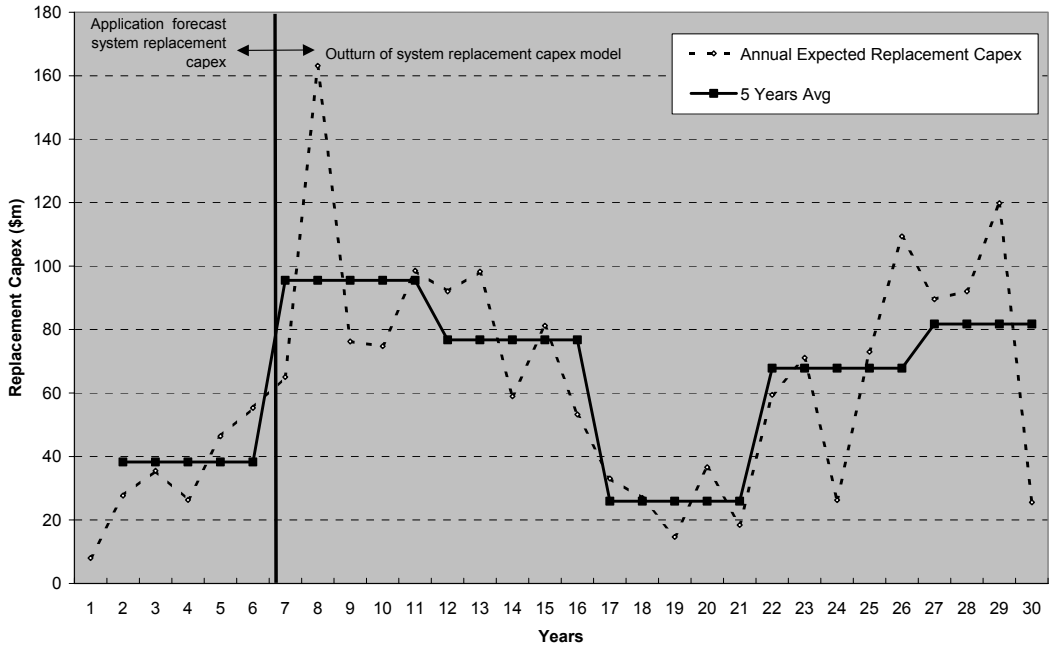
Figure 4.1: Installed date of existing assets as a percentage of total system



Replacement Capex

The very large value of individual transmission assets, such as lines or transformers, results in even replacement capex being highly variable over time. As Figure 4.2 illustrates, using a simple age based replacement projection for the next 30 years for SPI PowerNet's existing assets (excluding communication and secondary assets) results in smoothed annual capex requirements as high as $95 million (real $2001/02) and as low as $25 million (real $2001/02) depending on which assets are reaching the end of their technical lives even when capex requirements are smoothed over five year regulatory periods.

Figure 4.2: Forecast Replacement Capex Expenditure ($2001/02)



It should be noted that active asset management by the TNSP results in a generally lower expected level of replacement capex over time (through risk based and condition based analysis, refurbishment, opex solutions, etc.). Nonetheless, the age based replacement profile still provides a good guide to the future capex needs of a business.

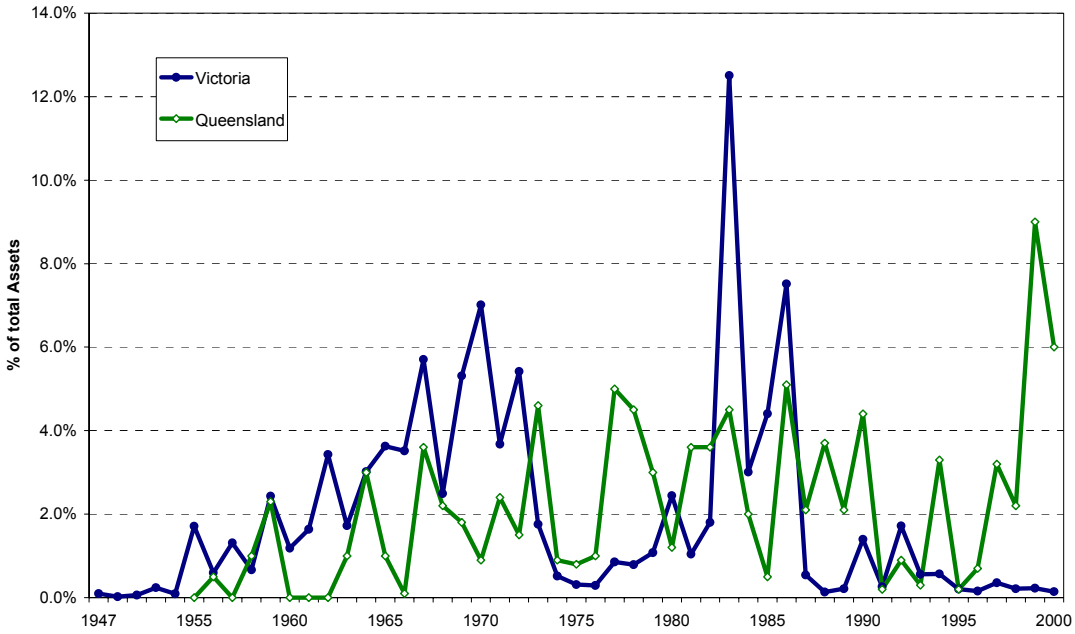
The key conclusion to be drawn is that the historical level of replacement capex is not an indicator of future levels of replacement capex needs.

4.3.2 Intercompany benchmarking

Comparisons between TNSPs is even more problematic as their different system voltages, design and service standards, geography, environmental conditions and historical development and planning decisions result in large differences in capex needs for both augmentation and replacement in any given five year regulatory period.

For example, a simple comparison of the augmentation of the Victorian and Queensland systems shown in Figure 4.3 over the last 50 years shows the complete independence of the timing of system development.

Figure 4.3: Installed date of assets in Victorian and Queensland systems



Independent of timing differences of the peaks and troughs of in the example above, cost comparisons are also problematic given the different voltages used in the two systems (220 kV and 500 kV in Victoria versus 132 kV and 275 kV in Queensland) and the long stringy nature of the Queensland network versus the relatively compact and interconnected nature of the Victorian network. These are just two of the most obvious complicating factors affecting any comparative analysis.

4.4 Rewarding Efficiencies in the Absence of Benchmarking

With benchmarking of the entire capex program an unrealistic option, the regulator has difficulty setting a baseline against which the TNSP's performance can be measured.

In the absence of benchmarking with respect to other TNSPs or with respect to the TNSP's own historical levels of capex, SPI PowerNet accepts that the onus should be placed on the Company seeking an efficiency payment to demonstrate that any underspending relative to the approved capex forecasts is through management action rather than underspending (simply not doing an approved project), deferral of expenditure (delaying a project until the next regulatory period and seeking a further capex allowance in that period) or simply an advantageous movement in exogenous costs (such as an appreciating Australian Dollar).

Nonetheless, the regime should provide for an efficiency benefit sharing scheme where such an efficiency is demonstrated and the approved capex forecasts agreed to at the start of the regulatory period should form the baseline from which efficiencies are measured.

Capex Efficiency Principles

In principle, the following broad categories should be recognised as management actions and thus legitimately form the basis of a capex efficiency claim:

- Changes to designs or internal standards;
- New investments in technology;
- Reduced construction costs;
- Changes to work practices;
- Changes to asset management policies and procedures;
- Changes to management systems – purchasing, estimating, planning, scheduling etc;
- Increased integration or co-ordination of opex and capex programs; and
- Increased integration with connection planning.

Nonetheless, SPI PowerNet recognises that actual claims would have to be supported with considerable documentation, quantitative studies and evidence of continuing cost benefits to customers and potentially subject to external review before being accepted by the regulator.

SPI PowerNet also recognises that good electricity industry practice (good asset management) in these areas should already be incorporated under the capex forecasts approved so that only extra or innovative management effort is rewarded.

A series of more concrete situations and supporting examples are provided in the following section to illustrate the form of efficiency claims that could arise under such a scheme.

Capex Efficiency Examples

1. Where a clear scope for a replacement program has been outlined and cost approved and the TNSP achieves the outcome at a lower than forecast cost due to clear specific management actions.

   Example: 10 66 kV Circuit breaker bays have been forecast for replacement during the current regulatory period for a total of $10 million because they have reached the end of their technical lives and are no longer supported with spares.

   If seven CBs are replaced during the period for $7 million this has achieved no efficiencies even if there has been good engineering reasons for deferment

   However, if 10 CBs are replaced for $7 million this should be treated as a prima facie efficiency of $3 million if the TNSP can supply supporting documents for how the saving was achieved and the unit rates for replacement have been incorporated into future capex forecasts (that is, consumers will see future benefits).

2. Where a design innovation has been made that reduces costs and supporting documentation can illustrate the reduction in unit costs has been incorporated into future capex forecasts.

   Example: a TNSP invests in a new standardised design that reduces costs for all works of that type.

3. Where a large augmentation or replacement project is approved for completion during the current regulatory period with a clear scope and linked costs and a TNSP can demonstrate it has achieved the same scope of works for a lower cost.

   The calculation of efficiency must account for:

   - scope changes which can have dramatic affects on project costs; and
   - unexpected exogenous costs (such as environmental reports and approvals) imposed after the fact by councils and State Governments Authorities etc.

Example: a TNSP has produced an independent costing for replacing a Terminal Station for $30 million, which is specifically approved in the regulatory period forecasts and delivers the project for $28 million.

4. Where a TNSP has invested in a system or process innovation that generates savings across the capex program, such as developing new purchasing processes, information systems or designs and standards.

   Example: the creation of an Electronic Document Management System (EDMS).

5. Where a solution has been found to extend the life of a piece of equipment allowing the deferment of large amounts of capex into the future.

   Example: deferment of equipment replacement where the supplier no longer supports the equipment by the innovative generation of spares.

Rewarding a capex efficiency

Where an efficiency has been established, the TNSP should be allowed to earn a return on capital value of the efficiency achieved for a set period of time. This form of reward would give a constant incentive over time, that is the TNSP would be indifferent to making savings at the beginning of the regulatory period or the end. The strength of the incentive will depend on the length of time the TNSP is allowed to enjoy the benefits of the extra return.

An example of such a scheme is provided in the NERA Papers submitted to the ACCC during the Victorian Revenue Cap Decision process[1]. SPI PowerNet is happy for this material to be available on the ACCC website for this review. The example scheme allows the return to be earned for five years after the efficiency is achieved.

[1] *Efficiency Carry Over Design* and *Efficiency Carry Over Hand Out Materials* prepared by NERA in 2002 on behalf of SPI PowerNet.

5. OPERATING AND MAINTENANCE EXPENDITURE

A TNSP's operating and maintenance expenditure (opex), while not as predictable as many other utilities such as distribution companies, is considerably more stable than its capital expenditure. However many costs do not necessarily trend down in real terms and one off 'lumpy' costs still arise.

Undoubtedly, the most effective way to reduce opex costs is to provide a Company an incentive to do so. However, some form of benchmark, against which the level of efficiency (inefficiency) that was achieved during the regulatory period can be measured, needs to be established so that:

- the company can receive the appropriate reward (or penalty); and
- the level of efficiency is used to reduce future costs allowed by the regulator (that is consumers actually receive the benefits of lower costs).

Therefore, questions of efficiency incentives and benchmarking for opex cannot be addressed in isolation from each other.

The ACCC appears to be more comfortable sharing the benefits of opex as opposed to capex efficiencies with the TNSP and has outlined a preferred position that would increase the importance of benchmarking in setting future allowances. The outstanding issue remains against what benchmark should the efficiencies be measured.

SPI PowerNet believes a case can be made for benchmarking the majority operating and maintenance expenditure as long as: sufficient protections against unexpected events are also provided; a company is rewarded adequately for the efficiencies it achieves; and the benchmarking/efficiency reward scheme is non-intrusive and simple to administer.

While the various methods of using a benchmark to set future costs can be viewed as a continuum from using a bottom-up cost build up of the firms future costs through to revenue benchmarking using a Total Factor Productivity (TFP) adjustment determined from economy wide analysis (pure CPI–X regulation where X is TFP efficiency factor), SPI PowerNet has divided them into two broad categories along

the lines used in Dr Darryl Biggar's paper, *Incentive Regulation and Benchmarking*, attached to the Discussion Paper – Exogenous and Endogenous cost benchmarks.

- Endogenous benchmarking uses the firms own costs it can include using a firms own forecasts of future costs, a firms historical actual costs or an efficiency factor calculated from the firms historical costs, adjustments are then made for agreed variables such as volume or exogenous costs such as tax;

- Exogenous benchmarking uses industry averages (adjusted or not for measurable operating differences) or industry-wide/economy-wide TFP benchmarking of either revenue or the opex allowance itself.

5.1.1 Exogenous benchmarking

SPI PowerNet considers the most extreme form of exogenous benchmarking using TFP factors is unrealistic for the Transmission Industry. The large sunk costs and long life of the assets in the industry mean that it is never going to be practical where 80% of revenue is generated through return on and of that sunk capital and where one of its major expenditures (capital) is so variable over time.

A more direct and, therefore, more realistic use of exogenous benchmarking can use carefully constructed industry averages or benchmarks. Indeed, the ACCC currently uses a suite of industry benchmarks to provide a high-level sanity check of a TNSP's opex request during the revenue determination process.

However, the current suite of benchmarks contains serious flaws and is totally unsuited to be used to imply a TNSP is efficient or to reward or penalise a TNSP for its performance against an industry benchmark. It should be noted that SPI PowerNet performs well under most of the benchmarks used when it makes this criticism.

The flaws arise through both the choice of measures and the lack of adjustment for the extreme differences in operating environments (geography, weather, operating voltages, distribution of generation and loads, design standards etc.) found when comparing transmission companies.

When looking at developing a cost model to adjust for all these factors the time horizon is long indeed. Initially, a cost model should focus on non-system costs

where the different operational environments of the TNSPs should not result in differences in efficient costs.

These are not problems unique to Australia as SPI PowerNet is unaware of such cost comparisons being used to set forecast opex costs for a TNSP anywhere in the world. This 'comparison problem' is exacerbated by there typically being only one transmission entity in a region, state or country.

This 'comparison problem' was viewed as surmountable for distribution companies, however, these schemes are not problem free due to their interaction with capex and service standard incentives.

Indeed, while the distribution companies in Victoria are subjected to benchmarking with each other for the majority of their costs, only overhead costs such as head office functions are not adjusted for the different characteristics of each distributor's operating environment.

Therefore, SPI PowerNet does not believe at this stage it is possible to develop a reliable opex cost model for Australian TNSPs. Nonetheless, such a goal should remain a 'light on the hill' for the regulator and much progress can be made in developing cost comparisons that could at least be used as more robust high-level sanity checks on the opex expenditure requirements of TNSPs during the third and future rounds of determinations than those in current use.

SPI PowerNet would suggest setting up an industry benchmarking group along similar lines as the current Service Standards Working Group to generate more suitable benchmarking measures and study the adjustments necessary to make comparisons meaningful.

5.1.2 Endogenous benchmarks

Alternatively, using a firm's actual cost outturns can be a very effective benchmark when combined with strong incentives for a business to reveal its true costs. This is especially the case when the regulatory regime is relatively new.

Schemes have already been implemented in the Australian gas and electricity industries for distribution companies that tend to have relatively stable opex over time. However, a TNSP's opex does not necessarily have the same characteristics.

Nonetheless, while a TNSP's opex cannot be expected to be as smooth as a distribution company's, if protected by appropriate passthroughs, some form of benchmarking off current levels of expenditure may be effective. The core maintenance functions and corporate (non-system) costs, in particular, may be suitable for such an analysis. However, large one-off programs such as unexpected fleet failures or widespread asset problems may need to be excluded. For example, SPI PowerNet's costs for the corrosion problem on lines and towers identified for the current regulatory period has the potential to increase by a factor of ten in real terms over the next 30 years.

Clear exogenous costs such as insurance land, taxes and rates should also be excluded from benchmarking and efficiency benefit sharing schemes, as they are independent of the management actions of the firm.

The more adjustments, pass-throughs and qualifications a TNSP wants to place on the benchmarking the more intrusive the assessment by the ACCC will have to be. Alternatively, by accepting minimal qualifications, the ACCC should accept any underspending as prima-facie efficiency and reward the TNSP accordingly. This would greatly simplify the regime and increase the incentive for a business to reveal its true costs.

Efficiencies in current period

SPI PowerNet does not believe there is any advantage for a forensic examination of underspending in the benchmarked cost categories as consumers receive the benefits immediately in the subsequent period. Indeed, concerns over whether underspending is management induced efficiency or exogenous movement in costs tend to be overstated as movements in exogenous opex costs tend to be symmetrical over time and the increase in intrusiveness in any audit comes with considerable costs of its own.

Setting future expenditure

Opex expenditure during the future regulatory period would be set at the average of the preceding five years expenditure (adjusted for inflation) thus ensuring consumers receive the benefits of any efficiencies achieved (excluding the non-recurrent one-off programs such as corrosion treatment). This would be adjusted up or down for

movements in uncontroversial, simple and clear exogenous costs such as OH&S regulations and standards, environmental regulations, legislative changes, property taxes, insurance costs, etc.

Further adjustments would need to be made for volume effects as the assets under management can increase substantially during a five-year regulatory period.

Finally, it may also be appropriate to incorporate clear underlying trends into cost forecasts for the future regulatory period.

Form of carry over

The ACCC has indicated a preference for a carryover mechanism that ensures the power of the incentive is constant over time. That is, a company will be indifferent to whether an efficiency is achieved in the first or last year of a regulatory period. The simplest method of achieving this is to provide the TNSP with a benefit for a fixed period of time after the year the efficiency is generated rather than a fixed amount of time from the end of the regulatory period (which rewards efficiencies achieved at the start of regulatory period more strongly than those at the end).

The power of the incentive can then be set by the amount of time the TNSP is allowed to retain the benefit after the year it is achieved. The longer the company is able to retain the benefit the stronger the incentive to achieve the efficiency. The strength of incentive is ultimately the decision of the ACCC, however, SPI PowerNet notes that the minimum length of time used in the Australia is 5 years and that many jurisdictions around the world allow benefits to be retained up to two regulatory periods from the time the efficiencies are achieved.

An example of such a scheme is provided in the NERA Papers submitted to the ACCC during the Victorian Revenue Cap Decision process.

5.2 Self Insurance and Pass-through Guidelines

The Commission's preferred position

The Commission supports cost pass-throughs in limited circumstances. The Commission considers that it is important that the three approaches to risk management: taking out insurance with external providers; self-insuring for certain other risks; or agreeing pass-through rules to pass the cost of designated events on to customers; are adequately scoped and defined to ensure there is no overlap between them. Guidelines for dealing with these matters have been included in the Commission's GasNet and SPI PowerNet revenue cap decisions issued in 2002.

SPI PowerNet broadly supports the ACCC's preferred position on self-insurance and pass-throughs. The combination of the three approaches allows the final cost of insurance to be minimized for both the TNSP and the customer. SPI PowerNet also supports an actuarial review being conducted as part of the revenue setting process.

However, TNSPs and the ACCC must retain the capacity to deal with some extreme (low probability/high cost) events that fall outside the current scope of the pass-through guidelines.

5.2.1 Exclusion of certain items from self-insurance allowance

SPI PowerNet does not support the exclusion of an allowance for Employment Practices self-insurance. The ACCC implies that providing such an allowance means a business does not need to comply with relevant legislation covering such areas as harassment, unlawful discrimination and breaches of privacy and that a TNSP is seeking to transfer all of the potential civil (or criminal) liability relating to employment practices back to electricity customers, via the self insurance allowance.

This is to misinterpret what the insurance covers, which is employee (not company) actions that result in costs and payouts from the business under the legislation. The terms and conditions associated with the self insurance quotations are such that the insurance policy would only cover wrongful acts committed in 'good faith' by an officer of the company and specifically excluds claims associated with acts considered 'against the community interest', 'fraudulent' or simply 'malicious acts'. This is complemented by the Insurance Contracts Act 1984.

The logical extension of the ACCC's argument suggests that SPI PowerNet self-insurance allowance for towers and wires (which the ACCC approved) implies the Company no longer needs to comply with engineering standards for the construction of free standing steel structures.

Interestingly, the ACCC has approved an allowance for Directors & Officers Liability in previous revenue decisions, where a TNSP indemnifies Directors & Officers against wrongful acts committed in 'good faith' on principles exactly the same as rejected above.

Essentially, in relation to employment practices liability a TNSP is seeking an allowance for self-insuring the risk of an inadvertent breach of duty relating to employment practice. This is not against the public interest and, in fact, is something that all Australian businesses have to provide for (via insurance or self-insurance).

6. WACC

The WACC required to encourage adequate efficient investment in the Transmission industry while limiting the TNSPs ability to earn monopoly rents, has been subject to fierce debate during each revenue decision. Thus, many of the arguments are well known and indeed many issues have become stalled in highly technical arguments between opposing experts.

SPI PowerNet has addressed some of these issues in the following section. It is recognised that some of the discussion restates positions outlined in earlier submissions to various ACCC processes.

SPI PowerNet has also attached a NECG paper commissioned as a joint submission of the TNSPs operating in the NEM (see Appendix A). This study addresses in detail many of the points made in the following section including much of the technical background to the arguments.

The section provides SPI PowerNet's views both on the appropriate general approach to setting the WACC and on specific aspects and parameters of the WACC calculation.

6.1 General approach to setting WACC

For some years now, there has been considerable debate about the theoretical and empirical aspects of the cost of capital appropriate for use in revenue and price regulation. This debate underlines that there is potentially a wide range of outcomes that could be justified. In this environment regulators, on behalf of the community, need to consider what is the greater cost – setting rates of return aggressively low and putting at risk network investment or taking a more conservative approach and potentially paying slightly more than required to elicit "efficient" levels of investment.

SPI PowerNet believes that the community values the reliability of the electricity transmission system at more than the cost of being sure that this reliability will be forthcoming through appropriate investment. This view is consistent with the findings and analysis of the Productivity Commission in its *Review of the National Access Regime*.

> "In essence, third party access over the longer term is only possible if there is investment to make these services available on a continuing basis. Such investment may be threatened if inappropriate provision of access, or regulated terms and conditions of access, lead to insufficient returns for facility owners. While the denial or monopoly pricing of access also impose costs on the community, ... they do not threaten the continued availability of the essential services concerned. Thus over the longer term, the costs of inappropriate intervention in this area are likely to be greater than the costs of not intervening when action is warranted. The substantial information and other difficulties that confront regulators in establishing access terms and conditions, make this asymmetry in the benefits and costs of access regulation even more important in a policy context."[2]

With the 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 response to the above concerns of the community, the ACCC continually highlights in its decisions that it believes it is conservative when setting the return on capital, erring towards the upper end of what it believes to be the appropriate range of WACC outcomes. However, international comparisons of WACC do not support the ACCC assertion that Australian returns on capital are high. A key finding of the analysis of international regulatory decisions[3] conducted as part of the NECG joint submission suggested:

> "… that Australian electricity transmission decisions made by the ACCC since January 2000 do not compare favourably with decisions of overseas regulators when considered on a comparable basis." (p. 12)

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[2] Productivity Commission 2001, *Review of the National Access Regime Position Paper*, pp. XVIII to XVIX.

[3] The comparative analysis draws heavily on material included in NECG's submission to the Productivity Commission Review of the National Gas Code on international WACC comparisons, Network Economics Consulting Group, "*International comparison of WACC decisions - Submission to the Productivity Commission Review of the Gas Access Regime*", September 2003.

NECG concluded that:

> "Our results show that WACC allowances to the Australian TNSPs are not generous in international terms, and certainly not excessively so. This conclusion is still valid if these decisions are seen in relation to approaches to asset valuation and the overall level of uncertainty in the WACC in Australia and overseas." (p. 22)

Furthermore, the ACCC has exacerbated the extent of uncertainty over returns in Australia through constant regulatory statements flagging shifts in one direction only – down. This continual questioning of the various parameters of WACC combined with speculation that it could be lowered at future reviews, of itself creates regulatory risk and, therefore, detrimentally impacts on future investment.

It is interesting to note that some countries have introduced measures to minimise this uncertainty. The NECG paper provides several examples of this:

> "For example, a number of Canadian energy regulators adopt formulaic approaches to the risk free rate and the return on equity, which limit changes over time, while in the US there has been remarkable consistency in the cost of equity capital allowances provided by energy regulators over time, despite wide variations in the required returns if different methodologies are applied. This in part is likely to reflect lesser reliance on current estimates of bond yields at the time of the regulatory decision due to the adoption of methodologies other than the CAPM for estimating the cost of equity capital." (p. 17)

SPI PowerNet considers that, as the first round of revenue decisions are complete, it may be an opportune time for the regulator to 'draw a line in the sand' with regards to WACC parameters.

However, if the ACCC wishes a forensic analysis of the current methodology and parameters, SPI PowerNet would make the following critiques, all illustrating current regulatory outcomes are far from being at the upper end of outcomes and are not built on solid theoretical foundations.

6.2 Critique of Pareto Associates Report

The NECG report critiques the two other studies which purport to illustrate WACCs are generous in Australia:

- Reports written by Pareto Associates, which undertook an international review of WACC allowances, with particular focus on Australia and the UK; and

- A submission by the Allen Consulting Group on behalf of BHP-Billiton, which argued that the prices investors are willing to pay for infrastructure assets provides evidence that regulatory rates of return are not hindering investment.

6.2.1 Pareto Associates Report

The NECG paper contains a detailed critique of the Pareto Associates Reports in section 3.1. A summary of the findings shows the reports contain a number of serious deficiencies, the major ones being:

- failure to adjust for different bond rates across countries;
- assumption of common market risk across countries;
- failure to account for gearing in looking at cost of equity capital; and
- a number of simple data errors such as confusing "Vanilla WACC" (which treats tax as an explicit cash flow) with the post-tax nominal WACC (which adjusts the cost of debt for taxation).

To correct for these mistakes essentially reproduces results that broadly agree with the original NECG analysis' conclusions summarised above (that is, that Australian WACCs are far from generous in comparison to international regulatory decisions). This leads the NECG to conclude that:

> "Given the methodology adopted and the large number of errors in the analysis we do not believe the report adds to the understanding of cross-country differences in rates of return, nor can it be used as a guide for regulatory debate." (p. 27)

6.2.2 Allen Consulting Group Submission

In its submission to the Productivity Commission on behalf of BHP-Billiton, the Allen Consulting Group (ACG) argued that the willingness of firms to pay multiples in excess of the regulatory asset value is evidence that regulated rates of return are not too low. Using this analysis, its key conclusion is:

> "… that no empirical support can be found for the view that the stance of regulators provides a threat to new investment in these activities, that regulators are 'too ambitious' when setting regulated charges, or that regulators consistently adopt forecasts that are biased towards the interests of the customers. Indeed, the more plausible conclusion that can be drawn from this analysis, is that the regulators systematically err in favour of

> providing regulated entities with a return that exceeds the cost of capital associated with the regulated activities." (p. 5)

This is very long bow to draw. NECG provides a detailed critique of the ACG analysis in Section 3.2 of its paper. SPI PowerNet certainly concurs with many of NECG's criticisms as the severe weakness of ACG's approach are perhaps best illustrated by purchasers' experiences after the electricity industry was privatised in Victoria and in which SPI PowerNet played an integral part (under different ownership).

During this process businesses were sold:

- when the current regulatory regime was not in place and no precedents were available (this was certainly the case when GPU bought PowerNet Victoria in 1997);

- with purchasers assuming a different form of regulation to the building block approach was to be used in future (for example, pure CPI-X from revenue levels established at privatisation – making the asset base and regulatory WACC far less relevant). Many original purchasers of Victoria's regulated assets suffered from this assumption;

- with no regulatory base or with various assets excluded but with an implied opportunity to correct the mistakes when regulatory regimes were put in place (again, certainly the case when GPU bought PowerNet Victoria in 1997 and when SPI purchased the assets in 2000); and

- with purchasers assuming assets such as easements were to be valued using replacement costs in future (GPU ascribed a value of over $700 million to assets subsequently valued at $90 million by the ACCC).

Whether or not the above factors indicate poor decisions by bidders at the time of privatisation, it certainly compromises attempts to imply that the ratio between the regulatory asset base and sale prices achieved before genuine regulatory precedents were in place indicates generous WACC outcomes. Indeed, the history of exit from ownership in the Victorian industry after initial regulatory decisions were made, suggest the opposite, that WACC returns are set too low. It also starkly illustrates

the high level of regulatory risk currently borne by private companies owning regulated assets in Australia.

6.3 The term of the risk free rate

In the majority of its regulatory decisions the ACCC has set the term of the risk free rate to match the term of the regulatory period. Therefore, in the SPI PowerNet's Revenue Decision the ACCC adopted a 5¼-year 10-day moving average as its estimate of the risk free rate.

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

- first, it reduced the return on equity and the return on debt, this being the difference between 5-year and 10-year Commonwealth Government securities on average (the reverse is true when the yield curve is inverted); and
- second, it reduced the return on debt still further, by reducing the debt margin (which is a function of the term assumed for the risk free rate).

Supporting its decision (specifically, the GasNet Decision), the ACCC commissioned a paper by Associate Professor Martin Lally entitled "*Determining the risk free rate for regulated companies*". Lally's concluded that the risk free rate should indeed be chosen to align with the regulatory period.

In view of this, SPI PowerNet asked Professor Bob Officer to review and critique the Lally bond rate paper[4]. The ACCC is again referred to that paper as part of the current review, however, to summarise very briefly, Officer's finding was 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

[4] Officer's critique was provided to the ACCC as part of SPI PowerNet's response to the ElectraNet Draft Decision was included at Appendix C together with Officer's updated paper entitled "*A weighted average cost of capital for a benchmark Australian Electricity Transmission Business*" – the original version of this paper, dated 28 February 2002, was submitted as an appendix to SPI PowerNet's revenue cap Application to the ACCC.

> consistent with the CAPM. The Lally approach is not consistent with the CAPM ... " (Officer Critique of Lally)

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).

Furthermore, there are many other well-established reasons in favour of using a 10-year basis for the risk free rate including:

- 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.

For the current discussion paper, the ACCC has commissioned further work on this issue from Professor Kevin Davis. In response, NECG has included a critique of this work in its joint submission paper. While some new arguments are advanced, both these papers cover much old ground.

This exchange of expert papers has often been cited by the ACCC as indicating that expert opinion is split and that, as the arguments cannot be conclusively resolved one way or the other, it proposes to remain with its imposed status quo.

However, SPI PowerNet is not convinced, that outside the ACCC itself, there is any ongoing debate as to the appropriate term for the risk free rate. This evidenced by the fact that:

- all other Australian utility regulators use the 10-year bond as their benchmark; and
- The vast majority of international regulators use long dated bonds of at least 10-year duration and where shorter dated bonds have been used it is in relation to

shorter assets lives of the regulated utility (mobile phones) not the regulatory period (and the yield curve was inverted at the time).

As has been remarked upon before, it appears the ACCC essentially stands alone on this issue.

Therefore, 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 future revenue decisions.

6.4 Sampling period for the risk free rate

SPI PowerNet supports the ACCC's preferred position that the length of period (between five and forty days) used to calculate the moving average of the risk free rate should be left to the discretion of the TNSP when making its revenue application. SPI PowerNet also accepts that a TNSP should be held to its nominated averaging period once it has been determined in the application stage.

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. Nor will the issue systematically advantage or disadvantage consumers.

6.5 Benchmark credit rating

Although it has not always been explicit in many previous regulatory decisions, an assumption has to be made about the credit rating of the benchmark entity in order to determine the debt margin over the risk free rate. Rating agencies such as Standard and Poor's publish the correlation between ratings such as AA, A and BBB and ranges for a number of financial ratios in specific industry contexts such as energy (electricity and gas) transmission. However, interesting though these correlations are, they are difficult to use in the context of the building block model because an initial assumption is required about the credit rating in order to generate the relevant financial ratios. It turns out that the assumption made can become a self-fulfilling prophecy.

Using an external reference point such as the credit rating for a stand-alone transmission company can break this circularity. Fortunately, there are two very

obvious benchmarks available in this regard – GasNet, which is rated BBB, and ElectraNet SA, which is rated BBB+.

The stand-alone basis is important because this provides for complete capture of the relevant risks. If a business were instead owned by a conglomerate or a government, then the risk faced by debt holders is generally perceived to be lower because it is assumed that the parent company, and more particularly the cash flows derived from their diversified holdings (or taxing power in the case of governments), will prevent or mitigate loan default. However, such risk does not disappear, it is simply transferred to equity holders and needs to be captured by reference to the stand-alone cost of debt finance.

In its current decisions, the ACCC has not sought to use a stand-alone reference point and has instead stated that the benchmark credit rating should be A, based on the claim that this is the average credit rating for the electricity industry (using Table 6.1 in the Discussion Paper). SPI PowerNet takes issue with the ACCC's selection of an A credit rating benchmark using this data in two respects. First, it is not consistent with the stand-alone benchmark being used to determine other inputs to the building block model – as noted above, a stand-alone benchmark needs to be used in order to fully capture the relevant risks for inclusion in the WACC.

Second, the claim that the average credit rating of the electricity industry is A is only true if government owned businesses with a more or less explicit government guarantee are taken into account. The ratings from Discussion Paper are reproduced below (in Table 6.1), reorganized to highlight key aspects of the data and to exclude the many entities that do not have a public rating.

Upon close examination of the data relied on by the ACCC, it is clear that when the Australian government owned businesses (which are not rated on a stand-alone basis) are excluded, the average rating for the electricity industry is between A- and BBB+. It should be noted that SPI PowerNet should also be excluded from the analysis of the average stand-alone rating because the Company's parent, Singapore Power, is rated AAA. Singapore Power's ultimate owner is the Government of Singapore.

Table 6.1: Standard and Poor's Credit Rating data, May 2002

	Long term rating outlook						
Company	**AA+**	**AA**	**AA-**	**A+**	**A**	**A-**	**BBB+**
Stand-alone business							
Electranet Pty Ltd.							X
United Energy Ltd						X	
Conglomerate owned – not rated on a stand-alone basis							
Citipower Trust						X	
ETSA Utilities Finance Pty Ltd						X	
Powercor Australia, LLC						X	
Foreign Governnment owned - not rated on a stand-alone basis							
SPI Powernet Pty Ltd				X			
Australian Government owned – not rated on a stand-alone basis							
Country Energy		X					
Delta Electricity			X				
Energy Australia		X					
Ergon Energy Corp Ltd	X						
Integral Energy		X					

Source: Standard and Poor's, *Australian Report Card Utilities*, April 2003.

It is worth noting that the non-government owned businesses in Table 6.1 are essentially pure electricity network businesses (either distribution or transmission). Powercor, ETSA utilities, Citipower and United Energy do not have retail arms, with the relevant former franchise retail businesses either being owned by Origin Energy or AGL. This makes the average credit rating for these businesses relevant to the task of setting a benchmark credit rating.

However, as the headings inserted into Table 6.1 indicate, the only businesses in the ACCC sample that are (reasonably) stand-alone in nature are ElectraNet SA (BBB+) and United Energy (A-). When combined with evidence of stand-alone network businesses in the gas industry (Envestra, GasNet and AlintaGas, rated BBB), there is ample support for adopting BBB+ as the benchmark credit rating for use in electricity transmission revenue caps.

To date, the ACCC has provided little if any analysis to support using a different benchmark credit rating between electricity and gas transmission. In the GasNet Decision the ACCC endorsed a BBB+ rating benchmark, which is also consistent with the ESC's recent final decision in respect of the Victorian gas distributors and the BBB+ benchmark adopted in respect of electricity distribution.

SPI PowerNet believes that the ACCC should interpret the available (albeit limited) evidence with a mind to achieving regulatory consistency, and adopt a credit rating benchmark for electricity transmission of BBB+.

6.6 Cost of Equity and Beta

In its Discussion Paper and in previous decisions, the ACCC has stated that it believes that the equity beta for a regulated business should be below one. For example:

> "An equity beta of less than one intuitively seems more appropriate for regulated electricity networks in Australia given the level of market risk which they face. These firms are regulated entities guaranteed a revenue stream and the demand for its essential services is inelastic." (p. 76)

However, this statement is misleading as it ignores the gearing of the firm relative to the market. An equity beta of one implies that the firm's equity share has the same systematic risk as the market as a whole – not that the firm itself has the same level of systematic risk. This is only true where the gearing of the firm is the same as the gearing of the market. Therefore, in making such comparative statements, what is of relevance is the asset beta of the market and the firm, not the equity beta.

If the gearing of the Australian market is considered, the asset beta of a TNSP is significantly lower than the average asset beta of the market. NECG has estimated the average asset beta for a firm listed on the All Ordinaries Index (value weighted) is 0.64 – significantly higher than the asset beta provided for TNSPs (0.4).

In its Discussion Paper, the ACCC also notes that its "initial view is to move towards benchmarking an equity beta from current market evidence and incorporating an upper confidence interval" (page 81). The ACCC calculates betas values using AGSM data (Table 5.1), and for a sample group of companies estimates a mean, standard deviation and various confidence intervals (Table 5.2).

We believe such an approach is flawed and will create significant regulatory uncertainty for a number of reasons. These concerns are summarised below but are dealt with in detail in Section 5 of the NECG paper.

- First, the beta estimates that the ACCC relies upon have poor statistical properties.

- The second concern is that, even if the statistical measurement problem could be overcome, the approach of pooling estimates is open to gaming and abuse by both regulated entities and the regulator alike.

- Third, even if a mechanistic formula can be determined, the choice of the appropriate level of confidence to apply is inevitably ad-hoc. The ACCC has not indicated the level of confidence it considers appropriate to the determination of the beta estimate.

6.7 Conclusions on setting the appropriate WACC

Given the problems and issues outlined above, it is of serious concern to SPI PowerNet that the ACCC can make the following statement in its Discussion Paper, that:

> "… the market evidence [for the equity beta] suggests that the Commission has been generous in its previous decisions. This generosity is evident given current market beta estimates, which are lower than those adopted by the Commission. In determining past revenue caps for TNSPs, the Commission has sought not to deter new investment and has been biased towards the TNSP." (p. 81)

SPI PowerNet would suggest that given the clear bias against the TNSP in ACCC decisions to use 5-year instead of 10-year bond rates to determine the risk free rate and the use of an incorrect calculation of the benchmark credit rating, a supposedly generous equity beta is far from assuring an overall favourable bias in the WACC.

SPI PowerNet would again like to highlight that international comparisons of WACC do not support the ACCC assertion that Australian returns on capital are high and that the NECG joint submission concludes:

> "… that Australian electricity transmission decisions made by the ACCC since January 2000 do not compare favourably with decisions of overseas regulators when considered on a comparable basis." (p. 12)

Therefore, to reduce the current disincentive to invest because of the threat of constant ratcheting down of returns by the regulator at future revenue decisions, the ACCC should consider 'drawing a line in the sand' indicating the current balance of parameters used to calculate the WACC, when taken together, is producing a balanced outcome for both the TNSPs and customers.

7. SUMMARY OF SPI POWERNET'S POSITION

7.1 Revenue Cap Decision Making Process

SPI PowerNet supports the ACCC's proposed changes to the revenue setting process but also seeks changes to the SRP to include:

- TNSP access to ACCC revenue modelling;
- revenue protection in the absence or delay of a revenue decision; and
- an appeals process similar to that used for revenue decisions under the Gas Code.

7.2 Asset Valuation

SPI PowerNet strongly supports the ACCC's preferred position to lock in the value of sunk assets (Option 2), where both the TNSP and ACCC are comfortable that valuations for sunk assets should remain permanently fixed (the sunk assets being those in place as at 1 January 2003 for SPI PowerNet).

7.2.1 Optimisation

SPI PowerNet does not believe a TNSP should be subject to optimisation on its sunk capital base or on capital expenditure, if that expenditure has been found to be prudent by the regulator.

Furthermore, where optimised assets are no longer being under-utilised they should be included back in the regulatory asset base at their depreciated value (that is, the optimisation should be removed).

7.2.2 Depreciation

SPI PowerNet does not believe there is any benefit from moving away from the straight-line Current Cost Accounting (CCA) depreciation methodology used for current revenue decisions.

7.3 Capital Expenditure

SPI PowerNet believes that a TNSP's capital expenditure (capex) is extremely variable and lumpy in nature when compared to other sections of the electricity industry and other utility industries.

7.3.1 Regulatory test

SPI PowerNet supports the ACCC's preferred position that the regulatory test be used when assessing both augmentation and replacement capex programs.

7.3.2 Treatment of underspending or overspending of the capex allowance

SPI PowerNet believes where prudent overspending of the capital expenditure allowance has occurred in the previous regulatory period, the TNSP should be compensated for the foregone return and depreciation.

SPI PowerNet believes where prudent underspending of the capital expenditure allowance has occurred in the previous regulatory period, which is not the result of efficiency, the return and depreciation should be clawed back.

7.3.3 Benchmarking of capex

SPI PowerNet does not believe that a TNSP's expected capex for a regulatory period can be set by being benchmarked against its own historical expenditure or another TNSP's expenditure.

7.3.4 Incentives for capex efficiencies in the absence of benchmarking

SPI PowerNet believes that despite the difficulties with benchmarking capex, the regime should provide for an efficiency benefit-sharing scheme where a capex efficiency is demonstrated.

To aid the identification of capex efficiencies, the following broad categories should be recognised as management actions and thus legitimately form the basis of a capex efficiency claim:

- Changes to designs or internal standards;
- New investments in technology;
- Reduced construction costs;
- Changes to work practices;
- Changes to asset management policies and procedures;
- Changes to management systems;

- Increased integration or co-ordination of opex and capex programs; and
- Increased integration with connection planning.

7.4 Operating and Maintenance Expenditure

SPI PowerNet believes a TNSP's operating and maintenance expenditure (opex) is considerably more stable than its capital expenditure.

7.4.1 Benchmarking of opex

SPI PowerNet believes a case can be made for benchmarking the majority operating and maintenance expenditure as long as:

- sufficient protections against unexpected events are also provided;
- a company is rewarded adequately for the efficiencies it achieves; and
- the benchmarking/efficiency reward scheme is non-intrusive and simple to administer.

7.4.2 Exogenous (Industry) benchmarks

SPI PowerNet does not believe at this stage it is possible to develop a reliable opex cost model for Australian TNSPs that would allow meaningful inter-company comparisons to be made.

Therefore, SPI PowerNet would suggest setting up an industry benchmarking group along similar lines as the current Service Standards Working Group to generate more suitable industry benchmarking measures and study the adjustments necessary to make comparisons meaningful.

7.4.3 Endogenous (historical expenditure) benchmarks

SPI PowerNet believes using a firm's actual cost outturns can be a very effective benchmark when combined with strong incentives for a business to reveal its true costs.

In particular, the core maintenance functions and corporate (non-system) costs may be suitable for such an analysis. However, large one-off programs such as unexpected fleet failures or widespread asset problems may need to be excluded.

Clear exogenous costs such as insurance, land taxes and rates etc should also be excluded from benchmarking and efficiency benefit sharing schemes.

7.4.4 Incentives for opex efficiencies

SPI PowerNet believes strong incentives should be provided for opex efficiency. Therefore, the ACCC should accept any opex underspending as prima-facie efficiency and reward the TNSP accordingly.

SPI PowerNet notes the ACCC's preferred qualities of such a scheme and observes that:

- the simplest method of achieving an incentive that is constant over time is to provide the TNSP with a benefit for a fixed period of time after the year the efficiency is generated;
- the power of the incentive can be set by the amount of time the TNSP is allowed to retain the benefit after the year it is achieved.

7.5 WACC

SPI PowerNet believes that international comparisons of WACC do not support the ACCC assertion that Australian returns on capital are high. In fact, credible comparisons show that WACC allowances for Australian TNSPs are not generous by international terms.

Therefore, SPI PowerNet considers that, as the first round of revenue decisions are complete, it may be an opportune time for the regulator to 'draw a line in the sand' indicating the current balance of parameters used to calculate the WACC, when taken together, is producing a balanced outcome for both the TNSPs and customers. This would remove the current disincentive to invest because of the threat of constant ratcheting down of returns by the regulator at future revenue decisions.

However, if the ACCC wishes a forensic analysis of the current methodology and parameters SPI PowerNet would make the following critiques, all illustrating current regulatory outcomes are far from being at the upper end of outcomes and are not built on solid theoretical foundations.

- The ACCC essentially stands alone, both nationally and internationally, on its use of short dated bonds to match the regulatory period. Therefore, the ACCC should adopt a 10-year bond when setting the benchmark risk free rate.

- The proposal to use market estimates to set benchmarks for the equity beta are seriously flawed and do not support lowering the value below its current level of 1.0.

- The ACCC is using a flawed sample to estimate the benchmark credit rating for TNSPs.

Appendix A: NECG Paper