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**Powerlink submission to ACCC  
discussion paper on the review of  
the draft statement of regulatory  
principles**

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**November 2003**

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## 1 Main messages and principles

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Powerlink believes that there are three main principles that must be applied to this review of the statement of regulatory principles to ensure that the ACCC meets the objectives in chapter 6 of the National Electricity Code (the Code) for the regulation of transmission companies.

- ❑ There are risks imposed by the regulatory regime for which transmission companies are exposed to but not paid for. These risks should either be removed or transmission companies should be compensated for these risks (either in the rate of return or explicitly in the allowed cash flow).
- ❑ Regulated businesses must be able to expect that funds that were prudently invested will be recouped. That is, the concept of Financial Capital Maintenance (FCM) must be applied.
- ❑ Regulatory mechanism and incentives should focus not on cost reduction but on promoting sufficient, prudent and efficient investment, as provided for in the Code.

In light of these three principles, Powerlink considers the following to be the priority issues for this review:

- ❑ Any changes to the regulatory framework, actual or proposed, create regulatory risk and uncertainty for investment. Consequently, the ACCC must impose a very high “hurdle” for changes to the existing framework.
- ❑ Both the recent WACC decisions for transmission and the foreshadowed WACC are too low to attract discretionary transmission investment<sup>1</sup>. The ACCC has been delivering an ever-declining WACC margin (ie. the margin above the risk free rate). Investors do not academically micro-analyse the CAPM and its multitudinous elements when deciding whether to invest, but they do consider the WACC margin and decide if it is high enough to justify the risk and the allocation of capital resources. The ACCC needs to take a “big picture” look at the WACC margin and set the WACC at a level which

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<sup>1</sup> Investment in interconnectors and mitigating intra-regional constraints is not a Code or licence obligation, ie. it is *discretionary* investment.

will be attractive for discretionary investment and then draw a “line in the sand” for all parameters.

- ❑ If the ACCC decides to carry out a revaluation of assets rather than rolling forward the jurisdictional asset value, it must deliver asset values consistent with those the ACCC accepted in its recent Murraylink decision, in which the ACCC was “unconstrained” by a jurisdictional asset value. This would ensure equitable treatment. Powerlink is unable at this point to nominate a preference between a “one off” revaluation using the Murraylink values as the benchmark, or rolling forward the jurisdictional value.
- ❑ Powerlink supports the use of benchmarking for setting operating cost allowances provided that the ACCC can robustly account for significant differences in operating environments (eg transmission distances, load density, etc) in setting the benchmark, and provided that the benchmark level provides positive financial rewards for best performers.
- ❑ Powerlink considers that it is not possible to use benchmarking to set capital investment allowances. By necessity, given the design of the Regulatory Test and the uncertainties a few years ahead of any reset, capital investment allowances must be “best estimates”, aimed at reducing price shocks moving into any subsequent regulatory period.

This submission addresses the above issues and others in more detail.

## **2 Introduction**

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The ACCC’s discussion paper considers all the micro-elements of a revenue cap on a one-by-one basis, which, in the absence of clear over-arching principles, creates incentives for “cherry picking” by TNSPs, regulators and interested parties. It is clear to us that if all the micro-elements are set at the high end of their plausible range, then the resultant transmission prices will be relatively high. Conversely, if the settings are all at the low end, then transmission businesses become unsustainable and investment would dry up.

Our understanding is that the best policy is one which delivers a highly reliable grid at a reasonable cost. This ultimately means that the ACCC must make pragmatic trade-offs, rather than a purely academic analysis. We note that the Discussion Paper is lacking a discussion of these pragmatic trade-offs, which are evident in all the past ACCC regulatory decisions, notwithstanding the veneer of academic purity which the ACCC applies.

It is clear to us, for example, that a revaluation of Powerlink's assets in line with the Murraylink asset value benchmarks would see our asset value increase by perhaps 20%. In the absence of any other adjustments, this would represent a significant increase in transmission prices in Queensland. A compensating decision to decrease the WACC would be equally disastrous for Queensland customers, resulting in an investment drought. Because of high load growth superimposed on a long, skinny, heavily loaded grid, Queensland needs more transmission investment (both the reliability kind and the discretionary kind) than any other part of the NEM.

There needs to be more discussion about the optimal pragmatic settings for each NEM region; it may not be a case of "one size fits all", as the Discussion Paper implies.

We understand that this is only the start of a longer process including workshops and subsequent opportunities for comment, and we trust the above matters can be discussed further to deliver a rational outcome which delivers a balanced result for all stakeholders.

## **2.1 The economic value of electricity transmission**

The economic value of electricity has been highlighted by recent failures around the world, eg in North America and London. Irrespective of the mechanism that led to the failure, the result is a major disruption with broad reaching effects to business and society.

Transmission is a critical link in the delivery chain and the importance of a reliable electricity transmission system has been recognised by numerous bodies.

In particular, it is important for regulators to consider the consequences of the regulatory framework on transmission reliability.

In a recent speech<sup>2</sup>, the Chairman of the Productivity Commission, Gary Banks, said:

*“While evidence of adverse impacts on past infrastructure investment in Australia has been difficult to verify, the potential risks of adverse consequences from regulatory action appear to be looming larger.”*

Specifically regulatory decisions need to consider the potential impact of errors:

*“Any expectation of zero regulatory error is naive and indeed dangerous... Fallibility needs to be taken into account when assessing the costs and benefits of regulations, especially where symmetric errors have asymmetric welfare effects.”*

*“[the Productivity Commission] has signalled a need for greater legislative recognition – both in the application of regulation and the setting of terms and conditions – of the tradeoff between cheap services today and inadequate services tomorrow.”*

The level of reliability depends on:

1. The redundancy criteria that applies to TNSPs. This is embodied in the Code, jurisdictional and licence obligations. The higher the level of redundancy, the higher will be the robustness of the transmission network to sustain multiple failures.
2. The approval process that applies to reliability-driven capital works. Currently, this is the ACCC’s regulatory test economic evaluation and the Code prescribed consultation process. The existing process has already caused development lead times to lengthen and it is open to vexatious disputes and the ensuing delays.
3. The regulatory framework providing TNSPs with adequate funds (and a return on investment) to:
  - ❑ properly maintain and operate the network;

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<sup>2</sup> Gary Banks, Chairman of the Productivity Commission, *The good, the bad and the ugly: economic perspectives on regulation in Australia*, address to the *Conference of Economists, Business Symposium*, October 2002.

- ❑ properly augment the network according to 1 and 2 above;
- ❑ properly replace and refurbish aged assets that pose an increased risk of failure.

The ACCC's regulatory principles go to the heart of point 3. In particular, in the context of this submission, decisions made in the regulatory framework embodied by the Statement of Regulatory Principles will have a direct effect on the maintenance of a reliable transmission network.

In addition to its fundamental role of delivering reliability of supply to consumers, electricity transmission provides further demonstrable, sizeable value in facilitating upstream and downstream competition between generators. Strong, reliable interconnectors are fundamental to the development of a competitive electricity market and the growth of interstate trade in electricity. For instance, the Queensland to New South Wales Interconnector (QNI) delivered an immediate and sustained reduction in ancillary services costs of about \$2.5 million per week (over \$100 million per annum). QNI also significantly reduced pool price volatility in Queensland and New South Wales. Reduced volatility leads to lower contract/hedging costs and lower volatility/hedging costs in retailers pricing to consumers. Additionally, QNI facilitated competition between generators, leading to a reduction in the pool price in both States.

Another example is the recent transmission upgrade which increased the transfer capability between central Queensland and north Queensland – this enabled more lower cost central Queensland generation into north Queensland, and reduced the grid support costs in north Queensland. This was a major contributor to a 5% reduction in the average transmission price in Queensland in 2003/04 in real terms compared with the previous year.

Incidentally, both of these transmission investments were discretionary investments, and ones which would not happen if the WACC margin is too low.

While most of the details associated with enabling TNSPs to facilitate competition are outside the scope of the Discussion Paper<sup>3</sup>, setting an appropriate rate of

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<sup>3</sup> And are being considered as part of the review of the Regulatory Test.

return will directly influence a TNSP's desire to pursue these discretionary investment opportunities.

## **2.2 Role of the Statement of Regulatory Principles**

The role of the Statement of Regulatory Principles is to describe the mechanism of a regulatory framework where regulatory decisions are

*“predictable, so regulated businesses can feel confident that consistent, well defined decision making criteria will be adopted by the regulator.”<sup>4</sup>*

Powerlink notes that in its 2001 revenue determination, the ACCC rejected the proposition of “newness” of the regulatory regime:

*“The Commission maintains that the major elements of the draft Regulatory Principles have been implemented for this and other recent regulatory decisions.”*

*“...at this time the Regulatory Principles remains unfinalised. However, the main elements currently being developed pertain to information requirements, ring fencing and the ODRC guidelines, none of which are an issue for this decision.”<sup>5</sup>*

Yet, within 2 years, the ACCC has initiated a review. It is clear that this Discussion Paper is an example of the existence of regulatory risk. For example, a “regulatory race to the bottom” in setting WACC and questions of the use of cost models for setting revenue or components of the revenue calculation have the potential to radically change the regulatory framework that existed at the time of Powerlink's first revenue determination.

### **The ACCC must impose a “very high hurdle” in adopting any changes to the regulatory environment.**

However, even if changes are not adopted at this stage, their inclusion in the Discussion Paper is enough to provide uncertainty in the future direction of the regulatory regime, and create investment uncertainty now.

Whilst Powerlink accepts that the regulatory framework needs to retain a level of flexibility, it is important to ensure that the ACCC recognises the regulatory risks

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<sup>4</sup> A principle of best practice regulation stated in ACCC's Draft Statement of Regulatory Principles, May 1999, p viii



that such flexibility creates in the allowed revenues of the transmission companies. As a matter of principle, wherever there exists a risk to the transmission business there should be appropriate financial recognition within the regulatory cap.

### **3 Asset valuation**

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#### **3.1 Revaluations of the asset base**

##### The Queensland case

In line with its role as the Queensland jurisdictional regulator, the Electricity Reform Unit (ERU, formerly QERU) undertook a valuation of Powerlink's transmission assets in existence on 1 July 1999 (sunk assets).

ERU applied a valuation methodology consistent with the ACCC's approach, viz:

- ❑ engaged independent expert consultants to undertake the valuation;
- ❑ applied valuation principles consistent with the ACCC's Draft Statement of Regulatory Principles.

The ERU (jurisdictional) valuation of Powerlink's regulated assets resulted in an ODRC valuation as at 1 July 1999 that formed the basis of the roll-forward that was used to establish Powerlink's opening asset base at the start of the ACCC regime on 1 January 2002.

Furthermore, during Powerlink's 2001 transmission revenue review, the ACCC also engaged independent consultants to review the Powerlink jurisdictional asset valuation. The consultants confirmed an appropriate valuation had been ascribed to the sunk asset base.

While Powerlink is generally satisfied with the outcome of the ERU valuation, there were some elements which Powerlink flagged for review in its 2001 revenue cap application to the ACCC. These were:

- ❑ Powerlink's 110kV and 132kV substation bay costs were valued too low.

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<sup>5</sup> ACCC, *Queensland Transmission Network Revenue Cap: Decision*, 1 November 2001, p. 74

- ❑ The allowance for financing during construction (FDC) is too low.
- ❑ Minor adjustments in costs based on latest construction and material costs.
- ❑ Easement values are too low and Powerlink recommended using an indexed Depreciated Actual Cost (DAC) approach.

### Asset valuation options

The Discussion Paper requests comments on three options for asset valuation:

1. Periodic revaluation of the asset base
2. Lock in the jurisdictional asset base
3. One off revaluation of the jurisdictional asset base and then lock in

### Powerlink's view on periodic ODRC asset valuation

Transmission businesses have to make investments with lives of 50 years – the prospect of a revaluation every 5 years is an unmanageable business risk and will cause an investment drought because of the uncertainty.

Asset valuations are complex, resource-intensive and expensive exercises. Even after significantly refining and setting out the ODRC valuation guidelines, an element of subjectivity will always apply. That is, the outcome of revaluations is somewhat dependent on the consultant that conducts the valuation and the quality of their cost database.

Because of high load growth superimposed on a long, skinny heavily loaded grid, Powerlink has undertaken the largest transmission investment program in the NEM. Consequently, we have very up-to-date and comprehensive data on capital costs, including the costs of new technologies and other innovations, where Powerlink has been an “early adopter”.

Powerlink is therefore aware that the suggestion that technological change reduces the replacement cost of transmission is a myth<sup>6</sup>. In contrast, there are a number of factors which have increased the cost of capital projects: more onerous environmental and cultural heritage requirements, increased complexity in urban projects (crossing over roads, rivers, other lines, etc), increased pressure to minimise market impacts (hence changing work practices to more expensive ones – live line work, out of hours work, etc) and increased costs to comply with more onerous national and international standards. In this context, periodic revaluations are unlikely to result in lower asset values – it is likely that, provided the Regulator is fair, they will be higher.

Notwithstanding this, in practice, periodic revaluations should have the same outcome as using the roll-forward methodology. This is because any windfall gains or losses that arise from the revaluation should be compensated for by a depreciation adjustment (ie. Financial Capital Maintenance is observed). This is described in more detailed below (see “Depreciation to offset revaluations”).

Powerlink agrees with the ACCC that:

*“there are a number of positive outcomes from locking-in the jurisdictional asset base. The main reasons are that a lock-in does not generate the uncertainty and deter investment as a revaluation might. In addition, the Commission avoid the multiple of subjective choices that is embodied in the DORC valuation.”<sup>7</sup>*

We also note that TNSPs have never been recompensed for the risk associated with the subjectivity of revaluations and the potential loss of recognition of some prudently incurred capital investment.

**Powerlink proposes that the ACCC reject the option of periodic asset revaluations in its final Statement of Regulatory Principles. However, if the ACCC were to keep the possibility for future ODRC valuations, then this material regulatory risk must be recognised in the revenue determination.**

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<sup>6</sup> Incidentally, Powerlink does not believe that there is any merit in a move to annuity depreciation, indeed we believe that the disadvantages of such a change would outweigh any possible benefits it would deliver. This position is supported by KPMG in their report *Depreciation and Asset Base Roll Forward*, appended to this response, in which the issues of such a change are explored and discussed.

<sup>7</sup> Discussion Paper, p.26

### Powerlink's preferred asset valuation option

As noted previously, any “standalone” consideration of the individual elements of a revenue cap creates an incentive for all parties to want to “cherry pick”, and we would expect the discussion on this item to be particularly prone.

In that context, the “unhindered” asset valuations determined by the ACCC in its recent Murraylink decision create quite a dilemma for Powerlink in nominating a preferred approach to asset valuation going forward. The ACCC's asset valuation of the alternative overhead lines and the substation assets in the Murraylink case has some important characteristics.

- ❑ The ACCC was not “hindered” by having to take cognisance of a jurisdictional valuation. It was conducted by the ACCC using a clean sheet of paper and the Commission's own asset valuation methodology.
- ❑ The ACCC had access to several alternative valuations of the same assets from interested parties who could be regarded as credible sources of such information.
- ❑ The precedent-setting nature of this valuation was apparent from the outset.

Thus, the Murraylink valuation for these assets is clearly a benchmark, and for equity reasons, one which other TNSPs should be able to rely upon.

Powerlink expects that if the asset values established by the ACCC in the Murraylink exercise were the basis of revaluing Powerlink's assets, then Powerlink's RAB would be about 20% higher than the jurisdictional valuation.

Under those circumstances, were Powerlink to take a “cherry picking” approach to this element of the revenue cap, then a revaluation on the basis of the Murraylink valuations has considerable appeal.

On the other hand, the jurisdictional asset valuation was undertaken by an interim regulator applying the ACCC's ODRC principles. It has underpinned a revenue cap calculation both before and after the ACCC became Powerlink's economic regulator, which has delivered a “customer-friendly” transmission price path.

Consequently, Powerlink agrees that, in the case of Queensland, the ACCC's proposition (that locking in the jurisdictional valuation delivers certainty for TNSPs and customers alike) is a desirable policy position. We understand why the ACCC had adopted it as its preferred position. Whilst it does not deliver the maximum possible supportable asset valuation to Powerlink, it does, in pragmatic terms, leave the ACCC headroom to maintain the existing WACC margin which would encourage discretionary investment. This is very important for Queensland. The overall outcome of that combination of settings would also avoid any price shocks. All in all, therefore, locking in the jurisdictional asset valuation can form part of an overall combination of settings which deliver good customer outcomes, and thus Powerlink can see considerable appeal in that.

However, Powerlink is confident that it can demonstrate that the jurisdictional asset valuation is on the low side and we are still considering the materiality and acceptability of a one-off adjustment to incorporate the factors identified in our 2001 revenue cap application and listed above. This would increase the RAB by around 10%, which is appreciably lower than a revaluation using the Murraylink values.

**In summary, Powerlink cannot yet nominate a preferred position between a full once off revaluation or locking in and rolling forward the jurisdictional asset valuation. However, we are clearly of the view that if the ACCC elects to do a revaluation, it must apply the asset values used in its Murraylink determination.**

In relation to the "lock-in" proposed by the ACCC, this needs to be binding on both the ACCC and any subsequent regulatory body (eg AER). That is, a "lock in" must be legally binding.

**We also believe that there should be a formal distinction between sunk assets and new assets that have undergone the prudency test.**

New assets are not "impaired" by the jurisdictional asset valuation. The revaluation of assets that have undergone the codified economic evaluation prior to their installation and a prudency check during a revenue reset does not meet the objectives of economic regulation.

### Depreciation to offset revaluations

The Draft Statement of Regulatory Principles provides for the use of depreciation to account for changes in value of the asset base related to revaluations. This approach ensures Financial Capital Maintenance, ie regulated businesses are able to recoup the full cost of prudently made investments.

In the Discussion Paper, the ACCC notes that using depreciation in this way nullifies the effect of a revaluation and asks if a depreciation adjustment should continue to be a part of a revaluation exercise.

Powerlink believes that the question has been stated too generally and needs to consider the context of the changes in the asset values. In the case of a one-off valuation that aims to correct errors or omissions in the current RAB, it would not be appropriate to neutralise the error correction by a depreciation adjustment.

However, in the case of periodic revaluations, which are aimed at addressing allocative efficiency, the only changes in the asset base should relate to changes in replacement costs. In this case, an offsetting depreciation allowance is not only appropriate but necessary to guard against windfall gains and losses. For example, in the case where the revaluation results in an increase in the RAB, there would be a windfall gain for the TNSP and negative depreciation would be appropriate. However, in the case where the revaluation results in a decrease in the RAB, depreciation would be required by the TNSP to protect the return of prudent investment.

This position is supported by KPMG, in their report appended to this response, which concludes that:

*“...compensatory depreciation adjustments should only occur where a revaluation due to changes in replacement costs has taken place. In other circumstances, such as errors in asset registers or other error corrections, no depreciation adjustment would be warranted.”<sup>8</sup>*

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<sup>8</sup> KPMG, *Depreciation and Asset Base Roll Forward*, November 2003, p. 12.

## 4 Capital Investment

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There appears to be widespread misunderstanding of the purpose and character of the capex allowance which is built into revenue caps. The inclusion of such an allowance is not a licence or an approval for the TNSP to undertake that level of capital spend. Each capital project for augmentation must, just before commitment of the expenditure, undergo the Code process which includes open consultation, transparent evaluation, and passing the Regulatory Test.

There is absolutely nothing to be gained by a TNSP seeking to pursue a “highball” capex allowance at revenue reset time, nor is there any mileage in the regulator or interested parties chasing a “low ball” capex allowance. At the end of the day, the TNSPs will only earn revenue for the economically-justified level of capex, and the customers will likewise only pay for that amount.

Therefore, the aim of the exercise during the reset must be to establish the “best estimate” of the capex likely to be incurred, so as to avoid step changes in transmission prices at the next reset.

As discussed below, there are simple ways to test the “reasonableness” of the capex estimate against the key investment drivers of forecast load growth and asset age.

In relation to the notion that capex can be “benchmarked”, Powerlink’s extensive experience with transmission capex is that it is both duty-specific and location-specific. As such, it cannot be readily benchmarked against a TNSP’s own history or by reference to other TNSPs’ spend. Hence, a fixed “capex target” cannot be set at revenue resets.

As noted above, the existing approach of determining a “best estimate” is the most appropriate way to treat the capital allowance given during revenue resets, with an unders and overs mechanism of adjusting each year as the actual capex emerges. That is, during the regulatory period, asset roll-forward is based on actual capex and depreciation. The effect of the variance of actual capex against the allowance on the return on capital and depreciation is adjusted at the following reset. The incentive to both the regulator and the company, then, is to

set a revenue allowance which minimises the expected variance (and hence, price shocks at the next regulatory period). This describes the current probabilistic process that has been applied in all the recent revenue determinations.

In relation to the topic of capital efficiencies, Powerlink believes that the current process, which places the onus on the TNSP to demonstrate capex efficiency if it wants a reward, provides sufficient incentives for TNSPs, and transparent checks for the regulator and interested parties.

This chapter expands on the above points.

## 4.1 During revenue resets

### Setting the appropriate capex allowance during revenue resets

The drivers for investment and project lead times impact upon the profile of capital investment and often result in a lumpy profile with little correlation between investment from one year to the next, or one regulatory period to the next. As the ACCC notes, capital investment falls mainly into three categories: augmentations, asset refurbishment and asset replacement.

Augmentations are primarily driven by load (demand) growth, and affected by the pattern of generation openings and closures. Augmentation investment is therefore customer responsive and specific to each individual TNSP territory.

Asset replacement and refurbishment is driven by the need to maintain a secure, reliable supply and is typically based upon condition assessment information of specific assets. The condition of assets is generally related to the age of the asset, together with environmental conditions and the duty cycle of the asset and therefore depends upon TNSP specific factors.

Given that in order to maintain its licence (stay in business), a TNSP must meet reliability criteria, TNSPs have minimal discretion to amend the capital program for reliability-driven augmentations and replacements/refurbishments. We believe that it is not feasible, and indeed it is inappropriate, to compare capital expenditure between TNSPs with differing topography and generation/demand patterns on a generic benchmark basis, particularly for setting capex allowances.



**Powerlink proposes that the current treatment of capex allowances at revenue resets be maintained, viz:**

- ❑ **The capex allowance is the “best estimate” for setting revenue that minimises future adjustments;**
- ❑ **The asset base is rolled-forward using actual capex;**
- ❑ **The effect on the return on capital and depreciation of variances of actual capex against the capex allowance are adjusted at the following review for material variances.**

Treating the capex allowance as the “best estimate” has a number of benefits. The incentive is on getting the allowance as close as possible to the expected spend (given the range of possible scenarios) – to minimise the adjustments required at the next reset (hence minimising price shocks). There are no perverse incentives on influencing the forecast, which makes the review a more light-handed process and less costly and resource intensive for the regulator.

Further, we strongly suggest that the ACCC reconsider the implications of its proposal in page 37 of the Discussion Paper:

*“When assessing a TNSP’s proposed capex program, the Commission will assess the likelihood that proposed augmentation capex will pass the regulatory test. This includes giving due consideration to the net benefits or relevant code provisions, project costings and timing of construction”.*

If the ACCC really believes that it can accurately predict the outcome of a regulatory test 5 years in advance (and we know we can’t, which is why we use a probabilistic approach), then the ACCC should remove the condition in the Regulatory Test which requires the Test to be done not more than 12 months before construction commences. The proposition on page 37 is totally inconsistent with this element of the Test.

### Appropriate use of benchmarking for capex – as a ‘reasonableness check’

While benchmarking cannot be used to set the allowed capex, high level reasonableness checks are possible, by checking for consistency and alignment between the estimated capex and the underlying capex drivers. There are two key drivers of capex: load (demand) growth for new assets and asset age for replacement assets. The projected demand growth multiplied by the replacement value of the RAB gives an estimate for the amount of capex required for new assets to meet demand growth. The replacement value divided by the average economic life of assets gives an estimate for the amount of capex required to fund asset replacements.<sup>9</sup>

Whilst we do not believe that this simple calculation represents a substitute for a detailed “bottom up” probabilistic development of a “best estimate”, it does represent a quick high level check on the reasonableness of that estimate.

A “best estimate” which was materially different from that calculation would require further investigation/analysis/explanation.

### Providing efficiency incentives

The current process for recognising and rewarding capital efficiencies can be summarised as follows:

- ❑ TNSPs have the right to put forward a case as to why underspend on a particular project should be considered for efficiency sharing;
- ❑ the ACCC reviews the case on its merits and decides the extent, if any, to which the underspend is due to management-induced efficiencies (and not windfall);
- ❑ management-induced efficiencies are then shared between the TNSP and customers. The TNSP is allowed to keep a share of the efficiency and customers receive the benefits of the efficiencies because capex is rolled-forward based on actual costs incurred rather than on the estimate.

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<sup>9</sup> A calculation of this sort was included in Powerlink’s 2001 revenue cap application, p77.

Powerlink believes that the existing mechanism is robust – it places the onus of proof on the TNSP – and provides sufficient incentives for TNSPs to ‘chase’ efficiency opportunities.

**Powerlink proposes that the ACCC maintain the existing process for claiming capex efficiencies on a project basis during revenue resets.**

Because we do not believe that it is appropriate to set a total capex target, we do not foresee that a mechanistic approach will acceptably roll-forward the asset base and make adjustments for capital efficiencies.

That is not to say that the existing process cannot be improved. Improvements can be made to the efficiency and transparency of the process by:

- ❑ developing and publishing principles and guidelines that may be applied to underspends to identify what qualifies as management-induced efficiencies;
- ❑ clarifying how the efficiencies are to be shared;
- ❑ clearly stating these principles in the final Statement of Regulatory Principles.

In terms of sharing efficiencies, Powerlink suggests that a 50% share of the NPV of the savings (over the life of the asset) is awarded to the TNSP as a cash flow allowance over 1 or 2 regulatory periods such that the NPV of the allowance equals 50% of the NPV of the savings.

### Opex / capex substitution

Powerlink notes that the ACCC is concerned with the potential for opex / capex substitutions if the strength of the incentives for opex and capex are not balanced.

From Powerlink’s perspective, this has all the hallmarks of an academic “make work” project.

Powerlink does not believe that there is any evidence of material opex / capex substitution, and in our own business, we do not apply any intellectual horsepower to pursuing this. Further, we believe that opportunities for such

substitution (if anyone was so inclined) are much more limited than the ACCC implies in its Discussion Paper.

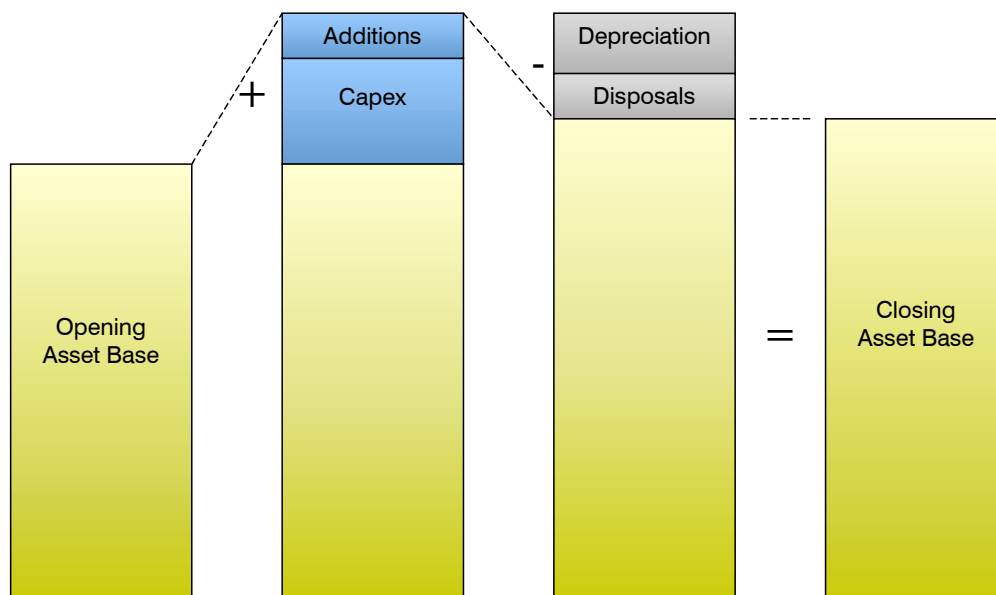
The ACCC receives annual accounts from all TNSPs through which it can assess the levels of expenditure. During resets, the ACCC reviews past capital and operating expenditure. Any material substitution of capital investment to reduce operating costs would be evident during this review. This is particularly so as the TNSPs have documented economic evaluations of all projects (in the form of the Regulatory Test or similar), which are available for review by the ACCC and its consultants. This documentation will identify the need for the project and the choice of the lowest cost solution.

**Powerlink believes that, in the overall scheme of things, this is a “non-issue”.**

## 4.2 Roll forward

The annual regulatory accounts include information on the progressive roll-forward of the asset base. The roll-forward can be illustrated as in Figure 4.1.

Figure 4.1. Illustration of roll-forward mechanism (as per annual regulatory accounts)



In the diagram above, capex is actual capitalisations during the year; additions refer to non-capex acquisitions (such as the purchase of assets from another

Network Service Provider); depreciation is economic depreciation (straight line depreciation and indexation at CPI) and disposals refer to disposals or transfers of assets not included in depreciation.

Through the annual accounts, the ACCC has a record of the value of the asset base during the revenue control period.

When considering the mechanism for roll-forward, Allen Consulting states that it can be based on either actual depreciation or the depreciation forecast in the previous revenue reset and either method can be adopted<sup>10</sup>.

KPMG advise (Attachment 1) that there may be good reasons for allowing either methodology in the final Statement of Regulatory Principles and for the adoption of the method to be TNSP-specific considering *“its specific circumstances, financial management systems and its ability to employ a specific roll forward methodology.”*

Powerlink believes that, where possible, adopting a roll-forward based on the regulatory accounts is the more practical method. To the extent that the asset mix installed as a result of the actual capital investment differs to that assumed in the decision capex forecast, the decision depreciation will differ from the actual depreciation both in totality and in the individual asset classes. Hence, basing the roll-forward on actual depreciation will maintain the correspondence of the regulatory asset base with the physical and financial asset base.

Additionally, using the same roll-forward as in the regulatory accounts minimises the cost of the regulatory process, avoids unnecessary complexity, is more transparent and uses the regulatory accounts in the manner in which they were intended. The opening asset base that applies for the following regulatory period is simply the closing asset base that appeared in the last set of accounts – the penultimate year – rolling forward one year based on forecast costs.

### **4.3 Prudency testing and optimisation**

The roll-forward approach should add in efficient and prudent capex. Powerlink acknowledges that a roll-forward mechanism of the form that adds in actual spend

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<sup>10</sup> Allen Consulting Group, *Methodology for Updating the Regulatory Value of Electricity Transmission Assets*, August 2003, p. 32.

(as opposed to a fixed allowance) would involve a regulatory check that the capex incurred was prudent. Powerlink fully expects the ACCC and its consultants to review pertinent documentation and data to confirm prudence.

The prudency check should test prudency at the time that the investment decision was made and the review should only consider information that was available at that time. In particular, Powerlink agrees with the ACCC:

*“At the regulatory reset the Commission will conduct a review on whether the regulatory test application was conducted in accordance with the process and methodology outlined in the regulatory test.”<sup>11</sup>*

The ACCC goes further to comment:

*“In its review of a TNSP’s actual expenditure, the Commission would anticipate that the cost at which a project satisfies the regulatory test may differ from the actual construction cost.”*

This can occur for many reasons beyond the control of the TNSP. In the prudency test, Powerlink would expect to be able to demonstrate, on a case by case basis, and to the extent necessary, why the costs differed from the assumed costs.

Powerlink notes that for its internal approval processes for capex projects which do not require a Regulatory Test, it performs an economic analysis consistent with the Regulatory Test. We would support the provision of this economic analysis for the ACCC’s prudency test of significant non-augmentation capital investment.

Powerlink contends that the use of a prudency test confirms that the investment was prudent at the time it was made and it is thus incompatible with optimisation of assets based on “perfect hindsight”. We also note that TNSPs have never been recompensed for the existing risk of optimisation.

**Powerlink, therefore, proposes that the ACCC recognises in the statement of regulatory principles that optimisation is incompatible with the use of a prudency test and that its use be ceased, or**

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<sup>11</sup> Discussion Paper, p. 37.

**alternatively, if optimisation is to be retained, that this risk factor be incorporated into the WACC.**

## **4.4 WACC**

### **Introduction**

The return on capital component of the transmission revenue regulatory regime constitutes a significant component of a TNSP's revenue cap. Setting a rate of return that will continue to encourage investment is fundamental to an effective regulatory environment. A rate of return that is too low will adversely affect incentives for on-going investments and, in the aftermath of the major blackouts in North America, it is clear that a secure and reliable power system needs to remain the focus of regulators in future decisions. In the draft decision of the Tasmanian Transmission Network Revenue Cap, the ACCC make the following statement:

*“The ACCC considers that a secure and reliable transmission system is vital to an efficient electricity market. The Productivity Commission has argued that it is better to err on the side of overinvestment in the event of regulatory uncertainty, as the costs of under investment outweigh the costs of overinvestment.”<sup>12</sup>*

In the Discussion Paper however, the ACCC indicates that the recent regulatory WACC determinations have been conservative and is signalling a continued tightening of the WACC parameters in the future. This expectation of even lower future returns will discourage long-term transmission investment in Australia and could pose a threat to the stability of the transmission network in our country. In the Washington Post Robert Samuelson captures what we believe to be the key of effective regulation:

*“Society’s true interest does not involve the lowest possible electricity rate. The public’s interest lies in completely reliable electricity produced at reasonable prices. There is a difference.”*

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<sup>12</sup> ACCC's Draft Decision of the Tasmanian Transmission Network Revenue Cap, p. 46.

### Forced versus discretionary transmission investment

It is clear from recent public statements by Commissioners Samuel and Willett about the historic level of transmission investment being an indicator of the appropriateness of the regulatory settings that the ACCC has some fundamental misunderstandings about the drivers of transmission investment in the NEM, and in particular, has a lack of appreciation of the difference between forced investment and discretionary investment.

Most of the transmission investment in the NEM is driven by the need to maintain reliability standards. Failure to do so means contravening the transmission licence, and risking the loss of that licence (ie going out of business). This risk is particularly explicit in the States which have privatised their assets. In short, most of the transmission investment in the NEM is forced. One cannot, as the ACCC has done, draw conclusions about the appropriateness of the level of WACC from the quantum of forced investment.

In contrast, TNSPs are not compelled to invest in interconnectors and in alleviating intra-regional market constraints. Any such investment is discretionary, and the level of investment will be influenced by the WACC margin (over the risk free rate).

Further, given the declining level of WACC margin (see Figure 4.2 below), it is not possible to extrapolate from historic levels of discretionary investment to justify the unacceptably low WACC margins handed out in the latest decisions.

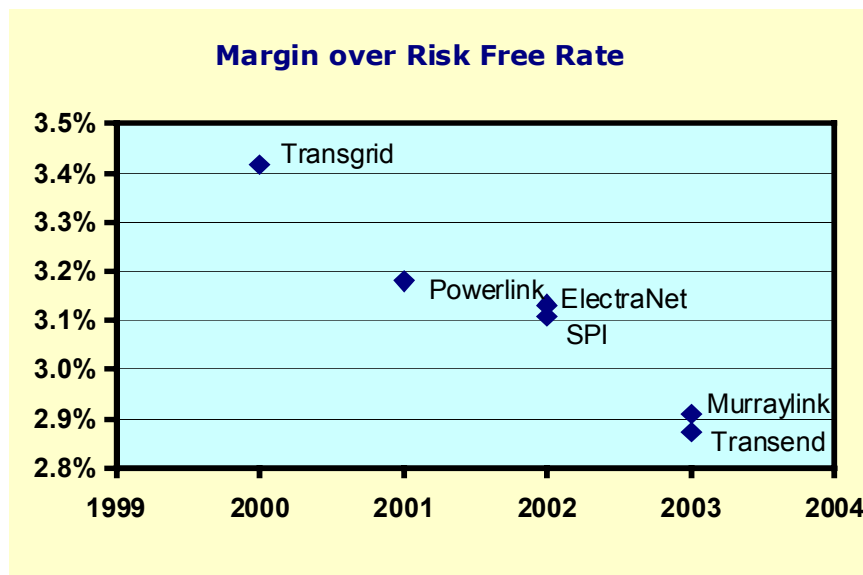
### Margin over the risk free rate

The margin over the risk free rate has been decreasing with each transmission revenue cap determination (refer Figure 4.2). The decision of many overseas investors to exit the Australian infrastructure sector creates a significant challenge and the margins are now at levels at which desirable, discretionary new investments (eg interconnectors, alleviation of intra-regional constraints) are no longer attractive. Investors looking at these investments versus other opportunities for their capital do not slavishly academically analyse the CAPM and its micro-elements. Academic dissertations on individual WACC elements are a sideshow to the “main game” of the investor’s key decision – is the margin above the risk free



rate attractive enough to support the *discretionary* investments? In relation to the latest WACC decisions (Transend, Murraylink) the answer is a categorical no. This may or may not be a concern for those networks, but encouragement of these discretionary investments is a huge issue for Queensland.

Figure 4.2. Chart showing the trend of falling margins above the risk free rate



### Weighted average cost of capital and CAPM

The ACCC is implying both implicitly and explicitly that recent WACCs are conservative and thus creating an expectation that the WACC will trend down over time. As a result of the destabilising environment this creates there is a need to draw a ‘line in the sand’ with respect to WACC parameters and to ensure TNSPs will receive a margin above the risk free rate that is acceptable and conducive to an effective incentive regulation framework.

NERA suggest that in order to minimise the range of expectations businesses face regarding future WACC parameters, the ACCC should:

*“... clearly enunciate the values of the CAPM parameters and/or the process by which those parameters will be determined in future decisions. It could be made clear that the*

*ACCC's intention is that these values/processes will not change over time except under exceptional circumstances and where extensive consultation on any changes is made.*<sup>13</sup>

**Whilst Powerlink appreciates that the ACCC wants an academic model like CAPM, we believe there is an over-arching need to test the reasonableness of the theoretically computed outcome against the real world question – is the WACC margin (above the risk free rate) high enough to encourage discretionary investment?**

Powerlink also submits further analysis on the individual WACC elements in the following sections. However, it must be emphasised that after considering the various components of the WACC and CAPM frameworks, the ACCC should also apply the above-mentioned overall reasonableness check of the calculated vanilla WACC margin. Further adjustment of the individual parameters may be required to deliver a reasonable rate of return outcome.

### Risk free rate

The ACCC maintain that using a bond rate that is longer than the regulatory period rewards the TNSP for additional interest rate risk which is not being borne and therefore prefer to adopt a 5 year bond rate. However as NECG demonstrate in its submission on the Discussion Paper:

*“This is a clear risk for regulated entities. They are concerned about the downside risk of borrowing short-term – that they may not be able to achieve refinancing at the terms and conditions that are available to them at the time an asset is acquired....Therefore, unless the regulator credibly commits to allowing actual debt margin to be used at each determination of the cost of debt, it is prudent for the regulated entities to borrow long-term”<sup>14</sup>*

We do not believe that the use of the 5 year rate recognises the risk and long term investment periods of capital assets. Also, the planning horizon of a TNSP exceeds the 5 year regulatory period, requiring investment commitments being made within one regulatory period for the next.

<sup>13</sup> NERA, *Drawing a Line-In-The-Sand for the Regulatory WACC*, November 2003

<sup>14</sup> NECG, *2003 Review of the Draft Statement of Principles for the Regulation of Transmission Revenues*, November 2003

**Therefore, we maintain that it is appropriate to use the 10 year bond term to estimate the risk free rate.**

However, in discussions with the ACCC they have indicated to us that they may allow the TNSPs to make a 'once-off' choice on the bond rate to be applied. If this is to be the case, Powerlink would seek to make that decision at our next reset and lock it in.

**With respect to the length of the period for calculating the moving average for the risk free rate Powerlink supports the ACCC's position of allowing the TNSP the discretion to choose the period when making its application.**

#### Market risk premium

The risk free rate within the CAPM framework serves as a benchmark for the debt margin and the market risk premium (MRP). Accordingly, if a risk free rate based on a 5 year bond yield is adopted then a corresponding adjustment needs to be made to the MRP to maintain internal consistency.

The ACCC currently adopts 6% for the MRP, which has been estimated with reference to 10 year bond rates, and applies the 5 year bond rate in calculating the risk free rate. This inconsistency results in rates of return that are underestimated.

**Powerlink believes an MRP of 6% is appropriate when a 10 year framework is employed, however if a 5 year bond rate is adopted a corresponding adjustment needs to be added to the MRP in order to ensure consistency.**

#### Beta

Powerlink notes that compiling and examining recent market evidence is a standard part of the process of estimating betas in each regulatory decision. The extremely limited number of comparators available in the Australian market and in particular, the volatility that is inherent in the (limited) Australian data that is available, give rise to fundamental statistical analysis difficulties. The degree of

confidence that can be placed on such data to produce a robust and reliable estimate of beta should be critically evaluated in each regulatory decision. Unless an appropriate degree of caution is exercised in interpreting trends in data, premature conclusions could be made about the directional trends in the data.

Powerlink considers that it is recognition of the practical difficulties associated with measuring betas that led Allen Consulting to qualify the results of their recent study on betas, and caution against over-reliance on the results.

The ACCC suggest one approach to addressing the limited amount of market data when calculating a proxy equity beta is to incorporate an upper confidence interval into its statistical analysis.

However there appears to be two fundamental errors in the ACCC's analysis as demonstrated in the NERA paper. NERA state that:

*“... the ACCC has used a two-tailed confidence interval to establish a single-tailed upper bound probability... The second error arises from the fact that the ACCC has reported an upper bound estimate of the **population mean for comparable firms** rather than the upper bound estimate of the  $\beta$  for **an individual firm** (such as an individual TNSP).”<sup>15</sup>*

When using the statistical analysis, adjusted for these errors, it results in an equity beta that is not statistically significantly different from 1, which has been adopted by the ACCC to date.

The beta value adopted is used to set the allowed rate of return which will not be revisited during the regulatory period. Under such circumstances, we consider that it is incumbent upon regulators to ensure that any changes to betas are based on clear and conclusive evidence that betas have in fact permanently changed.

**Due to the volatility in beta measurements and as shown by the results of the adjusted statistical analysis, we do not accept that there is any conclusive evidence to suggest that the “true” equity beta is less than 1.0. Furthermore, to ensure some long term**

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<sup>15</sup> NERA, *Evaluation of the ACCC's Proposed Approach to Statistical Estimation of Equity Betas for TNSPs*, November 2003.

**regulatory consistency, we support a ‘line in the sand’ approach of setting the beta at 1.0.**

**Cost of debt**

It is a requirement under the National Electricity Code that the debt requirements be set based on benchmarking of private enterprises:

Schedule 6.1 of the Code states in paragraph 2.1:

*“The weighted average cost of capital is a “forward looking” weighted average cost of debt and equity for a commercial business entity. Accordingly, the Network Owner’s weighted average cost of capital will represent the shadow price or social opportunity cost of capital as measured by the rate of return required by investors in a **privately-owned company** with a risk profile similar to that of the network company.”*

In clause 6.2.4(c), the Code puts the obligation on the ACCC:

*“In setting a separate revenue cap to be applied to each Transmission Network Owner and / or Transmission Network Service provider (as appropriate) in accordance with clause 6.2.4(b), the ACCC must take into account the revenue requirements of each Transmission Network Owner and / or Transmission Network Service Provider (as appropriate) during the regulatory control period, having regard for:*

...

- (4) the weighted average cost of capital of the Transmission Network Owner and / or Transmission Network Service provider (as appropriate) applicable to the relevant network service, having regard to the risk adjusted cash flow rate of return required by investors in **commercial enterprises** facing similar business risks to those faced by the Transmission Network Owner and / or Transmission Network Service provider (as appropriate) in the provision of the network service.*

The ACCC considers an “A” credit rating represents an appropriate benchmark rating for electricity transmission companies. However the list of companies used by the ACCC in the Discussion Paper are primarily Government-owned entities which distorts the average credit rating applied to determine the debt margin and violates the principles of competitive neutrality.

We would note that the only Australian transmission entity with significant private ownership, ElectraNet SA, is rated BBB+ and not A.

**Powerlink believes a more diverse range of companies needs to be considered if a debt margin that is comparable with private sector investments is to be established.**

#### Debt raising costs

Further regulatory uncertainty is created by separating the debt raising costs as an explicit allowance in opex. Powerlink believes the debt raising costs are an intrinsic part of the debt margin and the WACC methodology and should continue to be recovered through the return on capital allowance.

**However, the overriding principle is to ensure these costs are recognised in the regulatory process and recovered by the TNSP.**

#### Equity raising costs

**Powerlink supports the ACCC's preferred approach to include equity raising costs as an allowance in the operating cost component.**

#### Gearing

The ACCC have adopted a gearing ratio of 60% in recent determinations and prefers to maintain its current approach to benchmarking the gearing of a regulated firm. **Powerlink supports this view as it demonstrates consistency in the regulatory process.**

#### Imputation credits

Powerlink does not believe there is any basis for an increase in the value of gamma and furthermore empirical evidence indicates that the ACCC's value is at the upper end of adopted gamma values.

**Therefore Powerlink supports the ACCC's preference to retain the current value of 50% for gamma and to draw a 'line in the sand' around this value in order to maintain regulatory consistency.**

### Asymmetric risk

The CAPM approach used to determine a rate of return assumes that certain risks are diversifiable and therefore investors can expect a return on any risks that cannot be avoided through diversification. NECG state:

*“The very nature of the regulatory process involves imposing an asymmetry in the range of possible outcomes – a fact that should alone justify the explicit recognition of the need for consideration of this issue in regulatory exercises.”<sup>16</sup>*

As the asymmetric risks facing regulated companies are not recognised in the CAPM there needs to be some form of adjustment made to the regulatory returns, either through the CAPM model or through explicit cash flows.

Regardless of the approach, the TNSP should be provided with a mechanism that recognises the additional risks facing each company and accounts for these issues appropriately.

## 5 Operating Costs

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In principle, and assuming that the ACCC can appropriately account for significant differences and features of the operating environment (eg geographical distances, load density), Powerlink supports the use of benchmarking to set opex allowances and incentives. However, we understand the problems involved in deriving a robust benchmark (particularly the small population of peers to draw from, choice of measures, etc). Pragmatically, then, the current approach, which uses benchmarks as a “reasonableness test”, appears the best solution in the foreseeable future.

However, the ACCC can easily increase the strength of the incentives by:

- ❑ adopting a carry-over efficiency sharing scheme that is independent of when in the regulatory cycle efficiencies were made;
- ❑ lengthening the period that efficiency gains can be retained by TNSPs to two regulatory periods.

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<sup>16</sup> NECG, 2003 Review of the Draft Statement of Principles for the Regulation of Transmission Revenues, November 2003

This chapter discusses these points in more detail.

## **5.1 Benchmarking & cost model**

In principle, and assuming that the ACCC can appropriately account for significant differences and features of the operating environment (eg geography), Powerlink supports the use of benchmarking to set opex allowances and incentives.

If benchmarking is used to set operating costs there must be two steps to the benchmarking process:

1. establishing that the base costs are efficient and
2. projecting the base forward.

Incidentally, if benchmarking is only used as a “reasonableness check” only the first step is required.

Powerlink is recognised as a very efficient transmission company, consistently achieving high efficiency results when benchmarked against other Australian transmission companies or international transmission companies. It is important however that any benchmarking techniques adopted utilise a methodology that normalises operating costs for company specific factors such as state legislation and network specific factors such as geographic area of operations, the distribution of demand, the asset mix, distances that electricity is transmitted, etc. Together these network specific factors form a primary cost driver for determining the efficiency of operating expenditure, ie the transmission asset base.

When projecting the benchmark into the future, it needs to include forward cost drivers (such as changes in volume, scope, wage costs, trends, etc). An important driver of operating expenditure is labour rates, which drive the cost of planning and maintaining the network as well as corporate support functions. Furthermore, as the asset base ages and the overall network expands in response to additional demand growth, additional resources are required to carry out the operational duties such as maintenance.



A potential shortcoming of external benchmarking results from inappropriate benchmarks being adopted, which could lead to unintended regulatory consequences insomuch that true efficiency is not recognised and already efficient companies are not rewarded proportionately. In particular, Powerlink would not support the introduction of a benchmarking model which only gives rewards for incremental efficiency improvements above a company's own present level. The model must reward existing absolute efficiency versus others.

With the potential of errors in the benchmark, we consider it appropriate for the ACCC to set targets at a level where it can be confident that the TNSP can fund its required operation and maintenance costs, without degradation of service level.

Powerlink recognises that the development of such benchmarks has a number of difficulties. Among these are the small population of appropriate peers to use to build the benchmark, the choice of measures, etc.

Hence, pragmatically, it would appear that the best solution is to continue to use endogenous forecasts of operating costs for the time being, with the benchmark data used as a "reasonableness check".

## **5.2 Incentive mechanism**

From a regulator's perspective, incentive mechanisms aim to encourage companies to "reveal true efficient costs" by providing strong financial incentives to search for efficiencies in their operations. The longer a company can keep its share of the efficiencies, the stronger the incentive. Once efficiencies are made, the cost base is lowered to a new base level. The important questions for regulated businesses are:

- When can they make savings to maximise returns?
- How much of the savings can they keep?
- How long can the savings be retained?

Any incentive mechanism specified by the ACCC should primarily ensure that savings are shared fairly between the TNSP and customers in order to provide a strong incentive on the TNSP to minimise operating costs. In addition, incentives

that provide consistency of benefits over time, ie do not skew the benefits based upon when the saving is made, are beneficial to the businesses inasmuch as they promote continuous improvement.

Ultimately, Powerlink's support for any such scheme would depend on the detailed mechanism for retaining efficiency gains and the mechanism by which past costs affect future benchmarks.

The ACCC also questions whether regulated entities have an incentive to make their costs look higher towards the end of a regulatory period. Powerlink believes that the provision of annual regulatory accounts to the ACCC removes this possibility, as any profiling of costs will be clearly apparent to the ACCC. However, an efficiency sharing scheme that rewards efficiencies equally irrespective of when they happen would remove this concern completely.

#### Criteria for incentive mechanism

Powerlink supports the development of high powered incentives for operating costs. It is desirable that incentives should be constant over time to ensure that the transmission company retains a constant share of the benefits from operating efficiencies irrespective of when the efficiency was made. This will allow companies to adopt a continuous improvement approach to achieving efficiencies.

Lengthening the period that regulated companies are able to retain the efficiency savings can also increase the strength of the incentive. **Powerlink proposes that TNSPs be able to retain efficiency gains for 2 regulatory periods.**

As previously discussed, we do not see any real and material opportunity for a transmission company to effectively substitute capital investment for operating costs. Consequently, there is no requirement for the incentives for capital investment and operating cost efficiencies to align. Indeed, it may not be possible to provide a mechanism that meets this criteria, as a \$1 saving in capital investment only returns a benefit proportionate to the WACC per annum, whereas a \$1 permanent saving in operating costs returns a benefit of \$1 per annum.

### **5.3 Efficacy of cost reduction incentives**

Well thought out and executed benchmarking provides clear correlation between operating costs and performance, allowing transmission businesses to demonstrate efficiencies in specified operational activities. Provided that this is combined with an effective and fair incentive program, this could promote optimal efficiency in operating costs.

However, if either the benchmarks are inappropriately selected or executed, or the incentives do not provide sufficient return to a company for taking the risk in developing new working practices then this method will not provide any benefit over the current regime.

### **5.4 Insurance & pass-through**

Powerlink agrees with the ACCC's position that events should be recompensed either by the insurance allowances or by a pass-through mechanism, ie that there should be no overlap of the events being insured against between the three risk mitigation methods. However, by the same logic it is important to ensure that guidelines do not preclude recompense for legitimate claims that may fall between the three alternatives.

#### **Insurance**

Insurance costs include premiums, deductibles and costs of events that are insurable but are too small to be claimed or that are not insurable at all.

Powerlink considers that the issue of self-insurance has not been treated appropriately.

Recent determinations have allowed companies to self-insure with the condition that, if a rare event occurs on the first year, say, the company bears the entire cost. This is overly onerous to the TNSP.

Powerlink considers that an allowance for self-insurance should be used to “smooth” the consequences of these rare (and possibly uninsurable events<sup>17</sup>). When the rare event occurs, the pass-through that would apply would be the difference between the cost of the event and the value of the self-insurance reserve at the time – hence, lowering the immediate price shock due to the event.

### Pass-through

The ACCC states for an event to be considered a pass through event it should only affect the TNSP and not the market generally, the ACCC goes on to state that:

*“systematic or market risk should be addressed in the WACC parameters”<sup>18</sup>*

Powerlink agrees with this principle. However, we believe that the WACC has not sufficiently recognised such risks in the past. In fact, the ACCC has indicated in consecutive resets that these risks will be considered less still. By excluding systematic and market risks, the proposals on insurance and pass-through can only provide a balanced risk between the TNSP and customers if these WACC parameters are correctly set.

In addition, the proposals for the pass-through mechanism are weighted against the TNSP, inasmuch as the events must have their “*scope precisely defined*” prior to the event. This would exclude any unidentified events that adversely affect the TNSP from being considered a pass-through event, whilst “*the Commission reserves the right to initiate pass-through reviews at its discretion*”, presumably for events that result in a benefit to the TNSP. This opens up the possibility of windfall losses for the TNSP.

An improvement to the existing proposals is for the criteria to be defined that any event must satisfy for it to be considered pass-through, rather than the scope of the specific events. This will ensure that unidentified events are included within the mechanism.

Furthermore, the principle that for a pass-through event to be accepted as such “*the financial impact of the event is better borne by parties other than the TNSP*”

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<sup>17</sup> Powerlink notes that it is not possible to find a commercial insurance provider that will insure transmission lines.

<sup>18</sup> Discussion Paper, p. 49.

allows significant subjectivity on the part of the ACCC, even when all other considerations are met by the event. This is an unsound principle, which cannot be objectively defined.

**Powerlink proposes that the criteria that a pass-through event must satisfy are defined and published (rather than the scope of the event), and that the ACCC commits to reviewing any such pass-through events that meet these defined criteria.**

## **6 Revenue Cap Decision Making Process**

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Powerlink considers that the ACCC's proposals are appropriate as regards the length of the regulatory review process, the running of public forums and the treatment of late submissions. However, Powerlink does not agree with the ACCC's views on the use and treatment of confidential data.

### **6.1 Confidentiality requirements**

There are numerous reasons why some TNSP data should be maintained confidential by the ACCC during the revenue resetting process, viz:

- ❑ Commercial information related to purchasing a service from a supplier could be used by the supplier to affect the price that they would otherwise bid for goods or services. This could be to the detriment of consumers.
- ❑ Condition of contracts.
- ❑ Data pertaining to staff costs could be contentious with unions and hinder negotiated operating cost efficiencies.

We believe that the ACCC's stated position in the Discussion Paper does not acknowledge the array of reasons that exist. We consider that during the regulatory review process there are different levels of information requirements; each with a corresponding level of detail. Our position is that:

- ❑ Information should be made available to the market for a 'reasonableness check' of the TNSP's forecasts and for affected participants to understand

the impact of the forecasts on them. For these purposes, data can be aggregated and summarised at a reasonably high level so as not to jeopardise confidentiality. Further, it would be impractical to offer all the detailed information at this stage for participants to perform a detailed scrutiny of the forecasts.

- Information should be made available to the ACCC and its consultants to carry out a more detailed analysis of the TNSP's forecasts. For these purposes, information will be required in a level of detail appropriate for the building block being considered. In some cases where it is appropriate to apply a more light-handed approach to a building block, high level information may be all that is required. However, we recognise that where a more intrusive approach is appropriate, more detailed information may be required. Powerlink has always maintained a position of co-operating with the ACCC on this and to make this information available where appropriate. However, the risks of misuse of information (particularly confidentiality implications) outweigh the benefit of making it available in the public domain.

Ultimately, the proposals on confidentiality requirements could lead to a stark choice of making confidential information public or risking revenue by being forced to rely on a weakened argument, which potentially penalises the TNSP for making prudent commercial arrangements.

**ATTACHMENT 1. KPMG: “Depreciation and Asset Base Roll Forward”**



**Powerlink Queensland  
(on behalf of Powerlink Queensland and  
ElectraNet SA)**

**Depreciation and Asset Base  
Roll Forward**

KPMG Energy and Natural Resources  
November 2003

*This report contains 19 pages*

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# **1 Introduction**

## **1.1 Background**

This report follows a workshop with Powerlink Queensland ('Powerlink') and ElectraNet SA ('ElectraNet') on 7 November 2003. At that workshop, KPMG were requested to provide advice on specific areas associated with asset roll forward and depreciation in the context of the ACCC's discussion paper on the Statement of Regulatory Principles. It was agreed that KPMG would respond with a discussion on:

- The treatment of differences between forecast and actual capital expenditure at the end of a regulatory period;
- The use of depreciation as an offset to changes in asset valuation; and
- The use of annuity depreciation.

## **1.2 Disclaimer**

Please note that, in accordance with our Firm's policy, we are obliged to advise that neither the Firm nor any member nor employee undertakes responsibility in any way whatsoever to any person or organisation (other than Powerlink and ElectraNet) in respect of information set out in this paper, including any errors or omissions therein, arising through negligence or otherwise however caused.

## **2 Roll forward and Capital Expenditure**

Powerlink and ElectraNet requested that we set out a summary of the workshop discussions in relation to treatment of capital expenditure variations (forecast compared to actual) and depreciation expenditure variations (forecast compared to actual) at the end of a regulatory period. Specifically, the discussion focussed on:

- Whether forecast (approved) capital expenditure at the commencement of the previous regulatory period, or actual capital expenditure during the previous regulatory period, should be 'rolled into' the capital base for the next regulatory period;
- Whether forecast (approved) depreciation at the commencement of the previous regulatory period, or actual depreciation as calculated during the previous regulatory period, should be subtracted from the initial capital base for the next regulatory period; and
- The impact of differences between forecast and actual expenditure, in the under or over recovery of revenue during the previous regulatory period.

We note that our scope of engagement did not include forming a view on the most appropriate method of rolling forward the asset base for all TNSPs. Further, the most appropriate method of rolling forward the asset base will essentially depend on the individual circumstances of the business and the regulatory environment in which they operate.

### **2.1 Forecast (approved) versus Actual Capital Expenditure**

Differences in capital expenditure are a fact in most regulatory resets due to the difficulty in forecasting capital expenditure (due to changing generation patterns) and demand over the forecast period. Notwithstanding that revenues are set for a five year period (or in the case of Murraylink – 10 years), the TNSP will still need to meet Code and licence obligations, and service standards on an annual basis and therefore need to reinforce the network to meet demand. The TNSP may need to advance, or it may find the opportunity to defer capex depending on standards, demand and capacity at the time. Forecast capex is therefore likely to differ to outturn capex.

For capex to be rolled into the rate base, it will have to be deemed to be prudent or efficient, at least to the regulator. The degree to which one can assess all capital expenditure as efficient or prudent without detailed investigation will depend somewhat on the degree to which there is an incentive based regulatory system. Under incentive regulation, the business should have sufficient incentive not to over capitalise, or over spend opex and capex. In the absence of workable incentive based regulation, the regulatory review process may require an assessment of the outturn capex to ensure that it is efficient.

Efficient capex should then be rolled into the asset base to maintain the financial capital maintenance concept, providing a return to the investor for appropriate, efficient capital invested. If outturn capex is not rolled into the rate base, it is likely that the business will not

invest in the network, and the NEC principle of providing a regulatory system that fosters efficient investment will not be met.

The result of using actual capex in place of the forecast decision capex is that there are likely to be differences in the calculation of depreciation that need to be considered.

## **2.2 Forecast (approved) versus ‘Actual’ Depreciation**

A regulator’s allowed revenue decision will usually identify an allowance for depreciation in the application of the building blocks methodology. This “decision” depreciation is based on a set of assumptions which include:

- The amount of capital expenditure to be spent in the forecast period;
- The mix of capital expenditure allocated to different “standard life” groups;
- A degree of averaging in the calculation of depreciation for initial assets and capital expenditure where it is not practical to model the asset register on an asset by asset basis;
- Whether there were any customer contributions associated with that capital expenditure; and
- The forecast of CPI for the regulatory period.

Actual depreciation calculated by the business will reflect:

- Actual capital expenditure including the mix of capital expenditure within classes of asset lives;
- When the capital expenditure is incurred during the regulatory period (which year, and when during that year);
- A more detailed accounting of assets which may include calculations at an individual asset level; and
- Actual CPI.

Even in the event that the amount of outturn capital expenditure may closely represent that forecast, other factors are likely to ensure that the outturn depreciation is different to that provided in the decision.

In developing the roll-forward calculation, a TNSP is presented with two options. The roll-forward could be conducted with either:

- Outturn depreciation (calculated from within the TNSPs own detailed systems); or
- Decision depreciation (adjusted for actual CPI).

Allen Consulting, in their paper on the Methodology for Updating the Regulatory Value of Electricity Transmission Assets<sup>1</sup> recognises that either approach could be adopted, but notes that other regulators have adopted the later for simplicity.

When acknowledging that either approach is acceptable in a roll-forward, Allen's accept that in the case of using outturn depreciation, the business has not been fully compensated for the appropriate depreciation<sup>2</sup>. Therefore, in the case of a capital expenditure overspend (as compared to forecasts) the business will be under compensated for depreciation. Since the Allen's paper states that either approach is acceptable, it follows that if the business is only compensated through decision depreciation, but the roll forward conducted with outturn depreciation, then any over or under depreciation should be carried forward as a charge in the next period. To ignore this would result in windfall gains in underspending on forecast capex or windfall losses on overspending on forecast capex.

### **2.3 Impact on Long Term Required Revenue and Possible Treatment**

Over or under-recoveries in revenue will occur if actual capital expenditure and/or actual depreciation during the previous regulatory period varied from that allowed by the Regulator. Mechanistically:

- If actual capital expenditure was less than allowed capital expenditure, a company will have over-recovered on both the return on, and return of assets within the revenue setting process; and conversely
- If actual capital expenditure was more than allowed capital expenditure, a company will have under-recovered on both the return on, and return of assets within the revenue setting process.

The company is likely to want to recover any shortfalls in return on and of capital not received in the previous period, as this represents forgone revenue not returned to the investor. To deny the investor of this return violates the capital maintenance concept of investment and returns ascribed to by the ACCC. It also contravenes the principles in section 6.2.2 of the NEC that requires that the regime provide a sustainable commercial revenue stream on efficient investment. The workshop discussed two alternative methods of recovering revenue under-recovered in previous periods. These were:

- Capitalizing the amount of under-recovery as an asset and earning a return on and of capital on that amount over the useful life of the assets concerned; or
- Taking the under-recovery in cash, by adjusting either the Po or X factor to allow it to be recovered over the following regulatory period.

There are pragmatic reasons for businesses wanting to obtain any recoveries in the short term, in that the rate of return that regulators have been allowing network companies to earn

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<sup>1</sup> Appendix A to the ACCC's discussion paper on the statement of regulatory principles

<sup>2</sup> Outturn depreciation is identified by TNSPs annually within their ACCC Regulatory Reports.

have been declining since reforms commenced. KPMG has analysed the trend in the allowed rate of return for regulated network businesses in Australia, and there is a clear downward trend after allowing for differences in the real risk free rate over time<sup>3</sup>. This downward pressure on WACC lowers the return over time, and a TNSP is therefore concerned with obtaining returns as early as possible and is not indifferent to the timing of returns as might be assumed by the regulator.

Providing that the present values of either treatment are identical, however, the choice on which option to take depends largely on the extent of regulatory risk inherent in the system<sup>4</sup>. This is essentially because the true extent of regulatory risk is not generally thought to be included within the WACC formula used to calculate the present value of each option.

If this notion of regulatory risk is not included within the WACC, it holds that the business will prefer to obtain the under-recovery sooner rather than later by an adjustment in cash flow rather than through a glide pathing approach. Indeed, this is a direct response to the issue that regulators have been too focused on extracting “monopoly rents” from the businesses at the expense of encouraging investment. The recent Productivity Commission<sup>5</sup> (PC) report is clearly critical of this and suggests that regulation can result in either too much or too little infrastructure investment, with the risks of the latter outweighed by the risks of the former<sup>6</sup>. Indeed, the PC stated that “*So-called ‘regulatory risk’ under the regime is greater than it need be.*”<sup>7</sup>

This negative sentiment is somewhat reinforced by the absence of any references in the ACCC’s discussion paper to the recent Productivity Commission review of the National Access Regime, the CoAG report on Energy Markets and the Epic Energy court case which are discussed below.

### **2.3.1 Regulatory Risk and the Absence of National Context in the Discussion Paper**

These three milestones in the Australian regulatory environment should be considered, or at least referenced, in any deliberations on effective and appropriate regulation. These developments highlight a widely held view amongst policy makers that energy market regulation in Australia is at a crossroad, between the current application by regulators and the need to ensure that infrastructure owners earn a fair rate of return on investment.

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<sup>3</sup> We are also aware that interest rates have changed over the period of comparison.

<sup>4</sup> This risk includes how the Regulator will treat any incremental capital value associated with asset revaluations.

<sup>5</sup> Productivity Commission, Review of the National Access Regime: Inquiry Report, 28 September 2001

<sup>6</sup> Or that “in resetting price caps, regulators should set rates of return and revenue or price caps that err towards the interests of infrastructure owners (i.e. a degree of economic rent should be allowed to accrue to infrastructure asset owners.)”. ESC, Review of Gas Access Arrangements: Draft Decision, July 2002, p.ix.

<sup>7</sup> Productivity Commission, Review of the National Access Regime: Inquiry Report, 28 September 2001, p.xxi.

### **2.3.1.1 Productivity Commission - Inquiry into the National Access Regime**

An important element of National Competition Policy reforms of the 1990s was the establishment of a National Access Regime (the Regime) in Part IIIA of the *Trade Practices Act* (the TPA). This allows third parties to seek access to the services of certain essential infrastructure facilities on reasonable terms and conditions. The reforms provided for a review of the Regime following five years of operation.

The Productivity Commission (PC) completed this review and strongly supported the retention of the Regime. Nevertheless, it highlighted the need to modify some aspects of the Regime and made 33 recommendations to improve its operation. In particular, it identified as a “*threshold issue, the need for the application of the regime to give proper regard to investment issues*” and “*the need to provide appropriate incentives for investment.*”

The Commonwealth Government has decided to make changes to the TPA which “*endorse the thrust*” of the PC’s recommendations. In particular, the Government will modify the Regime along the following lines:

- Include a clear objects clause: “*The objective of this part is to promote the economically efficient operation and use of, and investment in, essential infrastructure services thereby promoting effective competition in upstream and downstream markets...*”
- Insert pricing principles: “The Australian Competition and Consumer Commission (ACCC) must have regard to the following principles:
  - (a) *that regulated access prices should:*
    - (i) *be set so as to generate expected revenue for a regulated service or services that is at least sufficient to meet the efficient costs of providing access to the regulated service or services;*
    - (ii) *include a return on investment commensurate with the regulatory and commercial risks involved;*
- Include a provision for merit review by the Act of decisions by the ACCC on proposed undertakings.

The PC and the Government have recognised that the current application in Australia of economic regulation is being applied in Australia is leading to a serious risk of inadequate investment in essential infrastructure and is not in the public interest.

Moreover, the Government is making amendments to the Trade Practices Act to *clarify* the Regime and to provide further guidance to regulators, rather than fundamentally *change* it. It is therefore not the Regime itself that Government has decided is the problem; the problem has been the implementation of the Regime by the relevant regulators. This is an important realisation in a time where judgments are being made between prescription and flexibility in regulation.

### **2.3.1.2 The Epic Decision**

On 23 August 2002 the Western Australian Supreme Court made a decision in regard to the matter of *Re Dr Ken Michael AM; Ex Parte Epic Energy (WA) Nominees & Anor* [2002] WASCA 231 (the Epic Decision).

The Epic Decision concerned the interpretation of the *National Third Party Access Code for Natural Gas Pipeline Systems* (the National Gas Code) and its application to Epic Energy's Dampier to Bunbury Natural Gas Pipeline by the Independent Gas Access Regulator of Western Australia. The Full Court of the WA Supreme Court accepted the basis of Epic's action.

A number of important principles emerge from the Epic Decision. Importantly, it raises the question of whether it is appropriate for regulators to rely on the notion of a perfectly competitive market in justifying their decisions. The Court held that a perfectly competitive market was not the appropriate standard for regulators to replicate in the context of the National Gas Code. According to the Supreme Court, references to competitive markets should be interpreted as references to *workably competitive* rather than perfectly competitive markets. In other words, regulation should aim to mimic the outcomes or, more accurately, the incentives found in workably competitive markets.

The Epic Decision therefore provides a strong endorsement of the PC's view that an environment of 'zero monopoly profit' is neither a realistic nor appropriate target for regulators to aim for.

### **2.3.1.3 CoAG Energy Market Review**

The recent CoAG Energy Market Review Report "*Towards a Truly National and Efficient Energy Market*" made a number of observations in relation to network regulation, and made four key findings:

- That whilst there is value in the wider debate, it is unclear at this stage whether it will yield a fundamental change in regulatory approach;
- That much of the current regulatory debate focuses on quite narrow issues, centering on the value of the regulated asset base and the appropriate return on capital;
- That the future debate would be most effective if it focused on moving regulation to a less intrusive form. It was noted that this may best be brought about by giving further consideration to regulators relying on industry wide rather than detailed company specific information; and
- That there is a need for immediate changes to address some of the obvious deficiencies.

The Report recommended priority action in relation to the following:

- Increasing certainty as to how the gains from cost reductions will be shared over time and on how particular investments will be treated in the cost base;



- Moving away from revenue caps which can cause unintended consequences when demand forecasts are inaccurate; and
- Including incentives for meeting defined service standards. Without such a regime, there is an incentive only to cut costs, which can work to the detriment of the network.

## **2.4 Summary**

The ACCC, through their advisers, Allen Consulting, have accepted that there are two alternative methodologies to the roll forward of the asset base. Allen's paper acknowledges that the roll forward of the asset base using the forecast depreciation approach rather than the outturn depreciation is somewhat simpler in application, but also recognises that either approach is acceptable.

We suggest that since TNSPs are presented with two options in the ACCC's discussion paper, they should not reduce their available options today by locking in one approach over another, and indeed might find it advantageous to argue for the appropriate roll forward methodology at the time of their respective revenue application. By taking this approach, a TNSP will therefore be able to consider which approach best suits its needs having regard to its specific circumstances, financial management systems and its ability to employ a specific roll forward methodology.

## **3 Asset Revaluation and Depreciation Adjustments**

### **3.1 Background**

This section sets out how and why depreciation adjustments are used by the ACCC as an offset to revaluations, and sets out one possible amendment to the ACCC's proposed treatment based upon the need for the revaluation.

While acknowledging that it can see no immediate need to revalue jurisdictional asset bases, the ACCC has put forth a number of options in relation to the impact of revaluations. On page 18 of the Discussion Paper, the ACCC states that they could:

*“revalue the asset base and any rise or fall in the value of the asset base could be accounted for by positive or negative depreciation.”<sup>8</sup>*

The discussion paper notes that alternatively, the ACCC could:

*“Choose to revalue the asset base and any rise and fall of the asset base would not be accounted for by depreciation”<sup>9</sup>*

### **3.2 Relationship between Revaluation and Depreciation Adjustments**

#### **3.2.1 Adjustments through depreciation**

The ACCC quite rightly recognises that the first approach neutralises the effect of the revaluation, as depreciation is only a return of the capital invested in the network.

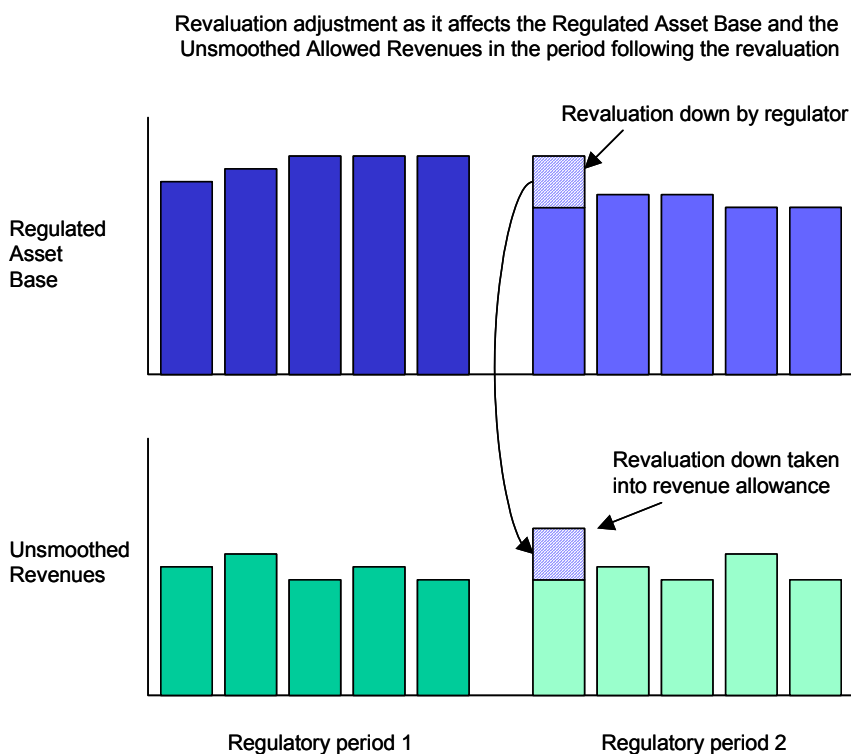
For example, in the case of a revaluation adjustment that reduces the value of the regulated asset base (RAB), that valuation adjustment could be effected through an appropriate charge to depreciation. If that depreciation is included in the building blocks methodology for determining allowed revenue, and therefore returned to the investor, the investor is no worse off as a result of the valuation adjustment. The premise that the investor is no worse off is based on the assumption that the investor can obtain at least the regulated WACC on an alternative investment.

The revaluation adjustments that reduce the RAB and that result in an adjustment to depreciation are illustrated in the following example, where the effect of a decrease in the opening RAB of a new regulatory period results in a corresponding increase in the allowed revenues in the new regulatory period.

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<sup>8</sup> ACCC Discussion paper – page 18

<sup>9</sup> Ibid



In the above illustration it may appear that the business has lost a return on the revaluation adjustment, but since the capital is returned to the investor (through the increase in the depreciation component in the allowed revenue calculation), the investor is allowed to invest this capital in other opportunities on which it can derive a return<sup>10</sup>.

Similarly, when the revaluation involves an increase in the RAB, a corresponding amount of negative depreciation (reduction in revenue) is applied. This is similar to the business investing in a piece of capital expenditure on which it will earn a return in the future. The returns sacrificed today (through a revaluation adjustment to depreciation) will be returned to the investor over the life of the associated assets through a return on and of the capital employed.

### 3.2.2 Adjustments to RAB without the depreciation allowance

The alternative approach discussed by the ACCC, and one that they suggest is more appropriate will result in any revaluation adjustment being taken to the regulated asset base only, and not through the depreciation account. This will result in windfall gains or losses.

<sup>10</sup> We note that the original basis on which the investor contributed capital to the TNSP will not have been fulfilled. The observation in this paragraph will hold to the extent that investors do not demand a higher return as compensation for unanticipated early return of capital in a dynamic model,

In accounting terms, a single sided entry which reduced the value of the assets would impact on future returns on and of capital.

Of course there is another side to this view and it is possible that a revaluation may result in an increase in the RAB, and therefore a windfall gain in future revenues resulting from a return on and of capital associated with the revaluation adjustment.

We are unaware of any increases in the valuation of RABs that have resulted in a significant windfall gain to the regulated entity. ElectraNet SA in their 2002 application for a revenue reset applied for a revaluation of assets including easements. The revaluation resulted in an increase of more than 10% of the value of the regulated asset base. The ACCC's final decision did not allow any significant increase of asset values however it did result in a reassessment of some previously optimised assets, which suggests that there may be a place for a revaluation adjustment without reference to the depreciation charge in a final regulatory decision.

### **3.2.3 When should the different approaches be adopted**

We have cited above an example of a certain revelation adjustment that can be tied to a specific event affecting the valuation of the RAB. That event was optimisation.

Where an optimisation adjustment results in a decrease in the RAB, our experience suggests that the adjustment to the value is carried out without any corresponding adjustment through depreciation. This may be applied where it is necessary to adjust the value of the business as to effect the adjustment through depreciation will not have a financial effect on the business in NPV terms. The ACCC has applied this principle in a number of TNSP decisions where assets are under-utilised or do not represent efficient investment for current demand condition. Other regulators have made similar adjustments without adjustments to the depreciation charge in order to reduce the value of the business to reflect a notion of a "brownfields" hypothetical new entrant. Therefore if an asset previously optimised out is brought back into service due to increased utilisation of the asset, then it seems fair that the re-optimisation adjustment should be considered on the same grounds as the original adjustment.

### **3.2.4 Application of the two alternatives**

As the two alternatives have a significant value impact for a TNSP, we have considered below, the alternative treatment of these two valuation adjustment principles and where they might be used:

<b>Adjustments involving a charge through the depreciation account (No change in the NPV of the revenue stream)</b>	<b>Adjustments involving no charge through the depreciation account (Will result in windfall gains and losses)</b>
Correction for errors in depreciation rate (standard lives or remaining lives)	Correcting for errors in replacement cost and application of benchmark valuation methodology
Accelerating depreciation to recognise obsolescence	Correcting for errors in the physical asset data base on which the valuation methodology has been applied
Recognising changes in replacement cost	
Recognising changes that need to be reflected in prices without penalising the business (to correct for intergenerational charging issues)	

It is worth recognising that valuation adjustments can result in an increase or a decrease to the asset values and where adjustments are not reflected in a charge through depreciation, a regulated business will have an incentive to seek increases to the RAB. Correspondingly, the ACCC will be seeking to reduce the RAB in order to reduce prices to customers. Any desire by a business to open a review of the RAB to effect an increase using this approach should be tempered by the ACCC's desire to review other valuation principles which may have greater downside risk for the business than the upside potential of windfall gains.

### 3.2.5 Conclusion

Adjustments to valuations through the depreciation account are broadly consistent with the capital maintenance concept employed by the ACCC. It has very little effect on the NPV of the cashflows of the business as capital is returned to the investor through depreciation today or at some future time. If the business accepts the WACC allowed by the regulator then the business is indifferent to this revaluation approach.

Adjustments to the valuation other than through the depreciation account will be of concern to the regulated business. It is true that there exists the possibility of windfall gains to the business, but there is also a risk that there will be windfall losses to the business if the regulator can find reason to reduce the value of the assets. As windfall gains will result in price increases to customers, it is unlikely, based on passed experience, that the ACCC will approve material valuation adjustments.

Accordingly, it follows that compensatory depreciation adjustments should only occur where a revaluation due to changes in replacement costs has taken place. In other circumstances, such as errors in asset registers or other error corrections, no depreciation adjustment would be warranted.

## **4 Annuity Depreciation**

### **4.1 Background**

It is both an objective and principle of the NEC that the regulatory regime for the regulation of transmission revenues must have regard to the need to provide a fair and reasonable rate of return to TNSPs on efficient investment. This means that if the ACCC changes the real value of an efficient investment, and therefore changes the value to which a rate of return is applied, the change in the real value of the efficient investment (e.g. due to depreciation or revaluation) should equal the return of assets to the TNSP.

This principle is consistent with the financial capital maintenance concept (FCM). FCM requires that the financial value of an entity's net assets at the end of a period equals the financial value of the entity's net assets at the beginning of the period, after adjusting for any distributions to, or contributions from, the entity. Net assets, in the context of the NEC, are the financial value of efficient investment.

The above principle is likely to have an impact on another NEC principle that the regulatory regimes should create incentives for efficient investment. If the TNSPs face significant risk that asset investments will not be fully recovered through return of assets, then the TNSP will have a skewed incentive to under invest, and visa versa.

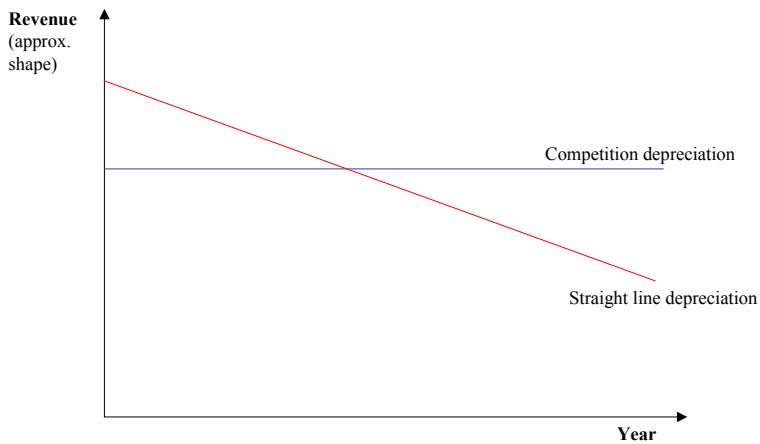
The above principles say nothing about the timing of the return of assets to the TNSP. The timing of depreciation is important because of its impact on the profile of annual transmission revenue caps, and hence on prices.

In light of this, there are three basic ways of calculating a return on assets:

- A nominal rate of return plus a linear depreciation schedule, based on historic costs.
- A real rate of return plus a linear depreciation schedule, based on current cost accounting.
- A nominal/real annuity based on a nominal/real rate of return.

Annuity depreciation is essentially the selection of a stream of payments to the business that equates to an agreed return on and of assets. It achieves the objectives of depreciation in a broad sense, in that it ensures that the investor is compensated for the value of its investment. From the economic perspective of depreciation, how the asset is depreciated does not matter as long as the investor is compensated for the full value of its investment.

The chart below contrasts the annuity versus straight-line methods of depreciation.



The ACCC has considered annuity depreciation<sup>11</sup> for some time in its draft statement of Regulatory Principles, however it has not employed this method in practical regulatory decisions, most of which have been prepared using a straight-line depreciation methodology on an current cost asset base.

Prima facie, Powerlink and ElectraNet do not consider that annuity depreciation offers significant benefits to the appropriate determination of revenues for transmission service providers. Powerlink and ElectraNet asked us to consider three points in order to consider this issue in detail:

- Whether the use of annuity depreciation offers the TNSP a materially different revenue stream when compared to straight line depreciation; and
- Complexity of calculating annuity depreciation in a practical sense.

## 4.2 Impact of annuity depreciation – materiality

It is unlikely that the use of annuity depreciation would impact materially on revenue streams, compared to conventionally used straight-line depreciation / return on asset depreciation<sup>12</sup>. This is because:

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<sup>11</sup> Annuity depreciation is sometimes referred to as competition depreciation.

<sup>12</sup> We have reached this conclusion on the basis that a mature portfolio of assets, with no expansion of services and no technological change, will exhibit a steady state real written down value and weighted average age of the asset base over the long term.

- Asset-related transmission revenues, calculated by conventional straight-line methods, account for about 10% of total electricity costs paid for by end users<sup>13</sup>. While this of itself is a reasonable proportion of the end use customer bill, the increment between annuity and straight-line depreciation costs is not likely to impact on annual regulatory returns to any significant degree. The ACCC's focus on this issue highlights its ongoing push for greater prescription for its own sake. As an illustration, the customer's own demand variability is likely to produce fluctuations which are more significant than that which might be attempted to be removed by annuity depreciation;
- Over the long term, the return of, and on assets satisfies the capital maintenance principle under both methods of calculation. This is because both methods of calculation will provide for assets to be replaced at the end of their useful life, with only the timing of the payments differing under each option. Given that mature transmission networks tend not to have significant fluctuations in straight line depreciation calculations due to the size of capital expenditure relative to the existing network asset base, straight-line depreciation / return on asset approach is likely to deliver a relatively constant real asset-related revenue stream. In saying this, we acknowledge that, by leveling the capital charge the (real) annuity method assists intergenerational equity (users at different dates make same payment for one unit of service; under straight line, earlier generations pay more than later generations). This has been discussed on a number of occasions in the US regulatory literature, however US practice continues to favor straight line.

The principle of over precision is also relevant to this issue. The Productivity Commission noted that<sup>14</sup> *a sensible goal should be to improve significantly on unregulated outcomes, while recognising that precision is not possible*. In our view, the long-term immateriality of annuity depreciation, compared to straight-line depreciation, is another example of undue precision in regulation, without corresponding increases in regulatory outcomes.

### 4.3 Complexity

While the annuity approach to calculating returns on and of capital is conceptually simple, its practical application is likely to be more complex than straight-line depreciation and require the resolution of a number of difficult issues. Many of these issues do not arise in the calculations under a straight-line approach, and relate both to the precise annuity formula to be adopted in the final approach, and the inputs into the annuity formula. These are not clearly defined and would be subject to considerable judgement in the implementation of an annuity approach.

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<sup>13</sup> The Electricity Supply Association of Australia indicates the revenues of government-owned electricity businesses in 2001/02 in *Electricity Australia 2003*. Based on this, transmission revenues in Queensland, NSW/ACT and Tasmania are about 14% of total electricity revenues in those states. Asset-related revenue accounts for about 75% of transmission costs.

<sup>14</sup> PC Inquiry Report



The complexity of using annuity depreciation derives from a number of issues, some of which are discussed below:

- Annuity depreciation formulae are not intuitive. By way of observation, there is an error in the annuity formula for integrating technological change in the ACCC's Draft Statement of Principles for the Regulation of Transmission Revenues (Box A5.1 on page 66) that appears to illustrate that the ACCC has had its own difficulties in the practical application of the annuity depreciation approach.
- In order to practically implement an annuity approach, the ACCC and industry will need to agree on the way in which many issues will be dealt with. Some of these philosophical issues include, but are not limited to:
  - How the ACCC's particular approach in relation to annuity depreciation will remain consistent with the concept of financial and operational capital maintenance. Straight-line depreciation is in our opinion consistent with the financial capital maintenance approach as currently implemented and provides a workable benchmark for setting regulatory outcomes;
  - How the ACCC will determine the basis for the written down value of assets at the time of the transition between the straight line and annuity approaches. We note that straight line depreciation is well entrenched in TNSP systems and there will be no transition issues if this were to remain;
  - How the ACCC will determine the level of asset class at which the annuity approach would be applied, and in particular how averaging would be applied to account for different classes of assets. We note that definition of asset classes and the issue of averaging can be calculated relatively easily under the straight line depreciation approach as the averaging principles are linear;
  - Whether a tilted annuity would be applied, and if so how and whether it would incorporate an agreed rate of technological change. The rate of technological change would need to be adjusted in future on some basis to be agreed by the ACCC and TNSPs. We note that straight-line depreciation is relatively easily understood, and any accelerated depreciation for technological change can be carried out through adjustment to the remaining lives of those assets;
  - How the annuity approach would be applied to the written down value (WDV) of assets or the optimised replacement cost (ORC) of assets. Straight-line depreciation is deducted from the written down value. Calculation of straight-line depreciation is relatively easy through the determination of average remaining life based on WDV or ORC averaging. Further, having established a commissioning date it is a relatively easy and logical process to calculate a WDV for any particular year under the straight-line approach; and

- How the method of annuity depreciation would adjust for changes in WACC over time, particularly given that changes in WACC will change the rate of the annuity return at a point in time. The calculations to be employed to derive the asset value remaining at the time the WACC changes are more complicated than the straight-line approach, and may become more complicated with asset averaging for a limited number of classes. Straight-line depreciation, by comparison, allows for a relatively simple calculation of the written down value at a point in time. This can then be used to derive a return on assets through application of the relevant WACC.

Overall, there is significant regulatory precedent, although always room for debate, in resolving such issues within a straight-line depreciation approach. There is, by contrast, little precedent for such resolution in the annuity approach.

Further, with revenue resets generally being conducted at five-year intervals, there is likely to be considerable complexity associated with the annuity calculations being reset at the beginning of each five years. The reset process will need to consider at the very least, how it might adjust for differences in capital expenditure between forecast and actual expenditure achieved, differences in WACC and CPI and the complexities of averaging for the forecasting necessary to deliver a determination. It is difficult to see how the complexities associated with applying these issues through an annuity depreciation approach will deliver a benefit to the determination of revenues under a building block approach.

## **4.4 Summary**

In summary, we consider that:

- The differences between the annuity and straight line depreciation models is not likely to be material to TNSPs; and
- The annuity depreciation model is far more complex than the conventional straight line depreciation method, primarily because of the lack of precedent in resolving key practical and implementation issues with the annuity approach. Resolving these between industry and regulators will be a lengthy process, after which time a judgement call on the benefits of the approach could be better made.

Given these factors, it is unlikely that the selection of an annuity depreciation method would satisfy section 6.2.2 of the NEC, which notes that the regulatory regime to be administered by the ACCC should achieve an efficient and cost effective regulatory environment. Even in the absence of such a provision, it seems sensible to allow TNSPs with the flexibility to approach annuity depreciation at their own pace, and subject to the appropriateness of the method to their own business.