TransGrid

Making Incentive Regulation For Electricity Transmission Work (and Workable)

TransGrid's Response to the ACCC's Discussion Paper on the Statement of Regulatory Principles

November 2003

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MAKING INCENTIVE REGULATION FOR ELECTRICITY TRANSMISSION WORK (AND WORKABLE)

1 INTRODUCTION

This submission has been prepared in response to the Australian Competition and Consumer Commission's (ACCC) Discussion Paper on the Review of the Draft Statement of the Principles for the Regulation of Transmission Revenues (SORP).

The ACCC's initiative in taking steps to finalise the current draft SORP is welcomed. It has been clear for some time that transmission businesses have been subjected to risks for which they are not adequately compensated, many of which are related to unsettled regulatory arrangements. This review provides an opportunity to rectify this situation and provide a platform for these businesses to efficiently deliver the services so essential to the reliable and economic provision of electricity to the Australian community.

In this regard the importance of the role played by the regulator cannot be understated. An inappropriate emphasis on reducing transmission prices can result in the inadequate levels of transmission infrastructure that plague other countries, including the US. Overly intrusive regulation can stifle innovation and result in the regulator assuming accountability for transmission performance. On the other hand effective regulatory incentive arrangements can unlock the real potential of transmission businesses in the Australian National Electricity Market ('the NEM') over the short, medium, and long term.

The challenges facing the ACCC in carrying out this role are daunting. Among other matters the Australian transmission regime is modelled on the incentive regulation concept developed initially in England & Wales. However, the transmission function in that country includes system operations, and is provided on a 'for profit' (commercial) basis. In Australia a number of functions that impact significantly on transmission performance, such as system operations (NEMMCO) and, in some instances, transmission planning (VENCorp) are provided by 'not for profit' bodies. This clearly places key transmission functions out of reach of the commercial incentives developed by the regulator. It also means that the lessons from England & Wales about incentive regulation of transmission need to be adapted to local conditions before being introduced here.

In summary, the consultation on the SORP will need to be undertaken thoroughly and thoughtfully if these challenges are to be addressed. Expectations of all interested parties from the process need to be realistic. Importantly, a process is needed to ensure that the role of the SORP is properly understood by stakeholders and that provides the vital balance between evolution and certainty.

1.1 The Role of the SORP

TransGrid notes that the ACCC's Draft Statement of Regulatory Principles was released in May 1999. Since that time, the ACCC has undertaken regulatory reviews for each of the transmission network service providers (TNSPs). In each of these reviews, the ACCC has

either confirmed the approach on certain issues outlined in the Draft SORP and, in others, moved away from the position set out in the Draft SORP.

The ACCC is now beginning to undertake the second round of regulatory reviews of the TNSPs, with its review of both TransGrid's and EnergyAustralia's revenue requirements for the period 2004/5-2008/9. The process of second reviews will inevitably bring into renewed focus principles set out in the Draft SORP which are particularly relevant for 'second reviews', such as the issue of how to determine the opening asset value for the next regulatory period, and the determination of the 'prudency' of capital expenditure which has been undertaken during the first regulatory period.

As already noted, and in the light of the evolution in the regulatory environment for TNSPs, TransGrid supports the ACCC's review of the Draft SORP. In particular, TransGrid considers that it is important for the ACCC to also consider the *role* of the SORP, in the context of the wider regulatory environment and the interaction between the SORP and the National Electricity Code ('the Code') and the individual Decisions the ACCC makes for each of the TNSPs.

TransGrid notes that the SORP is a unique document from the perspective of both other regulatory jurisdictions within Australia and regulatory regimes overseas. TransGrid sees merit in having a central document in which the approach the ACCC intends to take to the regulation of electricity transmission businesses is set out. In particular, such a document improves the certainty of the regulatory framework and, as a result, enhances the strength of the incentives provided by that framework. However, TransGrid also acknowledges that the SORP will need to be a 'living document', which evolves in the light of experience and developments in regulatory thinking. The ACCC itself notes in the Discussion Paper that:

> 'The *Statement of Regulatory Principles* is not legally binding and it must be accepted that, in line with achieving best practice regulation, the Commission's position on some issues may change. The Commission expects that the *Statement of Regulatory Principles* will evolve in response to improvements in regulatory models and best practice regulation worldwide.'[1]

The fact that the SORP is expected to be a living document highlights the importance of setting out clearly the process by which the document is expected to evolve and, specifically, the interaction between the SORP and the individual Decisions made by the ACCC for each TNSP. In TransGrid's view, and in line with TransGrid's understanding of the requirements of Administrative Law, this process should adequately address:

- The reasonable expectations of regulated TNSPs that, if a process, principle, or rule is contained within the SORP that it will generally be adhered to unless amended via a predetermined process; and

[1] ACCC Discussion Paper, p. 4.

- Requirements that any process undertaken to amend a process, principle, or rule contained within the SORP should provide reasonable opportunity for affected parties to review and comment on proposed changes and have those comments fairly considered and taken into consideration against the requirements of relevant legal instruments such as the National Electricity Code.

1.2 Process for Finalising the SORP

The finalisation of the SORP (albeit as a 'living document') will be a challenging process. In particular, it will require considerable development of the approaches to be taken to issues raised by the ACCC in its current Discussion Paper. These issues go to the heart of the Australian regulatory regime for electricity transmission assets, with its focus on incentive regulation. TransGrid again notes that there are no direct precedents for much of the regulatory approach which has been adopted for the regulation of the TNSPs. In the absence of the demonstrated applicability of certain aspects of the regime in other jurisdictions, the importance of ensuring a thorough exploration of the issues becomes even more vital.

TransGrid believes that the ACCC's Discussion Paper is an important first step in this process. However, given the complexity of the issues raised, TransGrid does not believe that the issues can be 'solved' in a single round of consultation. In this submission, TransGrid has focused on what it sees as the fundamental underpinning of the ACCC's approach to the regulation of TNSPs: the incentive regulation framework. In doing so, TransGrid highlights potential options that exist for the further development of the regime, drawing on the areas highlighted in the ACCC's Discussion Paper. At this stage, TransGrid raises many of these options in the interest of ensuring that all options are considered in the debate, rather than as an advocate of a particular approach. In order to develop the details of the regulatory framework which should be reflected in the SORP, further, more detailed, work will be necessary. TransGrid looks forward to working with the ACCC to develop an approach to incentive regulation for electricity transmission which is workable.

TransGrid notes further that the development of the SORP will remain important even with the decision to move to a single national regulator. Whether regulation is carried out by the ACCC or a single national regulatory body is an issue relating to the institutional structure of the regulatory framework. The SORP relates to the *substance* of regulation, which will need to be addressed whatever the institutional set-up.

1.3 Structure of This Submission

The remainder of this submission focuses on the issue of incentive regulation, as TransGrid considers this to be the fundamental underpinning of the ACCC's approach to the regulation of electricity transmission. The ACCC's Discussion Paper focuses heavily on incentives,

and the Code contains the objective that the transmission revenue regulatory regime should achieve outcomes which are efficient and cost effective and are incentive based.[2]

TransGrid stresses that it is important to consider the entire regulatory framework as a complete package, in order to determine its incentive properties. Analysis of the approach taken to operating expenditure or to capital expenditure alone, without due consideration for how asset values are set or the WACC is determined, will not give a true picture of the overall incentives provided by the revised SORP package.

The structure of the remainder of this submission is as follows:

- Section 2 focuses on the objectives for incentive regulation and considers the incentives under the 'current framework';
- Section 3 discusses the role of benchmarking;
- Section 4 considers the appropriate approach to the incentive regulation of operating expenditure;
- Section 5 discusses the incentive regulation of capital expenditure;
- Section 6 addresses the appropriate framework the SORP can provide for setting the regulated rates of return;
- Section 7 outlines five potential alternative frameworks for the regulation of TNSPs; and
- Section 8 concludes.

In discussing each of the issues highlighted above, TransGrid has also incorporated the related questions raised by the ACCC in its Discussion Paper, and presents answers to those questions throughout the submission.

[2] National Electricity Code, clauses 6.2.2 – 6.2.3.

2 OBJECTIVES FOR INCENTIVE REGULATION

The ACCC sets out three criteria for an 'incentive mechanism' in its Discussion Paper:

i. incentives for cost-reducing effort which are constant over time;

ii. roughly equal incentives for cost-reducing effort on operating expenditure and on capital expenditure (ie, constant incentives across the business' operations); and

iii. subject to achieving (i) and (ii), the mechanism should have the 'highest possible' incentive for cost reduction, whilst ensuring adequate incentives for maintaining service quality.[3]

The ACCC expresses these criteria in its discussion of 'incentive mechanisms'. However, all aspects of the regulatory regime will have an impact on the incentives the regulated business faces. For example, the incentives for future capital investment will depend on the details of how the ACCC proposes to determine the opening asset base for the next regulatory period, particularly the treatment of differences between projected and actual capital expenditure.

As a consequence, the criteria put forward by the ACCC for 'incentive mechanisms' can be considered applicable to the broader issue of the appropriate overall form of incentive regulation for electricity transmission businesses.

TransGrid supports the criteria put forward by the ACCC. However, TransGrid would also propose the following additional objectives for incentive regulation:

- the elimination of, or compensation for, asymmetric risk;
- a transparent process for determining the extent of 'cost reductions';
- a reasonable balance being struck between the magnitude of incentives and the fair sharing of any productivity improvements (or inefficiencies) with customers; [4] and
- a reasonable balance being struck between the objectives of 'light handed regulation' and the information requirements necessary to make a high-powered incentive regime work.

TransGrid also considers it important to be clear on exactly what incentives are being provided for. The above criteria focus largely on cost-reduction (assuming a continuation of service quality). However, in the case of electricity transmission, there is also the wider issue of the role of transmission in the overall National Electricity Market. To the extent that a wider role for transmission investments is an overall market objective, in terms of relieving congestion on the network and increasing the net benefit to the market as a whole, then an approach which focused purely on incentives for cost minimisation would be unlikely to also

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3 ACCC Discussion Paper, p. 56.

4 For example, incentives are maximised when the regulated business keeps more than 100% of any efficiency gains made, but this would result in customers actually being made worse off.

result in TNSPs being willing to 'champion' new, non-reliability augmentations. It may also impair or delay the delivery of investments essential to maintaining network reliability over time. The broader picture in terms of the role of transmission therefore also needs to be taken into account in the design of an appropriate incentive regulation framework. This implies that a further criterion for incentive regulation for TNSPs may be:

- providing an incentive for TNSPs to undertake transmission investment where such investment delivers a net benefit to the community from the National Electricity Market by, for example, relieving congestion and providing customers with access to the cheapest and most competitive generation sources.

The other side to providing incentives for cost reductions is, as the ACCC recognises in its Discussion Paper, ensuring that service standard objectives are also met. TransGrid notes that the ACCC is developing Service Standard Guidelines as a separate work-stream, which incorporates specific incentives in relation to service performance. TransGrid does not comment on these arrangements in this submission, except to note that:

1. It is important that the incentives (penalties) for cost reductions (increases) are commensurate with the penalties (rewards) for service standard reduction (increases); and

2. TransGrid's service obligations extend to meeting environmental and safety obligations, as well as meeting reliability standards and other obligations as set out in the National Electricity Code.

If the Commission were to specify an incentive mechanism in the statement of regulatory principles, what criteria should that incentive mechanism satisfy? Should other criteria be added?

TransGrid supports the criteria put forward by the ACCC but has also suggested some additional criteria as follows:

Adequate incentives are provided for TNSPs to undertake transmission investment where such investment delivers a net benefit to the community from the National Electricity Market

That the incentives (penalties) for cost reductions (increases) are commensurate with the penalties (rewards) for service standard reduction (increases),

That incentive schemes adequately recognise that TNSP service obligations extend to meeting environmental and safety obligations, as well as meeting reliability standards and other obligations as set out in the National Electricity Code.

2.1 Incentives Under the Current Framework

In terms of the three objectives outlined by the ACCC, it is arguable that the current framework does not deliver these:

- Incentives for productivity improvements are probably stronger at the beginning of the regulatory period, given that there is no clear mechanism to 'carry-over' gains from one regulatory period into the next;
- The magnitude of the incentives for cost reductions in either opex or capex are unclear and depend on issues of principle that have not yet been set out in detail by the ACCC. For example, the magnitude of incentives depends on the process for determining future expenditure projections and on the process (if any) for allowing the recovery of prudent expenditure which has been incurred in excess of projected expenditure; and
- The magnitude of incentives is lower than optimal due to the uncertainty in the current regime.

To what extent does the current approach of the Commission suffer from some of the problems mentioned?

The ACCC's 'current approach' to incentive mechanisms is less than clear and therefore suffers from all of the problems mentioned. Although the current Draft SORP specifies a glide-path approach to carrying-over efficiency gains, it does not appear that the ACCC intends to apply this approach in practice. In addition, as noted by the ACCC in its Discussion Paper, the role of past costs in setting future cost benchmarks has not been clearly set out.

In the remainder of this submission, TransGrid considers options for making the incentive regulation regime for electricity transmission more workable.

3 THE ROLE OF BENCHMARKING

The ACCC raises the possibility in the Discussion Paper of a greater use of benchmarking, for either operating expenditure or, potentially, even capital expenditure.

TransGrid believes that allowed revenues should, in general, reflect the revealed costs of the *business being regulated* rather than the costs of other businesses. This is based on the view that there are significant practical difficulties in accurately adjusting for different cost drivers across businesses. Indeed, TransGrid considers that these difficulties mean that benchmarking is potentially inconsistent with the Code's requirement to ensure that the business receives a 'fair and reasonable rate of return'.

TransGrid considers that benchmarking as applied in the UK has been highly problematic (see Attachment A). Consequently, TransGrid believes benchmarking is of limited current value (and will likely be of limited future value) in the regulatory process.

Focusing on providing an appropriate incentive framework for businesses means that more weight can be placed on the business' costs as having been 'revealed' as efficient, rather than benchmark costs. The ACCC itself notes in its Discussion Paper:

> 'High-powered [incentive] schemes, to the extent that they lead to strong incentives for cost-reducing effort, can reduce or eliminate the need for close scrutiny of the expenditure decisions of the regulated firm.'[5]

The ACCC appears to believe that a high-powered incentive regime can only be achieved through the use of benchmarking, TransGrid is not convinced that this is the case.

Moreover, the ACCC should also be aware that the use of benchmarking *requires* the regulator to be very well informed about the details of a business' costs compared to other comparable businesses, including the substitution between business's capex and opex expenditure and about substitution between each business's past and future expenditures. The idea that benchmarking creates a 'simpler' regulatory regime where the regulator plays a 'smaller' role is, in TransGrid's view, simply not correct.

Should the Commission apply benchmarking to individual components of the total allowed revenue (such as operating expenditure)? What are the problems that are likely to arise?

TransGrid considers that there are significant practical difficulties associated with benchmarking. Consequently, TransGrid believes benchmarking is of limited current value (and will likely be of limited future value) in the regulatory process. However, TransGrid welcomes and encourages the ACCC to undertake further work, in association with interested parties to confirm this position.

4 INCENTIVE REGULATION OF OPERATING EXPENDITURE

TransGrid agrees with much of the ACCC's analysis in the Discussion Paper relating to the provision of incentives for operating expenditure. On a matter of nomenclature, TransGrid prefers not to use the term 'incentive mechanism' to describe a mechanism used to alter/smooth incentives for efficiencies between regulatory periods. In TransGrid's view the entire regulatory framework is 'the incentive mechanism' and should be analysed as such. For this reason, TransGrid prefers the use of 'efficiency carryover' mechanism to describe what the ACCC refers to as an incentive mechanism.

As noted above TransGrid proposes that, for the foreseeable future, revenues will be set on projections of a TNSP's own operating costs (ie, rather than a benchmark approach). In setting these future cost projections, TransGrid also accepts that the ACCC will look to the TNSP's actual costs in the current regulatory period. TransGrid agrees with the ACCC that the overall incentives for achieving operating cost savings will be determined both by any explicit efficiency carryover mechanism for opex and the way in which the ACCC uses past information on actual operating costs to set future operating cost projections.

The key issues on which TransGrid wishes to comment relate to:

i. How the ACCC proposes to adjust for exogenous cost changes within the regulatory period. That is, what the form of regulation should be within the regulatory period;

ii. How the ACCC's proposal of a more 'mechanistic' approach to setting future opex benchmarks would take into account exogenous factors;

iii. The distinction between 'opex' and 'capex'; and

iv. The need for a more concrete description of 'the ACCC's proposed approach' to the efficiency carryover mechanism applied to opex.

4.1 The Form of Regulation Within the Regulatory Period

Under the CPI-X regulatory regime which applies to the TNSPs, allowed revenue during the regulatory period is set on the basis of expected costs over the period. Differences between actual costs and expected costs during the regulatory period do not result in a revision of the revenue control. This 'de-linking' of allowed revenues and costs during the regulatory period is at the heart of the incentives for efficiency provided under such a regime. Specifically, it provides an incentive for TNSPs to reduce the costs under their control below the level used to determine allowed revenue.

However, exogenous cost changes may arise during the regulatory period that were not foreseen at the time the expenditure benchmarks were established. Conversely, cost reductions may occur during the period as the result of external factors, rather than being

[5] ACCC Discussion Paper, p.51.

influenced by the actions of the TNSPs themselves. De-linking revenues during the regulatory period from these type of cost changes does not affect business' incentives, where these cost changes are outside of their control, but instead reflects a windfall gain or loss to the business.

Where exogenous cost changes can be identified, it is TransGrid's opinion that they should be reflected into higher (or lower) allowed revenues *during the regulatory period*. This can be achieved through at least two mechanisms:

- the use of cost pass-through mechanisms, which requires that the ACCC and the TNSP determine the appropriate amount to be added to (or removed from) allowed revenue on a case-by-case basis for a set of predetermined events (eg, storm damage, a material change in insurance premiums); and/or

- a mechanistic approach, which links allowed revenues to certain cost drivers (such as revenue increasing by $X per unit of additional network plant added during the regulatory period). Alternatively a price cap rather than a revenue cap could be introduced or some form of hybrid control could be used (such as allowable revenue is increased by Y% of any load growth beyond projected levels).

Both of these mechanisms for adjusting allowed revenues within the regulatory period require formulation of the framework/processes that will be undertaken to determine how the mechanisms will work in practice. For example, how will pre-determined events be defined under the cost pass-through approach? How will the ACCC assess the costs of a pre-determined event? How will the ACCC determine the appropriate variables and levels of compensation associated with a mechanistic approach to setting allowed revenues over the regulatory period?

TransGrid notes that the ACCC in its Discussion Paper states that its Decisions for GasNet and SPI PowerNet have established cost pass-throughs as an acceptable category of compensation and that it is therefore timely and appropriate to consider more detailed guidelines relating to theses matters for incorporation into the SORP.[6] TransGrid supports the general guidelines on cost pass-through set out by the Commission in its Discussion Paper.

Where either of the above approaches is in place, this addresses the asymmetric risk from external cost changes that the business may otherwise face. In the absence of such mechanisms (or where the mechanisms are poorly specified), the TNSP may face an asymmetric risk, which requires compensation through an addition to the allowed WACC. TransGrid notes that it is not currently compensated for the asymmetric risk it faces as a result of exogenous cost changes during the regulatory period. The ACCC's adoption of either of the approaches above would not therefore be a rationale for the ACCC to seek to reduce the WACC allowed for the TNSPs.

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6 ACCC Discussion Paper, p. 43.

The Commission would like interested parties to comment on the pass-through guidelines.

TransGrid supports the pass-through guidelines proposed in the Discussion Paper and the principle that the ACCC will apply a common approach to all TNSPs in relation to the operation of the pass-through mechanism.

4.2 A 'Mechanistic' Approach to Setting Future Cost Projections

Allowing for exogenous cost changes will also be necessary in setting future opex projections, when moving from one regulatory period to the next.

The ACCC's Discussion Paper raises the possibility of adopting a more 'mechanistic' approach to setting opex projections in future regulatory periods. However, there is insufficient description in the Discussion Paper currently in relation to how the more mechanistic approach would operate, other than a statement that 'the present value of regulated prices should be a function of the present value of cost out-turns in the previous regulatory period'.[7] Exactly how this 'function' would operate is at the heart of the issue and needs to be further explored before TransGrid could agree to a more mechanistic approach.

TransGrid sees considerable problems with setting future opex projections *equal to* the present value of cost out-turns in the previous regulatory period. Rather TransGrid believes that future projections would have to take account of trends in:

- real wage costs;
- increasing network size;
- changing average asset lives; and
- other exogenous factors.

In order to provide certainty as to how a more mechanistic approach to setting future cost projections would operate in practice, and to thereby have the greatest impact on incentives, it would be necessary for the SORP to set out in detail the processes which the ACCC would intend to follow under this approach.

7 ACCC Discussion Paper, p. 57.

Does the proposal (that the present value of regulated prices should be a function of the present value of cost out-turns in the previous regulatory period) achieve the objective of constant incentives for efficiency over time? What problems do you foresee with this approach?

TransGrid considers that the ACCC's proposal does achieve the objective of constant incentives for efficiency over time, provided the definition of 'a function of' is sensible. The problem with the proposed approach is that, if it is too inflexible in taking into account changed circumstances, it will jeopardize the Code objective of providing a reasonable rate of return to network owners.

Does the proposed approach still apply if the Commission cannot fully and correctly distinguish between controllable and uncontrollable costs? If not, how should the proposal be changed?

The ACCC should be required to the best of its ability to account for uncontrollable costs in using past cost information to set future cost projections (see below).

Should the Commission seek to clarify how past cost information will be taken into account when setting the cost benchmarks?

The ACCC should clarify how past cost information will be taken into account when setting future cost benchmarks. This is an important determinant of incentive properties, as highlighted by the ACCC.

This clarification might imply a more mechanistic approach to the setting of future revenues (such as a rule that future revenue is simply set equal to the average of past actual costs). Do you consider that a more mechanistic approach would be desirable if it clarifies the incentive properties of the regime?

TransGrid would have severe reservations about any single simple rule for setting future revenues that does not take into account exogenous factors such as: changes in real wage costs; increasing size of the network due to augmentation; changing average asset life due to past investments being lumpy; other exogenous factors. There is a real trade off between incentives and providing fair and reasonable returns.

Is a mechanistic approach feasible?

TransGrid believes that a <u>more</u> mechanistic approach may be feasible, but a <u>purely</u> mechanistic approach is not.

4.2.1 Adjusting for real wage costs

Perhaps one of the most significant exogenous factors that must be considered is growth in industry wide real wage costs. Labour is by far the most important input into operating costs for TransGrid and probably other TNSPs. Consequently, for any given growth in industry wide real wage costs TNSPs must achieve positive efficiency savings simply in order to 'stand still' in real operating cost terms. Since the inception of the ABS's wage cost index[8] for the electricity, gas and water industries, wage costs have grown at, on average, 1.0% faster than CPI – even if the GST CPI spike is left unadjusted. Adjusting for the GST CPI spike increases this difference to closer to 1.4%.

TransGrid believes that any implicit efficiency target imposed on businesses should be after real growth in industry or State wide wage costs has been accounted for. The linking of wage growth to CPI in determining future opex projections is inappropriate. Rather, real wages growth should be projected directly, using a relevant, exogenous measure of labour. Where possible this should reflect the specific conditions facing the TNSP (eg, should be state-based). TransGrid does not believe that this was done in its past regulatory decision when a 'TFP factor' was used to justify a required reduction in real operating costs of 1.55% without recognising that this imposed a much higher efficiency saving due to rising real wage costs. TransGrid believes that the SORP should give direct consideration to how exogenously determined growth in real wage costs should be factored into the setting of operating cost targets.

4.3 Distinction between Operating and Capital Expenditure

The ACCC does not directly raise the issue of whether it is appropriate to base the regulatory regime for electricity transmission on a distinction between expenditure that is opex and expenditure that is capex. While it is almost certainly appropriate for regulated businesses to continue reporting costs consistent with accounting standards, it is not obvious that this should dictate how these costs are treated within the regulatory framework.

At a conceptual level, if there are different incentive regimes applied to different cost categories then, other things constant, it will be most desirable for the definition of cost categories to be drawn such that the possibility for substitution between these categories is minimised. There is no *a priori* reason to expect that the associated definitions will be consistent with standard accounting or economic definitions of operating expenditure and capital expenditure. In particular, the extent of substitutability between opex and refurbishment capex may be greater than that between refurbishment capex and augmentation capex. This may argue for 'drawing a line' around opex and refurbishment capex, and treating them the same way in relation to the incentive regime applied.

We discuss this issue further in section 6 below.

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8 ABS, TABLE 11B. Wage Cost Index - Ordinary Time Hourly Rates of Pay Excluding Bonuses, Sector by Industry (Quarterly Index Numbers)(a)

4.4 More Concrete Description of the ACCC's 'Proposed Approach' to an Efficiency Carryover Mechanism for Opex Required

Finally, the ACCC does not set out its 'proposed approach' to the efficiency carryover mechanism to be applied to opex in any detail in the Discussion Paper.

TransGrid understands that the approach the ACCC is considering is similar to the 'rolling carry-over mechanism' applied by the ACCC to operating expenditure in its Final Decision for GasNet.[9] This in turn is similar to the carryover mechanisms applied by the Essential Services Commission in Victoria (for electricity and gas distribution businesses) and that preferred by the Essential Services Commission in South Australia (to apply to electricity distribution).[10] However, the ACCC does not state this explicitly in its Discussion Paper.

In order to provide maximum impact on incentives, the rules for how any incentive mechanism will be applied need to be set out clearly in advance. There is a need for the ACCC to provide more detail on this issue, so that submissions can be more specific. For example, would the definition of an 'efficiency' that is to be 'carried over' be measured relative to the *ex ante* target expenditure or relative to the target expenditure adjusted for *ex post* exogenous factors during the regulatory period? Would the carryover period be five years or potentially longer, in order to provide the 'highest possible' incentive for cost reductions? What assumption would be made about efficiency gains in the final year of the regulatory period, and how will this interact with the setting of future operating cost projections? Would there be a floor of zero applied to negative carryover amounts?

TransGrid would welcome a process to develop such details and would be pleased to contribute constructively to the development of these unresolved details on the form of efficiency carryover as part of such a process.

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9 ACCC, *Final Decision: GasNet Australia access arrangements revisions for the Principal Transmission System*, 13 November 2002.

10 Office of the Regulatory-General, Victoria, *Electricity Distribution Price Determination*, September 2000; Essential Services Commission, Victoria, *Review of Gas Access Arrangements, Final Decision*, October 2002; ESCOSA, *Efficiency Carryover Mechanism Working Conclusions*, April 2003.

5 INCENTIVE REGULATION OF CAPITAL EXPENDITURE

The incentives provided for capital expenditure under the regulatory regime will depend on the interaction between the way in which the opening asset base for each regulatory period is determined, the WACC and whether there is an explicit 'efficiency carryover mechanism' applied to capital expenditure. TransGrid is of the opinion that in order for incentive regulation of capital expenditure to 'work' businesses must be able to expect to maintain the financial value of their prudently invested capital expenditure. TransGrid believes that this is the fundamental linchpin on which the regulatory regime for TNSPs must rest. If this is not the case and if businesses are subject to windfall losses/gains in value due to circumstances beyond their control, including potentially arbitrary decisions of future regulators, then the investment incentives of the regime will be blunted.

The ACCC's Discussion Paper expresses a preference for rolling-forward the asset base at each regulatory review, rather than periodic revaluations of the asset base. At face value, this is consistent with principle of maintenance of the financial value of capital. Once an investment has been assessed as 'prudent' and is incorporated into the regulatory asset base the principle of financial capital maintenance requires that that value be *rolled-forward* into the regulatory asset base at its original value less any compensation provided for depreciation. At no future stage should that value be altered except if compensation of equal value is paid to the businesses.

If the ACCC, by proposing 'roll-forward' in the SORP, means that the SORP should adopt the principle of (prudently incurred) financial capital maintenance then TransGrid supports the concept of roll- forward. However, the discussion paper is less than clear on all aspects of the roll forward approach. Whether or not a roll-forward approach delivers financial capital maintenance (and the consequent incentive for capex) will depend on how new expenditure is rolled into the asset base. This includes, in particular, how capital expenditure is deemed to be prudent, and how any dfferences between projected capex at the beginning of the regulatory review and actual prudent capex at the end of the period are treated.

The Discussion Paper raises the possibility that all capex (ie, non-augmentation capex as well as augmentation capex):

- should be subjected to the regulatory test;
- should have its prudency measured *ex post* relative to cost of the project used in the regulatory test;
- should not be included in any explicit 'efficiency carryover mechanism' (in contrast to opex); and
- that the TNSP's projections of *future* capex should be assessed in relation to the regulatory test.

The remainder of this section considers each of these issues in turn.

5.1 Rolling-forward the Regulatory Asset Base

The ACCC expresses a preference in the Discussion Paper to 'lock-in' the asset value and then roll-forward on the basis of prudent capital expenditure in order to derive the opening asset value for subsequent regulatory periods.[11]

TransGrid notes that at the time of its first regulatory review by the ACCC, its opening asset base was not determined on the basis of a jurisdictional value, but was determined by the ACCC on the basis of a DORC valuation.[12] Specifically, the NSW Government submitted, and the ACCC authorised, a transitional derogation from the Code which provided greater clarity as to the freedom which the ACCC may, at its initial review, determine the method according to which TransGrid's opening asset base should be valued. TransGrid submitted a DORC valuation of the asset base (undertaken by Gutteridge Haskin and Davey Pty Ltd) to the ACCC, who then had the valuation reviewed by Sinclair Knight Merz (SKM). The ACCC's Decision in relation to TransGrid's opening asset base was based on SKM's DORC valuation,[13] with easements valued at their rolled-forward deemed historic purchase cost.

TransGrid notes that the original valuation for itself (and possibly for all other TNSPs) was highly conservative as it only valued physical infrastructure and did not place any value on the existence of TransGrid as a working firm. This fails to recognise that in a complex firm such as TransGrid a significant proportion of the firm's capital investment is in developing a functioning and 'living' relationship between its employees and stakeholders. This 'organisational capital' is expensive to develop and would be expensive to 'replace'. If a true DORC valuation of the firm was carried out including the costs that would be incurred in replacing the firm's organisational capital then the DORC value would have been much higher. Practical application of this can be seen by noting that it is extremely rare for firms to have a market capitalisation that is less than the replacement costs of physical assets and is common for them to have valuations many times this. TransGrid believes that the very conservative 'replacement cost' valuations put on these firms should be borne in mind by the ACCC when it considers arguments that TNSPs are earning super-normal profits.

Nonetheless, TransGrid considers that the adoption of the roll-forward approach from its previous DORC valuation is an approach which it is able to accept, subject to appropriate principles for conducting the roll-forward being consistent with the principle of the maintenance of the financial value of capital. TransGrid would not require a 'correction' to the previous valuation as the degree of 'under-valuation' by the ACCC at the time was relatively minor.

TransGrid notes that the roll-forward approach has the potential to provide greater certainty for the TNSPs in relation to the treatment of capital expenditure. However, crucially, the

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11 ACCC Discussion Paper, p. 25.

12 ACCC, *NSW and ACT Network Revenue Caps 1999/00-2003/4*, 25 January 2000, p. 64.

13 The SKM valuation was adjusted to account for a deferral in the re-optimisation of 500kV assets and the addition in work in progress relating to outstanding past capex.

incentives provided by the roll-forward approach will depend on the details of how the approach is applied. These details include:

- How the ACCC determines the prudency of capital expenditure before rolling it into the asset base;
- The treatment of any differences between projected capex at the start of the regulatory period and actual capex;
- The value taken for depreciation in conducting the roll-forward; and
- The treatment of any foregone returns (or additional returns) where actual prudent capital expenditure is above (below) that allowed for in the allowed revenues.

With the exception of the first point above, the Discussion Paper does not contain a discussion of the details of how the roll-forward approach will be applied. TransGrid considers that such details need to be clearly set out as part of the SORP, as they will determine the incentives provided under this approach.

TransGrid notes that in order for the business to be no worse off (better off) as a result of a prudent investment, the actual investment costs incurred should be rolled into the asset base at the beginning of the next regulatory period including a foregone return (or the repayment of additional returns) and without applying any depreciation to those costs. This approach assumes that the TNSP is indifferent between the return being offered in the next regulatory period and the expected return in subsequent periods – which in turn requires that there is some certainty about what future returns will be.

If this is not the case, then the TNSP would need to be compensated by receiving the foregone return and depreciation in relation to prudent capex expenditure above allowed capex as additional revenue in the following regulatory period (rather than having it included in the regulatory asset base and receiving the revenue over several regulatory periods). This in turn would have implications for future price paths. This highlights the importance of the ACCC adopting a 'line-in-the-sand' approach to deriving the WACC which reverses the current expectation that future returns are on a declining path (see Section 6 below for further discussion of this issue).

Finally, the question of 'locking in' successive roll forward valuations remains open. It is not clear whether the ACCC is able to lock in a valuation for a single regulatory period or successive regulatory periods. In this regard, if the ACCC considers that a move to 'roll forward' asset valuations, based on the principle of financial capital maintenance, is desirable then it may be necessary for TNSPs to propose a Code change to establish greater certainty in this regard. In TransGrid's view such a move is highly desirable to minimise doubt on this matter.

The Commission is seeking views from interested parties on how the Commission should deal with under or overspend on the allowed capex from the previous period.

TransGrid considers that the actual costs incurred should be rolled into the asset base at the beginning of the next regulatory period including a foregone return (or the repayment of additional returns) and without applying any depreciation to those costs.

TransGrid also notes that the ACCC has not previously allowed an amount in setting the WACC which reflects the risk of optimisation which the TNSPs face under a regulatory regime which incorporates periodic optimisation. Indeed, the ACCC explicitly *rejected* this approach in its previous Decision for TransGrid.[14] Although the current draft SORP allows for periodic revaluations, it also addresses the stranding risk that this implies through allowing for accelerated depreciation for those assets that are at risk of being removed from the asset base.[15]

As a result, TransGrid considers that there would be no justification for the ACCC to reduce the WACC it allows for the TNSPs as a result of a decision to adopt the roll-forward approach to asset valuation over an optimisation approach. TransGrid also notes that the move away from periodic optimisation does not remove the risk it faces that assets will not be incorporated into its asset base. This risk remains present under the roll-forward approach and depends on the approach taken by the ACCC to assessing the prudency of capex.

The Commission would like interested parties to comment on the three options:

- *Revalue the assets on a periodic basis (for example each five year regulatory period) using the ODRC methodology;*
- *In each regulatory period the rate base is determined by adopting the initial jurisdictional valuation and adding in new investment at cost; and*
- *One-off revaluation of the asset base using DORC, however, in subsequent regulatory periods the Commission will simply roll in new investment at cost.*

TransGrid considers that the adoption of the roll-forward approach from its current DORC asset valuation is an approach it is able to accept, subject to appropriate principles for conducting the roll-forward. However, the details of how the roll-forward approach would be applied in practice need to be clearly set out by the ACCC, so that the approach can be properly evaluated. Further, it may be necessary for a Code change to be proposed by a Code Participant, such as a TNSP, to adequately 'lock down' relevant principles such as the application of financial capital maintenance over successive regulatory review periods.

14 ACCC, *NSW and ACT Network Revenue Caps 1999/00-2003/4*, 25 January 2000, p. 27-37.

15 ACCC SORP, p. 52.

5.1.1 Depreciation

The ACCC comments in its Discussion Paper that:

> '[A] straight-line approach [to depreciation] for the electricity industry is easier to implement and gives rise to clearer incentives for efficient investment than alternatives such as annuity depreciation.'[16]

TransGrid notes that, provided the principle of financial capital maintenance is strictly adhered to, there is no 'correct' depreciation profile to apply within a regulatory framework. TransGrid considers that straight-line depreciation is likely to be an appropriate and practical assumption in the majority of cases. However, TransGrid is also of the view that permitting flexibility in relation to depreciation schedules provides a potentially useful tool for price smoothing between regulatory periods. The extent to which this tool can be used, however, will depend on whether or not the TNSP is indifferent between earning a return on its investment in this regulatory period or a later regulatory period. This will only be the case where the ACCC's approach to determining the WACC does not engender expectations of continually declining returns.

The Commission would like interested parties to comment on the use of straight-line depreciation.

Provided the principle of financial capital maintenance is adopted, TransGrid considers that straight-line depreciation is likely to be an appropriate and practical assumption in the majority of cases. Nonetheless, permitting flexibility in relation to depreciation schedules provides a potentially useful tool for price smoothing between regulatory periods.

5.1.2 Valuing easements

Easements are currently included in a TNSP's asset base on an historic purchase cost basis and rolled forward on the basis of additional purchase costs. Easement values are not currently depreciated.

The rationale for not depreciating easement values is that, once an easement is purchased, there will not be a need to renew the expenditure and re-purchase the assets in future. However, TransGrid considers that this rationale may not apply in practice. Easements are highly specific, being tied to a particular use (ie, electricity transmission). Where a line needs to be rebuilt, the transaction costs associated with the easement may need to be re-incurred. TransGrid therefore considers that there can be a case of depreciating at least that part of the easement value associated with transaction costs over the life of the transmission line.

[16] ACCC Discussion Paper, p.29.

The Commission seeks comment on whether and how easements should be optimised or depreciated.

Provided the principle of maintenance of the financial value of capital is implemented the issue of whether to specifically depreciate easements becomes, in reality, an issue about what average depreciation rate to apply to the entire asset base. Nonetheless, TransGrid does not believe that a strong case can be made against depreciating easements on the grounds that 'they last forever', as this is not the case.

5.2 Subjecting All Capex to the Regulatory Test

The ACCC raises the possibility that all capex could be subject to the regulatory test.

Currently the regulatory test only applies to augmentation capex. The ACCC has suggested that TNSPs voluntarily apply the regulatory test to non-augmentation capex as well.[17]

The driver behind the ACCC's proposal appears to be a desire to align the regulatory treatment of augmentation and non-augmentation capex, in terms of assessment of prudency and inclusion in the asset base. That is, the incentive regimes for both augmentation capex and non-augmentation capex would be aligned.

TransGrid's view is that the application of the regulatory test, particularly in its current form, to the replacement or refurbishment of assets would be highly problematic in practice. In most cases there would be no reasonable alternative project (other than construction of an equivalent replacement project). In addition, the administrative cost of applying the test to every replacement/refurbishment project is likely to outweigh the advantages of any discipline the test would impose on expenditure.

More fundamentally, TransGrid would question whether the incentive regime for non-augmentation capex *should* be aligned to that for augmentation capex. Potentially, a separate efficiency carryover mechanism could be imposed on replacement/refurbishment capex more similar to that applied to opex, which may create a superior discipline on expenditure without resort to the regulatory test. Section 5.4 discusses this further.

5.3 The Regulatory Test Cost Estimate as the Measure of Prudent Expenditure

The ACCC Discussion Paper spends some time considering the appropriate interaction between the regulatory test and the ACCC's *ex post* assessment of the prudency of investment. The assessment of prudency is touched on in the current draft SORP but does not contemplate interaction between the regulatory test and prudency assessments. The draft SORP was based on arrangements applicable to gas infrastructure, possibly in the

[17] ACCC, Discussion Paper, p.38.

interests of ensuring regulatory consistency across forms of regulated infrastructure that can sometimes act as substitutes for each other

The ACCC proposes that, in relation to electricity transmission, it will assess prudency by looking at whether the regulatory test process has been complied with. However, the ACCC also asks whether capex should be rolled into the asset base at the *value* used in the regulatory test, whilst recognising that actual expenditure may end up being above or below this value.

5.3.1 Problems with taking the regulatory test cost as a measure of 'prudent expenditure'

There are a number of problems with taking the value used in the regulatory test as the *ex post* measure of prudent expenditure.

The regulatory test as currently structured is a tool for ranking the expected net benefit (or expected net cost) of an investment compared with that of potential alternatives, *before* that investment proceeds. The outcome of the regulatory test is a relative *ranking* of alternative projects, rather than a particular value. As a result, the cost estimate used in the regulatory test is typically a single value, with a sensitivity analysis around that value. It is not clear where within this range the ACCC is proposing that the 'prudent' value for capex be set.

As a minimum, therefore, the approach used in the regulatory test would need to be modified if the value of the capital cost used in the regulatory was to become the *ex post* measure of prudent expenditure. In particular, it would be necessary to put in place a number of cost estimates associated with particular circumstances. For example, estimate A may be based on an exchange rate of A$1=US$0.70, a contract awarded for component X of the project at $Ym ,and so on. A probability weight would then need to be attached to each set of circumstances in undertaking the regulatory test. Then, when *ex post* prudency of the expenditure is being assessed, the cost estimate for those circumstances which most closely matches the *ex post* conditions would be adopted.

This approach would make the application of the regulatory test substantially more complex. It would also still be unlikely to capture *all* potential external cost drivers which could impact the project cost.

The regulatory test is necessarily carried out prior to detailed project design development and modification, community consultation, environmental impact assessment and planning approval. For practical reasons, these processes usually occur once a preferred project has been identified under the regulatory test, and are likely to result in a refining of the project, that may in turn have implications for project cost. These cost implications would generally be captured under the sensitivity analysis carried out as part of the regulatory test.

However, there would not be a single cost estimate used in the regulatory test which reflected actual efficient costs. Using the regulatory test estimate of cost as the 'prudent' value of investment, even under the approach set out above, would inevitably result in arbitrary transfers of wealth between customers and TNSPs, equal to the inaccuracy in those estimates. These arbitrary transfers are likely to dwarf any incentives for capex

efficiencies created. It would also potentially create the incentive for a TNSP to discontinue a project if, for example, the environmental impact assessment revealed that the costs would be more than the cost used in the regulatory test – even if the project still had a positive economic benefit at the higher cost.

One answer may be that it would be appropriate to continually reapply the regulatory test every time the capital cost estimate for the project changes. However, TransGrid believes that this approach would also be problematic. Whilst it is relatively easy to reapply the regulatory test if the cost of the preferred project changes during the detailed project development phase, a bias would be created in that all other alternative projects should also have their cost projections updated. However, in order to do this, the same detailed design and consultation processes would have to be undertaken for *all* other alternative projects. This would have significant implications for the resource cost of applying the regulatory test. Moreover, under the current planning framework in NSW, a 'preferred project' has to be identified before an Environmental Impact Statement (EIS) can be produced, which would preclude going through the EIS process for *all* alternative options.

Finally, TransGrid notes that the adoption of the capital cost estimate used in the regulatory test as the *ex post* measure of efficient expenditure may create an incentive for TNSPs to try to exploit the information asymmetry inherent in the application of the regulatory test. The higher the cost of the project included in the regulatory test, the lower the risk to the TNSP that the actual cost of the project will later be deemed to be 'imprudent'. At the least, adoption of the regulatory test value *ex post* may discourage TNSPs from being as open and transparent during the consultation process associated with the regulatory test.

Comments are invited on [..] whether or not the capex amount to be rolled into the asset base should be based on the outcome of the regulatory test, or based on actual build cost.

TransGrid considers that the regulatory test would need to be significantly modified if the value for capex used in the regulatory test was to be used as the measure of prudent investment *ex post*. In addition, the fact that projects will be modified following the regulatory process as a result of detailed design development, community consultation and environmental and planning processes, means that the regulatory test value will never be an exact measure of efficient costs. TransGrid therefore does not believe that the regulatory test value should be the value that is rolled into the regulatory asset base. Rather, it should be the actual prudent build cost.

5.3.2 Assessment of prudency

The Commission is seeking views from interested parties on what [the alternative approaches to assessing capex] may be.

TransGrid believes that the prudency of capital expenditure should be assessed by asking two separate questions:

i. Was it reasonable to undertake the project?; and

ii. Given that it was reasonable, was the cost incurred reasonable?

Assuming that a project was subject to the regulatory test, TransGrid believes that the answer to the first question will be given by whether the project passed the regulatory test. If the project passed the regulatory test then it was, by definition, prudent to undertake the project unless it can be shown that the cost used in the regulatory test was manifestly too low *given the information available at the time* and that using a more appropriate value would have caused the project to fail the regulatory test.

The ACCC notes in the Discussion Paper that it will assess prudency by considering whether the regulatory test process was followed and whether the regulatory test was applied correctly.[18] The first point is a straight-forward issue of process. In relation to the second, TransGrid understands that the ACCC is concerned about whether there are appropriate checks and balances built into the regulatory test process, i.e., are there interested parties who have the interest and the ability to scrutinise the application of the test? TransGrid believes that the use of external review and public consultation can help in ensuring that such checks and balances are present. A 'standardisation' of the approach in applying the regulatory test would also address the ACCC's concerns. The guidance the ACCC provides as part of its current review of the regulatory test has the potential to achieve some of this standardisation.

The answer to the second question of whether the incurred costs are reasonable should be determined by a review from external consultants, much as is currently the case. However, the ACCC should also give consideration to factors such as how much of the project was subject to contestable tender.

There remains the issue of whether there should be an explicit mechanism applied to augmentation capex, over and above a prudency review. Given the difficulty of accurately predicting the efficient level of augmentation capex *ex ante*, the application of a mechanism may result in *ex post* returns to the TNSP which are below the fair and reasonable level required by the Code. In the light of the extensive regulatory test process which already exists before an investment can proceed, it may also be considered that an additional mechanism to try to reduce project cost is unnecessary.

Alternatively, if the ACCC was concerned that prudency reviews will involve a bias to finding the full expenditure as prudent even if this is not the case, or would remove the TNSP's incentives to try to reduce project costs, then it may consider that an mechanism is still required. Such a mechanism could allow the TNSP to make case by case representations to the ACCC where a TNSP considered that it had managed to achieve project efficiencies. A more mechanistic approach could relate to establishing a target project cost (whether

[18] ACCC Discussion Paper, p.37.

based on the regulatory test or some other benchmark) and requiring the business to bear (or receive) Y% of any overspend (underspend). The details of any such mechanism would need to be carefully thought through.

A related issue is if a prudent investment that is subject to the regulatory test occurs at a different time to that included in *ex ante* target expenditures, whether the TNSP should be rewarded/penalised for any difference in timing. TransGrid's view is that there should be no penalty or reward in this case, as the timing of an augmentation is an exogenous factor which is determined by the regulatory test.

Is it feasible to enhance the incentives for capex efficiency through an incentive mechanism on capex?

TransGrid considers that the issue of providing an incentive in relation to augmentation capex is one that needs to be considered very carefully by the ACCC, in the light of the extensive regulatory process already applying to such capex and the difficulty in predicting efficient augmentation expenditure *ex ante*. TransGrid considers that providing an incentive for non-augmentation capex may be more practicable (see below).

5.4 Why Treat All Capex The Same Way?

It is not obvious that all expenditure that qualifies as 'capital' under accounting rules should be treated in the same manner under the incentive regulation framework. It may be more sensible to divide capital expenditure into several categories and treat each category differently depending on its characteristics.

The ACCC itself notes that the characteristics of capex may differ:

> '[C]apex projects differ in the extent to which the cost out-turn of a project today will affect future [cost] expectations. Projects which are one-off or unique may provide very little insight into the likely cost out-turn of other projects in the future. On the other hand, capex projects which are on-going or repetitive may be very informative as the likely costs of similar projects in the future. Therefore the power of the incentive mechanism may vary across capex projects.'[19]

It may be appropriate to think about whether the same incentive mechanism should be applied to all forms of capex, or whether there are other alternatives. In particular, it raises the issue of whether it is appropriate to treat some capital expenditure in the same way that operating expenditure is treated.

[19] ACCC Discussion Paper, p. 54.

Incentive regulation requires that a relatively firm *ex ante* target be set that does not change on the basis of *ex post* outcomes. Traditionally the reasons cited for treating capex and opex differently are that it is more difficult to accurately set such an *ex ante* line for capex than for opex. In particular, because:

- Past capex is, unlike past opex, not a good predictor of future capex. That is, capex is lumpy while opex is relatively stable; and
- There is no other method for accurately estimating future capex.

It is not obvious that these arguments apply equally to all categories of capex. For example, it is conceivable that expenditure on 'non-augmentation capex' would have a similar level of 'lumpiness' and 'difficulty in estimation' as opex. This is the premise of the ACCC's comment quoted above. Moreover, it appears possible that opex plus non-augmentation capex may have even less lumpiness than its component parts. That is, opex and non-augmentation capex may well move in opposite directions. There may also be stronger potential for substitution between opex and non-augmentation capex than between either opex and augmentation capex or non-augmentation capex and augmentation capex.

To the extent that the fundamental characteristics of augmentation and non-augmentation capex are different, the standard reasons why capex should not be subject to strong incentive regulation may not apply to non-augmentation capex. This would suggest that the incentive power of the regulatory regime could potentially be improved at no cost to other objectives if, rather than distinguishing between capex and opex, the regulatory regime distinguished between:

i. expenditure that is difficult to estimate on an *ex ante* basis so that setting firm targets is inconsistent with ensuring a fair and reasonable return for the TNSPs; and
ii. expenditure that is not so difficult to estimate *ex ante*.

Inevitably there are difficulties with 'drawing a line' around the forms of expenditure which should fall within each of the categories above. However, one option would be to distinguish between augmentation and non-augmentation capex, and to consider non-augmentation capex together with opex as falling into the second of the above categories. We present some potential implications of this approach in section 6 of this submission.

Is it feasible to enhance the incentives for capex efficiency through an incentive mechanism on capex?

TransGrid considers that including both non-augmentation capex and opex under the same mechanism may have advantages. However, given the limited practical experience with this concept, more work is clearly needed to establish the feasibility of such a regime.

5.5 Use of the Regulatory Test in Assessing Future Capex Projections

The ACCC raises the possibility that the regulatory test could be used in assessing future capex projections.[20]

TransGrid does not believe that this is a practical approach. At the start of the regulatory period, the TNSP may not yet have applied the regulatory test to certain potential augmentations that it may undertake during the period. The regulatory test requires that a proposed augmentation must not be determined to satisfy the test more than 12 months before the start of construction date.[21] It would seem impractical (and overly onerous) for the ACCC or TNSPs taking on the task of applying the regulatory test at the start of the regulatory period. In addition, the appropriate alternative network and non-network (such as proposed generation alternatives) development options to include in the test assessment may not be identified at that time.

TransGrid believes that it would be more appropriate for the ACCC to continue to assess future capex projections on the basis as currently. That is, where projects have been assessed by the TNSP to have passed the regulatory test, then they are included in the capex projections and, for other anticipated augmentation projects and for non-augmentation capex, the ACCC engages an external consultant to review the TNSP's projections. As discussed above, in the case of non-augmentation capex, future cost projections may be able to draw more heavily on past cost outturns. TransGrid does not consider that it would be practical to apply to the regulatory test to non-augmentation capex.

In this regard it would most helpful for the ACCC to clarify the purpose of capex forecasts used at the beginning of reset period. It is arguable that these forecasts are simply a means of establishing a reasonable expectation of capex during the upcoming reset period so that transmission prices during the period reflect likely capex levels. If this is the case then the capex forecasts should have no direct relationship with actual expenditure and the entire capex program is reviewed against an ex-post prudency test. Such an approach is consistent with the current practice of determining probability weighted capex forecasts based on a range of development scenarios.

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

TransGrid does not believe that the ACCC's preferred approach is practical, as it would require the ACCC or the TNSPs under close ACCC supervision to apply the regulatory test, at a time at which some of the potential alternative projects may not be identified.

20 ACCC Discussion Paper, p.38.

21 Regulatory Test, Note (7)(a).

6 SETTING APPROPRIATE REGULATED RATES OF RETURN

6.1 Overview

TransGrid believes that the setting of regulated rates of return on investment, based on the weighted average cost of capital (WACC), is a critical component of the regulatory framework. If the allowed WACC is set too low then the regulatory framework will not deliver the objective of maintaining the financial value of capital invested. If businesses do not expect that that the financial value of investments will be maintained then they will be unlikely to willingly undertake those investments. Given the high costs to customers associated with under-investment in essential infrastructure, it is in customers' best interests that the allowed WACC not be assessed at too low a level.

Of course, setting the regulatory return equal to the business's true cost of capital is a necessary but not sufficient requirement to give businesses the incentive to invest. Section 6.2 explains why the level of regulated return cannot be considered in isolation from the rest of the regulatory framework – in particular the method for determining the regulatory asset base. Moreover, because the life of many assets is at least 40 years it is the expected returns on investment over the life of the asset that determines investment incentives, not simply the most recent level regulated returns applied by the ACCC for a five year period. It is for this reason that, as explained in section 6.3, TransGrid considers that the ACCC's current approach of 'talking the WACC down' gives customers the worst of all worlds. By creating the expectation of a lower future allowed WACC it dampens investment incentives today without delivering any reduction in prices to customers today.

Accordingly, the ACCC's SORP process should set a 'line-in-the-sand' around the level of WACC businesses can reasonably expect over the life of new investments. As discussed in the NERA paper at Attachment B to this submission, customers can only be made better-off if the ACCC maximises certainty surrounding the level of WACC it is likely to allow in future regulatory periods.

Possibly the best example of the problems associated with the ACCC 'talking the WACC down' is to be found in the ACCC's SORP Discussion Paper itself. In particular, if adopted, the ACCC's preferred position to 'move towards benchmarking an equity beta from current market evidence and incorporating an upper bound confidence interval' would create significant uncertainty surrounding the allowed WACC businesses would receive in future decisions. More importantly, the ACCC has already gone a long way to damaging investment incentives and reducing the expected WACC on new investments simply by countenancing the view that the 95% confidence interval for regulated businesses' equity beta falls within a range between 0.5 and 0.8[22] - compared with the value of 1.00 allowed in past decisions.

The public release of the ACCC's analysis is of particular concern given that, as discussed in section 6.4 below, there are two partially offsetting errors in the calculation of the 95%

[22] Table 5.2 on page 79 of the ACCC Discussion Paper.

confidence interval. The combined effect of correcting for them is that the calculated 95% upper bound for the equity beta falls between 1.2 and 0.8 – with an average of 1.0. That is, based on the data presented by the ACCC its preferred approach of setting a 95% confidence interval would not deliver, on average, a value for beta different from the value it has traditionally set.

Nonetheless, the Discussion Paper cannot have failed to increase the probability businesses attach to the ACCC significantly reducing the equity beta being set below 1 – notwithstanding that correcting statistical errors removes any justification for doing so based on the data set the ACCC chose to use in this Discussion Paper. In relation to the equity beta, TransGrid notes that the ACCC's preferred approach would introduce significant variability in the allowed equity beta with little change in the average value over-time. TransGrid believes this is inconsistent with ensuring stable investment incentives and would deliver customers the worst of both worlds, i.e. lowered investment incentives without lowered prices.

Arguably, the only way to satisfactorily deal with the uncertainty created by the ACCC's analysis here and in previous statements is for the ACCC to draw a 'line-in-the-sand' around each WACC parameter. This line-in-the-sand would provide a value or a transparent process for setting each WACC parameter with the view that only under exceptional future circumstances would these values change. Section 6.5 details TransGrid's views about what these values/processes should be.

6.2 Why Rates of Return Cannot be Examined in Isolation

As noted at the outset of this submission, it is important to consider all of the elements of the regulatory framework as a 'package', in order to determine the overall incentives provided by the framework. Separate elements should not be considered in isolation.

This is particularly important in calculating the regulatory WACC. The earlier sections of this submission have discussed the approach taken to adjusting for exogenous cost changes during the regulatory period, the level of capex to be rolled into the asset base and the treatment of differences between projected capex and actual outturn capex. The ACCC's approach in each of these areas will directly impact on the extent of risk which the TNSP faces. TransGrid has proposed as one of the objectives of incentive regulation the elimination of asymmetric risk. However, to the extent that the ACCC's approach in these areas does not eliminate or compensate for asymmetric risk, the TNSPs will need to receive a corresponding increase in regulated returns, in order to compensate them for such risk. For example, if the ACCC were to link 'prudent' expenditure to that cost used in the regulatory test then, for reasons outlined in section 5, this would expose the TNSP to additional risk, which, if not compensated elsewhere, would need to be compensated for in the level of regulated returns if the TNSP was to continue to have an incentive to invest.

TransGrid has already stressed that the regulated rates of return on capital applied to derive its current allowed revenue does not contain a component to address the risk TransGrid faces from optimisation under the current draft SORP. A move by the ACCC to determining

the asset base on a 'roll-forward' basis rather than periodic re-optimisation would not therefore provide a justification for the ACCC to reduce the WACC allowed for the TNSPs.

TransGrid also noted in Section 2 of this submission that one of the potential objectives of the incentive regulation framework may be to provide an incentive for TNSPs to undertake transmission investment, where this has a net benefit to the market (as well as not being penalised for undertaking essential reliability investment). This issue is linked to the wider question of the appropriate role for transmission in the Australian National Electricity Market. Where the facilitation of efficient wholesale market trading is seen as an objective of the regulatory framework, then this would argue for increasing regulated rates of return, in order to provide an incentive for TNSPs to actively 'champion' transmission investment, and to incur the risks associated with such a role. Such risks include the risk (and costs) of drawn-out appeal processes instigated by interested parties and the potential for abandonment of projects at various stages of implementation because of unforeseen cost imposts.

6.3 Why the ACCC Needs to Draw a "Line-in-the-sand" for WACC Parameters

The allowed WACC plays two roles in the regulatory framework. The first is to provide a 'fair and reasonable' rate of return on sunk investments and the second is to provide sufficient incentive to undertake efficient new investments. In relation to new investments, if the rate of return, based on the WACC, is set too low there is a risk that inefficiently low levels of investment will occur while if the rate of return is set too high there is a risk that inefficiently high levels of investment ("gold plating") will occur.

However, it is vital that the ACCC recognises that it is the expected returns over the life of an asset that determines the incentive to invest and not the returns allowed in any given 5-year determination. Recognition of this fact mean that the ACCC influences TNSPs' incentives to invest by:

- Setting the level of the allowed returns in a businesses current regulatory period; and
- Making comments on the WACC calculation that inform businesses' expectations about what the allowed WACC will be in future determinations.

In terms of relative importance it is easy to see how the second factor can outweigh the first for assets whose lives are generally between infinity[23] and 40 years. Unfortunately, in recent times regulated businesses and the ACCC have engaged in an unhelpful but intense public debates over whether the allowed WACC has been set too high or too low. In the process a

[23] In a meshed system such as electricity transmission once an asset is installed and becomes integral to the operation of the entire network the transmission business will generally be forced to replace the asset as it 'wears' out. Depending on the nature of the asset, this may take the form of progressive replacement of component parts of the asset or replacement at the end of its effective life. In either case, investment in the new asset will generally require replacement of that asset at the end of its life in order to maintain other elements of the meshed network. This suggests that the expected life of capital invested in an asset (and its replacements) will be close to the expected life of the network as a whole.

number of comments have been made suggesting that the ACCC believes that the WACC used as the reference point for calculating regulated returns is currently considerably below the true WACC for regulated businesses. It is not TransGrid's desire to apportion blame for this to either businesses or to the ACCC. However, it is our desire to ensure that the harmful effects of such public positioning on businesses' expectations and incentives to invest are stopped.

In this context, we have asked NERA to analyse recent statements by the ACCC and its consultants on the appropriate value of individual parameters used to determine the WACC arising from application of the capital asset pricing model (CAPM). We further asked NERA to use these comments to derive a credible range for what businesses should expect the future allowed WACC to be into the foreseeable future. NERA's report is available at Attachment B and the results are summarised in the below table below.

	TransGrid 2000	**Transend (draft) 2003**	**High**	**Expected**	**Low**
Term to maturity of risk free rate (difference with 10 year bond rate)	10 years (0.00%)	5 years (-0.20%)	5 year (-0.20%)	5 year (-0.20%)	1 year (-0.61%)
Debt margin	1.20%	0.80%	1.08%	0.68%	*less* than 0.68%
Equity Beta	1.0	1.0	1.0	0.8	0.5
MRP	6.0%	6.0%	6.0%	6.0%	5.0%
Value of Gamma	0.5	0.5	0.5	1.0	1.0
Total expected margin above the 10 year risk free rate*	3.69	3.26	3.49	2.21	1.11

*Calculated assuming 60 percent gearing with the impact of gamma on the total margin above the risk free rate calculated consistent with the Officer post tax and the WACC parameters allowed in the Transend draft decision (at these parameters a gamma of 0.5 adds around 0.56% to the WACC).

It is clear from the above table that the regulated returns have been reduced considerably in real terms by the ACCC between the ACCC's 2000 TransGrid decision and its 2003 Transend draft decision. In the three-year period the margin above the risk free rate has fallen by over 10 percent. Moreover, a reasonable interpretation of ACCC public comments on the calculation of WACC would create the expectation that the WACC will continue to fall in the future. NERA advises that a reasonable midpoint for the expectation of future allowed margins in excess of the 10 year risk free rate is 2.21%. Moreover, NERA advises that a credible lower range estimate may be as lower than 1.11%.

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

The way to address this issue is to minimise the range of expectations businesses can have concerning the future allowed WACC parameters. An appropriate way to achieve this is for the ACCC, in the SORP process, to clearly enunciate the values of the CAPM parameters

and/or the process by which those parameters will be determined in future decisions. Importantly, TransGrid believes that any process for setting a CAPM parameter should satisfy two criteria, namely:

- It is transparent and two different parties following the process set out in the SORP should arrive at the same answer; and

- It will deliver a stable margin above the risk free rate over time.

It should 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. TransGrid has set out in section 6.5 what it believes the SORP should contain in this regard.

The Commission's position is to maintain its current approach to estimating a fair and reasonable WACC applicable to TNSPs and considers it is the most appropriate method for determining the return on the asset base.

TransGrid believes that the Commission's current approach creates damaging uncertainty surrounding expectations of the rate of return that will be received over the life of new investments. This could be addressed by the ACCC drawing a 'line-in-the-sand' around the WACC parameters/processes that will be used in future decisions and incorporating these in the SORP.

6.4 The ACCC's Preferred Process to Determine the Equity Beta

The ACCC has stated that its preferred position on the equity beta is "to move towards benchmarking an equity beta from current market evidence and incorporating an upper confidence interval". When the ACCC calculates such an approach over three different periods it calculates the following results.

ACCC estimates of upper bounds equity beta based on AGSM data (combined sample)

	June 02	Sept 02	Dec 02
95% upper bound	0.83	0.60	0.53
99% upper bound	0.97	0.70	0.61

The analysis in the Discussion Paper appears to have led the ACCC to believe that its preferred approach would result in an equity beta that is, on average, below 1. Table 5.3 in the discussion paper illustrates the potential impact of equity beta values of 0.70, 0.80 and 0.9 on ElectraNet's allowable revenues. These appear to be based on the ACCC 99% upper bound estimates for a combined sample of regulated and unregulated firms reported in the table above. (These are the only ACCC upper bound estimates that bear a

resemblance to the 0.9, 0.80 and 0.70 figures used in the ACCC's Table 5.3. All other ACCC calculated upper bound equity beta are well below these values).

6.4.1 The preferred position fails to deliver transparency and stability

The ACCC's proposed process to determine the equity beta does not satisfy either of the criteria set out above (i.e. transparency and stability). If adopted this process would result in a significant increase in the range for regulated returns, which businesses expect - creating a further wedge between the prices customers pay for transmission and the value they receive for those prices in terms of investment incentives.

In terms of stability in the allowed equity beta, it is apparent from the above table that relying on market data to benchmark the equity beta would result in very large changes in the value of the equity beta over time. For example, with the addition of only two quarters of new data, the equity beta calculated by the ACCC for the four years ending June 2002 is around 60% higher than the equity beta calculated for the four years ending December 2002.

In terms of transparency, the process by which the ACCC arrived at the above estimates is transparent and it is doubtful whether it would be possible to codify such a process in the SORP in order to make it transparent. That is doubtful that it would be possible to set out in sufficient detail how market data should be used in order to establish a benchmark upper bound equity beta. As the NERA report at Attachment C points out, the ACCC's proposed process for determining an upper bound equity beta from market data would require a number of threshold questions to be answered at the time of each decision, including:

- What businesses are comparable stocks to TNSPs?
- What sample size should be used (including what trade-off should be struck between sample size and degree of 'comparability')?
- What sampling period is required to ensure comfort that the sampling period is representative of investors' expectations concerning the future relationship between comparable firms' returns and those of the market?
- What estimation procedure is required to accurately estimate the beta of a stock (eg, simple OLS regression or Scholes-Williams regression to account for thin trading)? In what circumstances should one estimation procedure be preferred over another?
- What is the correct definition of returns (eg, weekly vs monthly, compounding vs simple)?
- What is the correct definition of the market (all ordinaries versus total capitalisation of listed entities)?

As NERA shows, all of these decisions can materially affect the upper bound but none are likely to be able to resolved in a generic sense prior to consideration of the actual period under investigation. Extensive detail in the SORP would be essential to help narrow the

bound of expectations around which of these options the ACCC would choose for any give decision.

Consequently, in addition to the inherent instability in what businesses expect the underlying data to show, there would also be an additional instability in what statistical methods businesses expect the ACCC to apply to that data. The consequence of this would inevitably be an increased range around the values of the levels of regulated returns businesses expect to receive and, consequently, the potential for an ever increasing wedge between the returns actually allowed and the returns that some businesses may expect over the life of investments.

NERA also point out that relying on market data of regulated firms to set regulated revenues will introduce circularity and cyclicity into regulatory decisions.

6.4.2 The ACCC's proposed position would increase equity betas above 1 on average

If it was the case that, despite TransGrid's reservations, the ACCC were to adopt its preferred approach then TransGrid fully supports the adoption of a 95% to 99% confidence interval when establishing an upper bound equity beta. TransGrid is of the opinion that a 97.5% confidence upper bound equity beta should be adopted. That is:

> *The equity beta in any ACCC decisions should be set at a level such that there is only a 2.75% probability that the equity beta will be set below the true equity beta for that firm. In other words, the statistical procedure followed by the ACCC should result in less than 3 out of every 100 decisions the ACCC setting the equity beta below the true equity beta for that firm.*

The analysis in the discussion paper appears to have led the ACCC to believe that its preferred approach would result in an equity beta that is, on average, below 1. Table 5.3 in the discussion paper illustrates the potential impact of equity beta values of 0.70, 0.80 and 0.9 on ElectraNet allowable revenues. It is relatively easy to see how the ACCC may have come to the conclusion that its preferred approach would reduce the equity beta below 1. In table 5.2 of the discussion paper all upper bound equity beta's are below 1 – even at the 99% confidence interval.

However, the calculations of upper bounds in the ACCC's Table 5.2 appear to be statistically flawed (see below) and when this flaw is corrected the actual upper bound is considerably increased. We report below the upper bound estimates for a 97.5% confidence upper bound equity beta as calculated by NERA using the ACCC reported data.

Correctly estimated upper bounds equity beta based on AGSM data (combined sample)

	June 02	Sept 02	Dec 02	Average
Correct Estimates				
95.0% upper bound	1.33	0.97	0.83	**1.04**
97.5% upper bound	1.52	1.11	- 0.95	**1.20**
99.0% upper bound	1.78	1.31	1.11	**1.40**
ACCC Estimates				
95% upper bound	0.83	0.60	0.53	**0.65**
99% upper bound	0.97	0.70	0.61	**0.76**

These estimates of the upper bound are clearly significantly in excess of the ACCC estimates of the upper bound used. Even if a 95% upper bound were calculated the average equity beta upper bound over the three periods used by the ACCC in the Discussion Paper would still be equal to 1.0. If any higher confidence interval were used then the average equity beta would be significantly above 1.0.

Given that the corrected ACCC analysis suggests that adoption of its preferred approach is likely to, on average, increase the value of the equity beta allowed (or at least not reduce it), it must be questionable whether the considerable uncertainty introduced into regulatory revenues as a result of the ACCC's preferred approach would be 'worth the trouble' TransGrid certainly believes that this is the case.

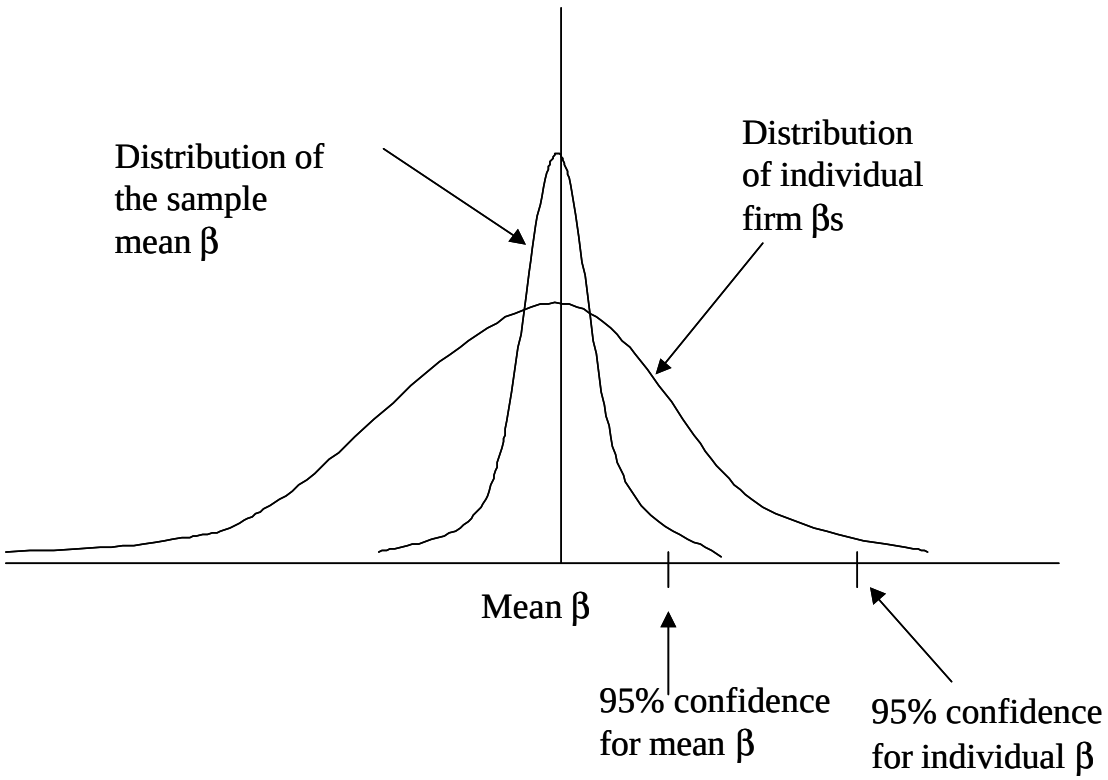
6.4.3 Correcting the estimates of confidence intervals in the SORP discussion paper

Two potentially significant statistical errors have been identified in the calculation of the confidence intervals for the equity beta. These are explained in detail in the attached NERA report. As set out in this report the most significant error is that the estimates of confidence intervals are for the *population mean* equity beta rather than for the equity beta of an individual TNSP.. That is, when a 95% confidence upper bound estimate of the equity beta is provided what is really being said is that there is a 95% level of confidence that the mean of all comparable firms' equity beta is below that level.

This approach would be appropriate if the ACCC was regulating a single firm that it knew had the same equity beta as the average of all comparable firms. However, in reality, it is not known whether the equity beta for a given TNSP is above or below the mean of all comparable firms. In order to be 95% confident that a proposed equity beta is above the equity beta for a given TNSP it is necessary to establish the 95% confidence interval for the population of comparables i.e., it is necessary to establish the interval within which it is 95% confident that all comparables will fall.

It is the characteristic of confidence intervals around the population mean that these fall very quickly with increases in the sample size. In effect, the confidence interval for the population mean is a multiple of the sample standard deviation divided by the square root of the sample size. Accordingly, with a large enough sample size then the confidence interval for the population mean falls to zero – irrespective of the standard deviation within the sample. By

contrast, the confidence interval for a single observation not included in the original sample (eg, a TNSP's equity beta) is a multiple of the standard deviation (ie, with no division by the square root of the sample size[24]). These differences are illustrated below with a graph taken from the NERA report at Attachment C.



It is assumed that it was the ACCC's intention to calculate the confidence interval for a given TNSP's equity beta and not the confidence interval for the population mean of comparables. Setting regulated equity beta's based on the confidence interval for the population mean would mean that, as the sample size increased, the ACCC would be confident of setting an equity beta that was lower than the true equity beta for a TNSP 50% of the time. This 'confidence' does not appear to be consistent with the Code's requirements for a 'fair and reasonable return' nor is it consistent with recognition of the asymmetric costs of setting the WACC too low as opposed to too high.

According to NERA, the other, partially offsetting, error in the discussion paper's treatment of confidence intervals is the use of a 'two-tailed' confidence interval to set a 'one-tailed' upper bound. This means that the 95% confidence β_e is, in reality, a 97.5% confidence upper bound. This is because a confidence interval has been adopted that is consistent with 5%

[24] Actually, this is a simplification. In reality the sample standard deviation must be multiplied by $\sqrt{\frac{n+1}{n}}$.

probability that the population mean is above the top end of the confidence interval or below the bottom end of the confidence interval around the sample mean. If one is only interested in the probability that the population mean is *above* the upper bound then the probability falls from 5% to 2.5% (ie, the confidence level rises from 95% to 97.5%).

NERA has corrected both of these errors and the corrected upper bounds are as reported above.

6.4.4 The need to recognise variance as well as covariance

Many of the ACCC's statements concerning perceived generosity in the WACC provided appear to be derived from a view that the level of certainty provided by the ACCC in relation to regulated revenues means that returns to businesses will be relatively stable irrespective of economic conditions and will, consequently, have low covariance with the returns on the market.

However, if this were true then we would also expect to see the absolute level of variance for regulated businesses to be low – reflecting the assumed certainty in regulated revenues. However, in practice, very large levels of absolute variance in returns on regulated businesses are observed. NERA has addressed this issue – see Attachment C. Accordingly, a cautious approach is recommended before placing great weight on any *a priori* view that the equity beta for regulated businesses should be significantly below the equity beta for the market as a whole.

The Commission's initial view is to move towards benchmarking an equity beta from current market evidence and incorporating an upper confidence interval

TransGrid believes that such an approach would add unnecessarily to the uncertainty surrounding the expected rate of return over the life of new investments. This in turn runs the risk of dampening investment incentives for essential infrastructure. TransGrid takes this view despite the fact that the statistical analysis presented by the ACCC shows, when properly interpreted, that its preferred position would, on average, likely increase the allowed equity beta.

6.5 What the 'Line in the Sand' Should Be

It generally well recognised that the costs associated with under-investment in essential infrastructure are, in a probabilistic sense, higher than the costs associated with over-investment. This is a reflection of the fact that failure in an essential infrastructure, such as electricity transmission, will result in extensive costs (both economic and social) to a large number of downstream enterprises and households. As a consequence of the scale and

scope of such impacts it is easy to imagine a transmission failure imposing costs in excess of the value of the entire transmission infrastructure.[25] On the other hand, the cost of any over-investment (putting aside difficulties in defining an optimal level of investment) is likely to be something less than the incremental cost of any over-investment - assuming that the over-investment delivers some reliability or generation dispatch benefits.

These asymmetric costs of under and over investment mean that it is vital that the expected regulated return is at least equal to the regulated business' true cost of capital. As discussed above, the relevant expected return is that applying over the life of new investments and not the allowed level of return provided for in any single decision. With this in mind TransGrid proposes that the SORP draw a 'line-in-the-sand' around CAPM parameter values (or processes used to determine those values) TNSPs can expect in the future.

The following table provides a summary of the values/principles concerning each CAPM parameter that should be included in the SORP as values/principles that the ACCC would only move away from in exceptional circumstances. We understand that the ACCC currently adopts a different view to TransGrid on many of these parameters. Nonetheless, we still believe that it would improve the regulatory process if the ACCC took the opportunity provided by the SORP to drastically reduce the uncertainty around the future regulatory WACC – whatever its value.

TransGrid has previously argued for these parameters most recently in its revenue reset Application and has provided expert evidence to the ACCC from NERA and Professor Bruce Grundy in support of its Application. We refer the reader to that document for more detailed justification of our proposed 'line-in-the-sand' parameter values.

[25] Because the production process of most modern businesses rely on electricity, a transmission failure causes close to 100% of capital and labour in the effected area to be idle. The first round cost of this on downstream businesses is equal to the total value of affected capital multiplied by the time value of money multiplied by the length of the outage plus the total value of labour multiplied by the hourly labour costs multiplied by the length of the outage. The cost to affected households is equal to the cost of inconvenience in not being able to operate electrical appliances plus the cost of any damaged goods. For example, the cost of the August 14 North East American transmission failure could be in excess of $1bn in spoiled fridge/freezer food alone. The second round costs of such outages include the costs to businesses and consumers in other areas that relied on supplies from the affected areas. It is relatively easy to imagine a prolonged outage of several days, such as occurred in Auckland CBD, costing many times the value of infrastructure invested in serving that area.

Parameter	Value/Principle	Reason
Risk free rate	20 day average of the yield on Commonwealth bonds with 10 years to maturity.	Consistent with investment horizon and historical estimates of MRP
Equity beta	1.12	As set out in detail in TransGrid's current revenue reset Application.
Market Risk Premium	6.0	Consistent with past ACCC practice and estimates of the historical MRP.
Debt margin	Benchmark the debt margin (excluding transaction costs) against market data for debt instruments with an A- credit rating. [26]	Consistent with a correct benchmarking of credit ratings against privately owned stand-alone entities.
Value of imputation credits (gamma)	0.0	Consistent with empirical evidence and consistent with theoretical expectations in a integrated capital market.
Gearing	60%	There is no reason to change the standard benchmark gearing assumption

6.6 International Comparisons

TransGrid is also aware that Network Economic Consulting Group is preparing a report on behalf of other TNSPs that addresses, amongst other things, the issue of international comparisons of the regulated rates of return provided in Australia and those provided elsewhere in the world. We understand that the NECG report presents evidence that:

- Regulated returns in Australia are lower than many other jurisdictions;
- The ACCC's adoption of the five year bond rate as the proxy for the risk free rate is out of step with international practice and with domestic practice of other Australian regulators; and
- The assumptions underlying Prof. Davis' support for the use of a 5-year bond rate are not representative of the actual circumstances facing Australian regulated businesses.

NECG notes that experience from overseas, especially in relation to recent blackouts in the US and Europe, suggests that even if Australian rates were comparable with those provided overseas, there may still be significant risk in TNSPs attracting sufficient investment.

[26] Alternatively, once every five years ask an independent credit rating agency to provide a credit rating to a 'hypothetical' 60% geared TNSP that is a stand-alone and privately owned entity with cash-flow profile of an average TNSP. Adopt this credit rating for all regulatory decisions within that five year period.

We recommend that the ACCC take the evidence presented by NECG into account when considering the appropriate level of regulated returns for Australian businesses.

Comment is invited on the length of the risk free rate.?

TransGrid believes, as outlined in its recent Application and in the NECG report referred to above, that the appropriate term of the risk free rate is 10-years.

7 ALTERNATIVE INCENTIVE FRAMEWORKS

The earlier sections of this submission have discussed the objectives for the incentive regulation frameworks applied to electricity transmission and specific issues in relation to the incentive regulation of opex and capex, recognising that the incentives provided under any regulatory approach will depend on the interaction of all elements under that approach.

At this stage, TransGrid is not advocating a particular approach to incentive regulation and efficiency carryover mechanisms. Rather, the focus of this submission is on highlighting the issues that need to be considered and developed in the design of the framework to be reflected in the SORP.

From the preceding discussion, there appear to be five high level categorisations of alternative incentive frameworks, within the overall CPI-X regulatory regime applying to electricity transmission. In this section TransGrid sets out the key features of each of these alternatives. TransGrid notes that the details of how the framework is to be applied would need to be set out as part of the SORP, whichever framework is adopted.

7.1 Alternative 1: A Continuation of the Current Approach

The first alternative would be for a continuation of what can be characterised as the ACCC's 'current approach'. This would involve clarifying a number of uncertainties in the current regime, such as how prudent capex is to be rolled into the regulatory asset base. Operating and capital expenditure would continue to be assessed under the current process of review by external consultants. Under this approach, there would be no explicit efficiency carryover mechanism applying to either opex or capex.

7.2 Alternative 2: A Rolling Carry-over Mechanism for Opex but no Rolling Carry-over Mechanism for Capex

The second alternative would involve introducing a rolling carryover mechanism, which covered operating expenditure only. TransGrid understands that the ACCC favours introducing the 'rolling carryover' for opex, as applied in the ACCC's Final Decision for GasNet.

Under Alternative 2, capital expenditure would not be subject to an explicit rolling carryover mechanism, but would continue to be subject to an *ex post* prudency review by external consultants, before being eligible for inclusion in the regulatory asset base.

7.3 Alternative 3: A Rolling Carry-over for Opex with Incentives for Capex Based on the Value Adopted in the Regulatory Test

The third broad alternative framework would be to apply a rolling-carryover arrangement to operating expenditure and to assess the prudency of all capital investment (augmentation and non-augmentation) in the light of the value used in the regulatory test.

From the Discussion Paper, this alternative appears to be the ACCC's preferred approach at this stage. As highlighted in section 5.3, TransGrid does not consider the reliance on the value used in the regulatory test in the context of determining *ex post* prudency to be appropriate. If this approach were to be adopted, the additional risk the TNSPs would be exposed to as a result would need to be compensated for by a higher WACC. TransGrid also does not consider that the application of the regulatory test (particularly in its current form) to non-augmentation capex, which would be required if this alternative were to be pursued, is workable in practice.

7.4 Alternative 4: A Single Rolling Carryover Mechanism Applied to Opex and Non-augmentation Capex with Augmentation Capex Treated Differently

The fourth approach recognises that refurbishment/replacement capex may be more similar to operating expenditure than to augmentation capex. As a result, non-augmentation capex would be treated in a similar way to opex, in terms of the rolling carryover mechanism applied, in order to provide similar incentives across both types of expenditure. Augmentation capex would be treated differently (possibly with a single *ex post* prudency review).

There are at least two ways to treat non-augmentation capex more like opex for the purpose of rolling carryover mechanisms. The first of these approaches is based on the rolling carryover mechanism and is a variation on the approach adopted by the ESC in Victoria for electricity and gas distribution. The second has been adopted in the regulation of rail infrastructure businesses.

TransGrid does not at this stage have a firm view on the merits of either of these approaches and has not examined them in detail. We raise them in the interests of ensuring that all relevant options are considered in finalising the approach to incentive regulation to be set out in the SORP.

7.4.1 Rolling carryover applied to opex and non-augmentation capex

Under this approach, non-augmentation capex would be included with opex in the calculation of the 'carryover amount' for the rolling carryover. The total carryover amount is therefore the sum of the carryover allowed for opex and the carryover allowed for non-augmentation capex. To the extent that the TNSP chooses to substitute capex for opex, the carryover amount for opex will increase but the carryover amount for capex will decrease. Under this approach it is the combined impact of both carryover elements that will drive incentives.

This approach is similar to that applied by the ESC in Victoria to the electricity and gas distribution businesses in that state. However the ESC mechanism applies to the distribution businesses total capex and opex spending, rather than only to non-augmentation capex and opex.

Under this approach, both opex and non-augmentation capex fall under the same rolling carryover mechanism. However, there is a difference in how the 'efficiency' amount for each is calculated. For opex the 'efficiency' achieved under the rolling carryover approach is taken as being the whole of the incremental change in opex between two consecutive years. For capex, the 'efficiency' is calculated as the difference between the benchmark capex for that year and actual outturn capex, multiplied by the WACC. Therefore, although non-augmentation capex and opex are treated more similarly under this approach than if only opex was included in the rolling carryover, the two expenditure categories are not treated identically.

This approach does provide roughly equal incentives for cost-reducing effort on opex and non-augmentation capex, with the exception of changes that lead to permanent substitution between opex for capex (or other permanent influences on the level of capex). [27]

7.4.2 The rail infrastructure approach

This approach, which is adopted in the NSW rail infrastructure sector, makes no distinction between operating expenditure and replacement/refurbishment capex. A single 'bucket' of expenditure is estimated over these categories and the business has identical incentives to reduce expenditure in each category and to substitute expenditure between categories.

Treating opex and non-augmentation capex identically requires that all expenditure is expensed in the relevant regulatory period. That is, non-augmentation capex does not get added to the regulatory asset base at the beginning of the next regulatory period. In contrast, augmentation capex does get added to the regulatory asset base (in the case of rail this involves a new line being installed). In order to ensure stable prices over time, this approach requires that the existing regulatory asset base is not depreciated (or is depreciated at a significantly lower rate). In effect, the expensing of refurbishment/replacement capex within the regulatory period is offset by the fact that the existing asset base is not depreciated.

Provided a workable line can be drawn between non-augmentation capex and augmentation capex, this approach provides the most high-powered incentives of the frameworks discussed in this section. However, initial review of this premise within TransGrid has produced a number of situations where such a line may lead to inefficient outcomes.

Nevertheless, at face value, this approach could address concerns the ACCC may have about:

- Substitution between opex and refurbishment/replacement capex;
- Re-classification of opex as refurbishment/replacement capex (it shifts this concern to the line between augmentation and non-augmentation capex, which may be easier to police); and

[27] See NERA, *Efficiency Carryover Decision, A Report for SPI PowerNet*, October 2002 (submitted to the ACCC).

- The WACC being too high, providing too great an incentive to invest in refurbishment/replacement capex (as the WACC would no longer be relevant to consideration of such investment).

7.5 Alternative 5: External Benchmarking

The fifth and final alternative approach is the use of external benchmarking as the basis on which to set the allowed revenues for the TNSPs. The ACCC in its Discussion Paper raises the possibility that benchmarking could be used for setting opex allowances and potentially also for setting capex allowances.

TransGrid does not believe that a regulatory approach which relies on external benchmarking is workable in practice at this time. This was discussed further in section 3 of this submission.

8 CONCLUSION

There are a number of alternative regulatory frameworks that can be adopted in the pursuit of incentive regulation. TransGrid does not at this stage have a firm view on the final incentive framework that should be adopted. However, in order to analyse the overall incentive properties of any framework it is necessary to consider all elements of that framework together.

TransGrid notes that the SORP is a unique document from the perspective of both other regulatory jurisdictions within Australia and regulatory regimes overseas. TransGrid considers that it is important for the ACCC to consider the *role* of the SORP, in the context of the wider regulatory environment. TransGrid is of the view that the SORP will need to be a 'living document', which evolves in the light of experience and developments in regulatory thinking. However, there is a need to set out clearly the process by which the document is expected to evolve and, specifically, the interaction between the SORP and the individual Decisions made by the ACCC for each TNSP.

This submission has highlighted some of the key issues which will need to be resolved as part of the process of finalising the SORP. As is clear from the submission, there remain key issues of principle that will need to be resolved in order to determine the *direction* in which the regulatory framework for electricity transmission businesses is to develop. These issues include the extent to which any rolling carryover mechanisms are applied to both opex and capex and the risk which TNSPs are to face in relation to how the prudency of capex is to be assessed *ex post,* and how such risk is compensated.

The incentives provided by the regulatory framework will depend crucially on the details of how that framework is to be applied. TransGrid considers that, while the ACCC's Discussion Paper is an essential and valuable first step more detail in relation to issues of application is required to enable the incentives provided by that framework to be properly assessed. For example, the details of how the asset base will be rolled forward are not set out. Neither is there any detailed proposal for the form of rolling carryover mechanism to be applied to opex.

Accordingly, it would be entirely appropriate for the ACCC to conduct a further round of consultation on this critical document in light of comments received. While recognizing the value in 'finalising' this document this needs to be balanced by consideration of the importance of the SORP. A vital first step may be to recognize the evolving nature of this document and develop a satisfactory process for its evolution.

To progress towards regulatory certainty it is suggested that, where possible, firmer proposals be made where there is already a sound basis. For example, the establishment of financial capital maintenance as an underlying principle (and possible Code change) would seem to be relatively non-controversial and of value in progressing issues such as asset valuation. Similarly, a commitment to achieving a 'line in the sand' approach to setting future regulated returns could be established ahead of detailed debate about the level of individual parameters used in determining WACC. An overarching 'incentive objectives framework' needs to be established at an early stage to use as a reference point for areas requiring

more detailed development, such as the form and nature of rollover efficiency mechanisms, or the processes for assessing the prudency of augmentation capex.

In turn, these matters may need to be subjected to explicit review processes within this wider framework. A process similar to that used in finalizing service standards and ring fencing guidelines could provide an appropriate way to progress the issues at a satisfactory level of detail.

In any event TransGrid encourages the ACCC to move to the next stage of the SORP development process expeditiously and looks forward to continuing participation in the development process.

ATTACHMENT A: "REGULATORY BENCHMARKING": A WAY FORWARD OR A DEAD-END?

NERA Energy Regulation Brief, October 1999.

ATTACHMENT B: NERA REPORT ON DRAWING A 'LINE IN THE SAND' FOR REGULATORY WACC

ATTACHMENT C: NERA REPORT ON EQUITY BETA

ATTACHMENT A TO ATTACHMENT C: NERA REPORT ON EQUITY BETA