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Dear Mr Roberts

PB Associates Final Report on TransGrid's Forward Capital Expenditure Requirements 2004/05 to 2008/09 – TransGrid Response

Reference is made to the recent review of TransGrid's future capital expenditure requirements undertaken by PB Associates on behalf of the Commission. The findings of this review are set out in a report by PB Associates (PBA) entitled "TransGrid's Forward Capital Expenditure requirements 2004/05 to 2008/9 – An independent review" (the PBA Report). This report was published on the Commission's website in early February 2005.

Overall it is acknowledged that PBA conducted the review in a professional and well-organised manner. However, it seems that the extremely tight time-frame and budgetary constraints, together with the timing of the submission of reports over the 2004-2005 peak holiday period, may have prevented the complexity of TransGrid's requirements being fully analysed and understood. This is particularly so in relation to TransGrid's augmentation capital expenditure needs.

It is simply not possible for one to two professionals in only a few weeks, no matter how capable, to review and fully appreciate the full scope of an augmentation program developed by the TransGrid team over a number of years. Nor is it reasonable to expect PBA to fully and effectively integrate their findings with the rapid and recent changes in regulatory arrangements intended to apply to transmission planning and investment.

Possibly as a result of this context, the PBA Report recommendations in relation to augmentation capital expenditure, if implemented, would appear to be inconsistent with the requirements of the National Electricity Code and the Commission's objectives as set out in the Statement of Regulatory Principles.

These concerns can be easily addressed with some modest modifications to the PBA Report recommendations. Attachment 1 to this letter explains the issues arising from the PBA Report and shows that, by including a clearly defined proportion of excluded project expenditure in the ex-ante cap, an effective Code compliant incentive regime for TransGrid can be established.

There are also material issues with the way in which PBA has assessed TransGrid's cost estimates. The so called 'efficiency factor' applied to transmission augmentation project cost estimates appears to be based almost entirely on an analysis involving a NSW Treasury Guideline designed specifically for use in estimating distribution network augmentation costs. This is not considered to be an appropriate basis for assessing transmission cost estimates. Among other matters transmission equipment operates at higher voltage levels and requires higher levels of design redundancy due to the possible widespread consequences of transmission equipment outages.

In addition, PBA seems to have removed TransGrid's Pooled Contingency factor on the basis of an insufficient and incorrect assessment. There also appears to be some inconsistencies or errors in the re-compilation of the various components of TransGrid's capital expenditure categories in the tables contained in the PBA report.

TransGrid's position on these matters more fully explained in the following four Attachments:

1. Regulatory framework issues arising from the PBA report for transmission planning and investment decisions.
2. Cost estimating issues.
3. Reconciliation of the final figures recommended by PBA for inclusion in the ex-ante cap.
4. Detailed TransGrid responses to specific sections of the PBA Report.

I trust that the Commission will have proper regard for TransGrid's concerns in finalising the Supplementary Draft Decision on TransGrid's future capital expenditure needs.

Yours sincerely

Phil Gall 14/2/2005

Philip Gall
Manager/Regulatory Affairs

Enc.

Attachment 1 – Regulatory Framework Issues for Transmission Planning and Investment Decisions

1.1 Introduction

Overall it is acknowledged that PBA conducted the review in a professional and well-organised manner. However, it seems that the extremely tight time-frame and budgetary constraints, and the timing of submission of reports over the 2004-2005 peak holiday period, may have prevented the complexity of transmission development requirements being fully analysed and understood.

It is simply not possible for one to two professionals in only three weeks, no matter how capable, to review and fully appreciate the full scope of an augmentation program developed by the TransGrid team over a number of years. Nor is it reasonable to expect PBA to fully and effectively integrate their findings with the rapid and recent changes in regulatory arrangements intended to apply to transmission planning and investment.

Possibly as a result of this context, the PBA Report recommendations in relation to augmentation capital expenditure, if implemented, would be inconsistent with the requirements of the National Electricity Code and the objectives of the ACCC as set out in the Statement of Regulatory Principles.

These concerns can be easily addressed with some modest modifications to the PBA Report recommendations. This attachment explains the issues arising from the PBA Report and shows that, by including a clearly defined proportion of excluded project expenditure in the ex-ante cap, an effective Code compliant incentive regime for TransGrid can be established.

1.2 Code Requirements and ACCC Objectives

Relevant Code Requirements

Section 6.2.2 of the National Electricity Code establishes overriding objectives of the regulatory regime administered by the ACCC as seeking to achieve the following outcomes (among others):

6.2.2 (b) an incentive-based regulatory regime which:

(1) provides an equitable allocation between *Transmission Network Users* and *Transmission Network Owners* and/or *Transmission Network Service Providers* (as appropriate) of efficiency gains reasonably expected by the *ACCC* to be achievable by the *Transmission Network Owners* and/or *Transmission Network Service Providers* (as appropriate); and

(2) provides for, on a prospective basis, a sustainable commercial revenue stream which includes a fair and reasonable rate of return to *Transmission Network Owners* and/or *Transmission Network Service Providers* (as appropriate) on efficient investment, given efficient operating and maintenance practices of the *Transmission Network Owners* and/or *Transmission Network Service Providers* (as appropriate);

6.2.2 (d) an environment which fosters an efficient level of investment within the *transmission* sector, and upstream and downstream of the *transmission* sector;

6.2.2 (j) reasonable certainty and consistency over time of the outcomes of regulatory processes, recognising the adaptive capacities of *Code Participants* in the provision and use of *transmission network* assets;

Section 5.6 of the Code allocates prime responsibility for the planning and augmentation of transmission networks to the TNSPs. At the time of authorisation (refer to page 17 of the Authorisation decision) of these Code arrangements, and after extensive public consultation, the Commission supported this arrangement because *"they (TNSPs) are accountable for network performance levels"*. The Commission went on to observe correctly that *"these accountabilities arise from the reliability standards contained in Schedule 5.1 of the Code, various State imposed standards and duty of care obligations under common law to the extent that it applies."*

Relevant Commission Objectives

In the Statement of Regulatory Principles Background Paper (pages 44 and 45) the Commission sets out its objectives in relation to the capital expenditure incentive scheme as providing a mechanism that ideally should:

a. Not result in windfall gains or losses attributable to forecasting errors
b. Be applicable to all TNSPs in the same way
c. Provide effective incentives to select the most efficient investment and ensure the development of assets at the lowest sustainable cost
d. Result in an equitable distribution of the benefits of efficiency gains
e. Minimise regulatory intervention and avoid monitoring
f. Take account of the accuracy with which the industry and regulator is able to forecast capex up to seven years in advance.

The Commission notes that some of these objectives tend to conflict.

The Commission also states in the Statement of Regulatory Principles that:

a. The ex-ante allowance should cover most or all expected investment during the period of a regulatory control
b. The ACCC proposes to exclude a project from the main ex-ante capex allowance if the expected error presented by the inclusion of that project in the main allowance is equal to more than 10 per cent of the revenue required to cover depreciation and return on investment of all the projects included in the calculation of the main ex ante capex allowance. However,
c. Scope is provided for the TNSP to apply to have projects excluded on some other basis.

Taken together these points imply a clear preference to minimise the extent of excluded project provisions in favour of a single ex-ante capital expenditure profile.

1.3 Key Characteristics of the PBA Recommendations

The key characteristics of the PBA recommendations in relation to augmentation capital expenditure provisions are set below.

1. No provision is included within the ex-ante expenditure targets for expenditure on excluded projects, event though it is clear that a material level of expenditure will be required on at least some of these projects during the reset period.

   An obvious example of this is the need to develop the 500kV ring to reinforce the main NSW transmission system. PBA acknowledge the need for this ring to be developed over the next 3 to 10 years, but question the sequence and timing of this development. The importance of this development is also acknowledged in PBA's recognition of the potential for voltage collapse under some future scenarios. This seems to suggest at least a reasonable probability of some material levels of expenditure of this major development during the current regulatory period.

Furthermore on Page 67 of the under *Transfers to Sydney/Newcastle and the 500kV developments,* the report states that:

"Due to lead times required on new lines and substation land, TransGrid may still require expenditure during this regulatory period to ensure commissioning of new lines and substations can be achieved within time following a formal regulatory test process. These expenditures have also been classified as Excluded in this report."

In a further stage of the report on Page 68,

"TransGrid has also requested expenditure associated with planning and project assessment, and expenditure associated with generator or DSM programmes. PB Associates does concur that this expenditure for these items will be required, irrespective of the project outcome. However, we consider the issue of this expenditure being included in an ex ante cap or excluded to be outside the scope of our work, and as such, we have classified all expenditure as excluded here."

2. The standard for inclusion of major project expenditure in the ex-ante expenditure cap appears to be that the transmission business must be able to show, at the time of the revenue cap determination, that the project meets the requirements of the regulatory test. Examples of these requirements from the PBA report follow.

   Under its Section 6.5.1 *"Transfers to Sydney/Newcastle and the 500kV developments"* on page 67 PBA's report provides the following suggested assessment criteria for inclusion of projects:

   - *demonstration of the lack of appropriately located market driven committed generation projects;*
   - *demonstration by TransGrid that they have sufficiently examined DSM options and grid support; and*
   - *demonstration that TransGrid have appropriately evaluated both technically and economically the optimal project and staging of the network development.*

   And further under Section 6.5.2. *"Supplies from Sydney West"* on Page 70 the following:

   - *demonstration of the lack of appropriately located market driven committed generation projects;*
   - *demonstration by TransGrid that they have sufficiently examined DSM options and grid support; and*
   - *demonstration that TransGrid, through joint planning with IE and EA, has adequately assessed the needs, timings and solutions to determine the optimal total solution and timing.*

3. A very large proportion of the likely augmentation capital expenditure has been classified as excluded. Specifically, the PBA Report recommends provision for $577 million in the ex-ante cap over the reset period compared with up to $931 million of possible excluded projects. Even if only half this excluded expenditure comes to fruition during the rest period this is still comparable to the total value of the ex-ante provisions.

1.4 The PBA Recommendations are Inconsistent with Code and ACCC Requirements

It appears that the current PBA recommendations could be substantially inconsistent with both the Code and the Commission's requirements as set out in the Statement of Regulatory Principles. Examples of this inconsistency follow below.

1. Failure to provide fair and equitable returns on a prospective basis on efficient investment. The PBA Report recognises the need for most of the excluded projects. The difficulty for PBA was that, because these projects had not reached the regulatory test stage at the time of the review they were unable or unwilling to make a judgement on the quantum and sequencing of expenditure that would be required on these projects within the regulatory period.

   As noted above the need for some level of expenditure seemed to be recognised in most cases. In the case of the main NSW transmission system the need to develop the 500kV ring in the next 3 to 10 years was explicitly acknowledged by PBA. In other instances it was recognised that network options could be deferred if TransGrid could secure demand side management, or generator support, in strategic locations.

   In both these examples there seems to be a clear recognition of the need for some material level of efficient expenditure that has not been included in the ex-ante cap. By not including any expenditure in relation to these projects the PBA recommendations fail to deliver fair and equitable returns to TransGrid on a prospective basis. To adopt the PBA recommendations therefore appears to contravene the Code.

2. Creation of incentives to invest inefficiently. Without significant provisions within the ex-ante cap to resolve emerging limitations on the main NSW transmission system, far north coast network, or Sydney area, TransGrid has no funding provision to take these projects to the regulatory test stage, undertake time critical elements of these projects to ensure that efficient network options remain within lead time, or to make payments to providers of generation support or DSM. This creates a commercial deterrent to undertake this expenditure prior to its formal recognition as part an excluded project, even though such expenditure may be efficient. This deterrent arises because of the prospect of losing 'within period' returns on capital and depreciation on expenditure for which there is no provision.

3. An excessive proportion of expenditure is in the excluded category. PBA estimate that the value of excluded projects is about $ 931 million compared with a recommended ex-ante provision of $ 577 million over the reset period. About half of the excluded expenditure provision is expected to be required during the current reset period. This is clearly inconsistent with the clear preference, implied by the Statement of Regulatory Principles to minimise the extent of excluded project provisions in favour of a single ex-ante capital expenditure profile.

4. Undermines the intended operation of Section 5.6 of the Code that links TNSP responsibility for transmission planning and investment to TNSP accountability for service outcomes. As noted above, the Commission explicitly endorsed this linkage as being appropriate when the Commission authorised the Network and Distributed Resources Code change package in late 2001. The involvement of the Commission in the likely approval of a significant amount of excluded project expenditure, and the setting of associated expenditure targets for each project, ties the Commission, and the Commission's advisers, to decisions under the regulatory test and involves the Commission directly in the program for project delivery. This raises important questions about the extent to which the Commission and their advisers are assuming responsibility for transmission planning and investment decisions. This is clearly not the intention of Section 5.6.

5. Increased regulatory intervention and monitoring. With such a significant number of projects classified as excluded the Commission will be required to become involved in a proportion of these, first to approve the revenue targets at some time in the future, and secondly, to establish and monitor the incentive arrangements associated with each project in a time frame out of synchronism with the normal reset cycle.

1.5 Careful Inclusion of Excluded Project Expenditure in the Ex-Ante Cap Addresses These Concerns

The inclusion of an appropriate and material proportion of each excluded project expenditure within the ex-ante expenditure cap addresses each of the problems arising from the PBA recommendations. It is accepted that judgement is required in determining the quantum. The following example, involving the need to strengthen the main transmission system linking the Newcastle-Sydney-Wollongong load area with NEM generation sources (the main NSW transmission system), is used to illustrate how this judgement may be formed.

Estimating the Level of Expenditure for Inclusion in Relation to the Main NSW Transmission System – An Example

Background

The PB Associates' draft report correctly recognises that on current trends the main interconnected system is likely to reach its capability limits around the end of the current regulatory reset period or during the next reset period. PB Associates also correctly characterise the potential seriousness of the problem in their discussion of voltage collapse and note the risks that this presents if appropriate and timely solutions are not developed. Further, they clearly recognise the practical challenges associated with basing capital expenditure forecasts on uncertain scenarios.

Nevertheless, as already noted, and acknowledged by PBA, at least some expenditure associated with the development of the 500kV ring during the current reset period will be efficient, regardless of the uncertainty associated with various prospective generation developments. Indeed, expenditure will need to be undertaken in the very near future to ensure that a number of potentially efficient development options are not eliminated by default because of long lead times. It appears that PBA were unable to form a judgement on the appropriate quantum of expenditure to include in the ex-ante cap. This, of itself, does not justify the inclusion of no expenditure. The following section considers some of the options in relation to the 500kV ring.

Possible Approaches to Estimating the Relevant Ex-Ante Provisions

An assessment of relevant considerations reveals potentially pragmatic solutions to the problem of uncertainty of future expenditure associated with excluded projects such as the 500kV ring developments. Expenditure categories that are likely to be efficient include:

- Funds needed now to progress the various options to regulatory test stage.
- Expenditure levels at which generation support payments and/or DSM programs would be the most efficient option.
- Funds for key projects that enable the most efficient development options to be delivered on time.
- At least one major leg of the 500kV ring depending on the sequence and siting of new generation options.

TransGrid proposes that each of these areas of expenditure be considered in turn and a judgement formed, based on the available information, as to the likelihood of that expenditure occurring in the reset period. These expenditures could be probability weighted and included in the ex-ante cap in proportion to the assessed probabilities. Information in relation to each

of these areas of expenditure was provided to PBA during the review and this could now be used.

For example, expenditure required to progress this project to the regulatory test was assessed as being certain and an estimate of 3% of the total cost provided to take the various projects to the regulatory test stage. The maximum benefit of deferring the first stage of the 500kV ring by one year is approximately 8% of the capital cost of the 500kV ring. This could be used to calculate the amount of funding to be included in the ex-ante cap for generator payments and/or sponsor DSM.

Lead times for potentially efficient network options can be extended by undertaking work on key 'critical path' projects. TransGrid has already provided evidence that up rating part of the Bayswater switchyard to 500 kV at the same time as the next scheduled major Bayswater generator outage is one example of this. Early procurement of critical sections of line routes associated with possible future developments (e.g. Bannaby to Sydney) is another. A total estimate of $70.2 million for these types of projects was also provided to PBA together with an explanation of the basis of this estimate.

It is of concern that PBA appear to have dismissed the Bayswater generator outage example on p67 of their report. While PBA can reach this conclusion PBA will not be accountable for any future disruption to Bayswater generation if this outage opportunity is missed. This illustrates the lack of accountability that Commission advisers have and the importance of encouraging a regime that leaves these decisions with the TNSP.

The Simplest Most Appropriate Approach

However, continuing with the main transmission system example, the simplest most appropriate approach of all appears to be to include at least one major network element of the 500kV ring in the ex-ante capital expenditure profile. While there is uncertainty about which element of the 500kV ring is to proceed first there is a high probability of at least one element proceeding. Each element would be expected involve around $190 million in the regulatory period. This approach provides sufficient funding for regulatory test assessments, an incentive to pursue demand side management and generator support options, and funding for key 'critical path' projects. It is also consistent with the probability based approach to setting the ex-ante capex profile contemplated in the Statement of Regulatory Principles.

In the event that the full provision included in the ex-ante cap is not spent, the impact is at the end of the regulatory period and therefore minimal. Furthermore, any unspent quantum is not rolled into the regulatory asset base at the end of the period. In the event that a different development sequence warrants a substantial increase in expenditure, TransGrid can seek to have an adjustment as part of the process for approving the relevant excluded project. Under these circumstances the Commission's arrangements appear to require an offsetting adjustment to the ex-ante cap at that time to recognise the impacts of the excluded project on projects already included in the ex-ante cap. Overall, customer interests appear to be protected by this approach and the necessary incentives for TransGrid to pursue more efficient options remain in tact.

It is difficult to imagine that TransGrid would trigger an excluded project under most circumstances if a substantive provision has already been included in the ex-ante cap. Accordingly, concerns about the regulator, and the regulator's advisers, assuming responsibility for transmission planning and investment also appear to be addressed by the proposed approach.

1.6 Conclusions

The PBA Report recommendations in relation to the treatment of excluded projects, if implemented, would be inconsistent with the requirements of the National Electricity Code and the objectives of the ACCC as set out in the Statement of Regulatory Principles.

These concerns can be easily addressed with some modest modifications to the PBA Report recommendations. This approach has been illustrated here in relation to capital expenditure provisions associated with the main NSW transmission system. This example shows that, by including a clearly defined and material proportion of excluded project expenditure in the ex-ante cap, an effective Code compliant incentive regime for TransGrid can be established. The approach taken in relation to the main NSW transmission system can easily be extended to include other major areas where network limits are being reached, including the mid north coast of NSW and the inner Sydney area. The Commission is encouraged to establish a process to consider adopting this approach as part of the Supplementary Draft Decision.

Attachment 2 – Cost Estimating Issues

Issue 2.1: The PB Associates' "efficiency factor" applied to TransGrid's cost estimates has not been justified

This matter has been the subject of separate, more detailed correspondence between TransGrid and Commission staff. For the sake of transparency a number of the key points raised in that correspondence are repeated here.

An examination of the PBA discussion on this matter (pages 18 to 20 of the PBA report) reveals that the primary empirical basis for the proposed "efficiency factor" is an analysis involving a comparison of TransGrid's costs with the costs contained in the NSW Treasury Valuation of Network Assets, 2004 (the Treasury Guideline).

We note that the Treasury Guideline referred to by PBA appears to have been incorrectly titled in the PBA report. TransGrid understands that the correct title is "New South Wales Treasury - Valuation of Electricity Network Assets – A Policy Guideline for New South Wales Distribution Network Service Providers – February 2004" (emphasis added). Furthermore, this Guideline states on page 2:

> *"The purpose of these guidelines is to provide practical guidance for the valuation of network assets of Distribution Network Service Providers (DNSPs) in New South Wales for regulatory pricing purposes. ... These Guidelines are not intended for use in the valuation of network assets of Transmission Network Service Providers (TNSPs) in New South Wales that provide a support function to the TransGrid transmission network."*

Clearly the Treasury Guideline was never intended or developed for use in valuing transmission assets, and PBA's reliance on this Guideline in relation to TransGrid cost estimates is fundamentally flawed. In particular, about 85% of the estimated value of TransGrid's augmentation program involves plant and equipment operating at 330kV or above. The Treasury Guideline referred to by PBA includes no information on costs of equipment operating at these voltages.

It is of concern that these highly relevant considerations were not revealed in the PBA report.

During the final stages of the PBA review, TransGrid was provided with samples of the analysis used by PBA in carrying out the comparison between costs in the Treasury Guideline and TransGrid's cost estimates. After correction, to ensure a like for like comparison (to the extent possible), TransGrid was able to demonstrate to PBA that TransGrid's costs were, in fact, 6.8% less than those contained in the Treasury Guideline. It is of concern that this relevant information was not referred to or assessed in the PBA report.

As part of the PBA review, TransGrid provided PBA with an independent assessment of TransGrid's costs by Meritec that confirmed that TransGrid's historical costs are reasonable. We would have expected this report to have been referenced or discussed in the PBA report.

Also during the review, TransGrid demonstrated that TransGrid's cost estimates were based on historical "market costs" as determined by a competitive procurement process. PBA acknowledged this as fact in their report. However, PBA appear to have dismissed the relevance of the competitive procurement process by noting a 'significant number of issues' that could impact on the completed costs. Examples of these issues, cited by PBA, include tender selection, pre-contract investigation to minimise latent conditions, contract supervision, management of contract variations, and contract design.

Apart from the use of the Treasury Guideline comparisons discussed above, no analysis has been provided by PBA to suggest that any of the 'number of issues' cited by PBA were material in TransGrid's cost estimating process. While the PBA report discusses TransGrid's

'scoping' factor, no explicit logical or empirical linkage is established in the PBA review between this parameter and the examples of the 'number of issues' cited. No other information was sought from TransGrid by PBA in relation to the materiality of these issues during the review period, nor has it appeared that there was any material assessment carried out by PBA of TransGrid's relevant practices.

Any concerns PBA may have that the scope of TransGrid's designs and contract specifications has led to higher than necessary costs appears to be inconsistent with other findings in the review. Even though PBA examined the proposed work scope of a wide range of TransGrid projects, they made no finding that projects at the tendering or contracted stage had been inefficiently scoped, specified, designed, or that inadequate provision had been made for latent conditions or the future management of contract variations.

TransGrid requests that the Commission address these matters in the formulation of its Supplementary Draft Decision (SDD). In particular, before accepting or endorsing the PBA recommendation to apply an "efficiency factor" to TransGrid's cost estimates, the Commission needs to sight and make public:

1. The relevant scope of the Treasury Guideline (for example, distribution costs not transmission costs).
2. The specific and detailed comparisons between TransGrid's cost estimates and the costs contained in the Treasury Guideline.
3. Explicit acknowledgement of the analysis provided to PBA by TransGrid showing that TransGrid's costs were about 6.8% lower than implied by the Treasury Guideline and PBA's reasons for rejecting this analysis.
4. The specific and detailed comparisons between Energy Australia's costs and the costs contained in the Treasury Guideline, and the relevance of these comparisons to the PBA conclusions in relation to TransGrid.
5. An explicit empirical or logical connection between TransGrid's 'scoping' factor and any conclusions, implied or explicit, regarding the overall efficiency of TransGrid's cost estimates.
6. Reasons why previous assessments of TransGrid's historical costs on behalf of regulators and the NSW Treasury (for example by Worley, and SKM during the 1998/ 1999 revenue cap review) and others have not been accepted.
7. Reasons why the Meritec report supporting the efficiency of TransGrid's cost data and provided to PBA during the PBA review was not cited, and why the findings of this report are not considered relevant.
8. Any other facts, empirical data and assessment processes relied upon by PBA in arriving at their conclusions.

Issue 2.2: Removal of the 7% Pooled Contingency Provision

PBA have concluded that the inclusion of the TransGrid's Pooled Contingency is not warranted. The basis for this recommendation is ultimately a judgement by PBA "that this provision is not consistent with Code requirements that capital expenditure included in developing a revenue cap is efficient". Reasons given for this position include:

1. Lack of more detailed information supporting the types of expenditures that could arise that are covered by this provision.
2. The detailed analysis carried by PBA on the costs associated with each of the projects proposed by TransGrid.
3. The movement of some of the more uncertain projects into the 'excluded' category for future review when some of the acknowledged uncertainty regarding project scope is settled.
4. The risk factor already included in the regulated rates of return.

1. Types of Expenditures that Could Arise Were Explained to PBA in Detail

The types of expenditures covered by these provisions were explained to PBA in detail and include:

- Provision of a working contingency (10%) for all competitively bid contracts.
- The provision of an allowance against unforeseen additional costs arising during the development of projects from their current situations to completed projects.

Each of these matters is explained in turn and needs to be specifically analysed in the PBA's report before the Pooled Contingency allowance can be judged as inefficient. Of particular importance is that these adjustments reflect good industry practice and are therefore efficient in terms of relevant definitions of efficiency within the Code.

Provision of Working Contingency

The provision of a contingency sum of 10% on Contracts to supply equipment, or for installation works to cover variations that might apply within the contract, is good industry practice and is required for efficient project management.

The TransGrid project cost estimates have not included provision of any contingency for this purpose. An allowance for a working contingency is required to allow TransGrid to progress all projects, if required to do so.

The split up of project components is outlined in the table below. This table also shows the anticipated level of Pooled Contingency required to support the TransGrid's capital expenditure application.

Project Component	% of Total	Proposed Contingency
Installation Contract	40%	10%
Equipment Supply Contract	30%	10%
Property Costs	15%	0%
Design, project management, site supervision & commissioning costs	15%	0%
Pooled Contingency of the Total		7%

Unforeseen Costs

The significant proportion of augmentation project expenditures within the TransGrid Capital Expenditure Application are scheduled for the last three years of the regulatory period.

PB Associates has indicated several times in their report that TransGrid has advanced the scoping (detailed definition of project requirements) and cost estimates of projects to meet the ACCC requirements for the ACCC approach. To achieve this a large portion of the proposed augmentation projects have been scoped and costed on the basis of desktop assessments. The resulting estimates do not have any contingency or allowance for uncertainty or unforeseen costs included within them.

TransGrid and industry experience with desktop project estimates is that they have uncertainty factors in the order of 30-50%. The steps required within a project to reduce the level of uncertainty in the cost estimate includes:

- Completion of the conceptual design
- Assessment of site related conditions
- Completion of development and environmental consent processes
- Completion of the detailed design
- Award of contracts for the supply of equipment and installation works

Typically the factors that increase the cost estimate from the desktop estimate stage include geo-technical issues, site access issues, development and environment consent conditions and the like.

To make provision for all these types of issues and adopt a 'worst case' outcome would be unduly pessimistic and result in substantially higher estimate levels. TransGrid has not provided allowance for these types unforeseen costs within the capital expenditure estimates.

It is less often the case that site conditions and consent conditions, unforeseen and unforeseeable, at the time of a desktop estimate will reduce the project cost. Project cost savings are typically obtained by scope reductions or competitive market situations resulting in lower equipment and installation contract costs.

TransGrid anticipates that the market conditions for the supply of equipment and installation services will be tight in the regulatory period and substantial cost increases are expected. Allowance for changes in market costs are being discussed separately with the ACCC.

2. The Detailed Analysis of Each Project by PBA Provided No Allowance for Uncertainty

As noted by PBA, PBA has reviewed the scope of each project and, generally, has not recommended reductions in the scope of projects. Accordingly, it would appear that PBA considers that there is little prospect generally of cost savings by project scope reductions.

On this basis, and given that a large proportion of the ex ante cap project estimates rely on desktop project cost estimates, the level of uncertainty associated with the TransGrid capital projects due to unforeseen costs is expected to be material and asymmetric.

3. Placing Some Projects in the 'Excluded' Category Does Not Remove the Need for the Pooled Contingency Provision

While this removes some of the risks the asymmetric uncertainty factors discussed above still apply to a greater or less degree to the remaining projects. Provisions for this uncertainty remain material and a zero provision is not justified by this argument.

4. This Type of Risk Factor is Not Provided For in the Rates of Return

It is difficult to understand the basis of this claim by PBA as it is not set out in their report. However, there is no theoretical basis that TransGrid is aware of for this claim.

It is true that the equity beta used in the capital asset pricing model to calculate the cost of equity capital to the regulate business is associated with systemic risk. That is, the equity beta relates to the extent to which returns on equity in a given company may move relative to equity returns across the market as a whole in response to economy wide events such as changes in inflation, economic growth, or interest rates. However, the equity beta provides no reflection of company specific risks such as the potential for project costs to increase asymmetrically due to project related events.

Summary of the Need for the Pooled Contingency Provision

Unforeseen project costs are a normal and unavoidable aspect of completing projects. A large proportion of the TransGrid ex ante cap project list depend on desktop estimates it is expected that unforeseen costs will be incurred in progressing projects to completion.

PB Associates have reviewed the projects and their scope and there would appear to be little opportunity for consistent cost savings by scope reductions. Market forces on equipment and installation costs are highly unlikely to provide cost reductions for projects.

It is consistent with good industry practice for a significant level of uncertainty (30-50% for desktop estimate) on costs and that this uncertainty will be asymmetrical as a consequence of these factors.

In relation to the Code requirements, TransGrid notes that the Code requires the regulator to provide regulated businesses with a fair and equitable return on efficient investment on a prospective basis. TransGrid contends that uncertainty about the costs and scope of future investment is a fact of life, that a judgement must be made regarding reasonable provisions for this uncertainty under an ex-ante regime, that these provisions are material and efficient, and that returns must be provided for on these provisions on a prospective basis.

Provision of a 7% pooled contingency will provide TransGrid with a minimal level of working contingency for competitive bid contracts and also provide a contingency against unforeseen cost increases.

Attachment 3 - Reconciliation of the Final Figures Recommended by PBA for Inclusion in the Ex-ante Cap

3.1 General

The PBA Report fails to provide detailed schedules summarising (in numerical form) certain of the recommendations and observations made within the report. As a consequence it is extremely difficult to reconcile the cost structure recommended within the report.

This also undermines confidence that PBA have actually added into the final tables correctly. Given the materiality of the sums involved, this lack of detail is of particular concern to TransGrid since at the completion of this Regulatory Period some form of reconciliation will be required between recommendations within the Revenue Reset process and actual expenditure. In this case the point of reference for all parties is very likely to be the detailed tables within the PBA report.

3.2 Property Costs (Table 6-15 Page 114)

Tables 6-12, 6-13 and 6-14 within Section 6.7.2, and the accompanying narrative, result in Table 6-15 summarising PBA's findings for Property Investments. It is difficult to reconcile all of the figures in Table 6-15 with the narrative.

There is also some level of confusion as to the Property costs allowed within the Excluded Projects classification and a lack of clarity as to whether PBA have double counted the ex ante allowances for the Mid North Coast, QNI interconnector and Canberra & Cooma Supply projects within the Excluded Projects classification.

As there is no list of projects or project elements (in numerical form) provided in the excluded project & Property categories it is difficult to assess how the total costs were developed and what has been allowed for within these categories.

Recommendation: ***TransGrid would appreciate receiving, for the sake of transparency, the breakdown of figures so that the derivation of Table 6-15 can be fully understood and what component costs lie within the Excluded Projects category.***

3.3 Review of Small Augmentations Projects

3.3.1 Reconstruction of 875 Line at 132kV (Page 81)

TransGrid confirmed to PBA the estimated costs for the completion of the rebuild of the Tamworth to Gunnedah line. These costs consisted of two main components – estimated property costs and project costs.

The PBA Associates report has treated these costs as a single project cost and incorrectly applied their 6.8% "efficiency factor" to the total cost estimate. Elsewhere in the report property costs - correctly - are not reduced by the 6.8% efficiency factor.

Recommendation: ***the report should be adjusted to correct the misapplication of the "efficiency factor" to this project, & a schedule provided of the recommended Property costs to be included within the ex-ante cap.***

3.3.2 Substations - Glen Innes Substation Rebuild Option 2 (Page 88)

TransGrid have confirmed with PBA that it is intended to relocate one of the existing Glen Innes 132/66kV 30MVA transformers to Narrabri and that two (2) new 132/66kV 60MVA transformers are to be installed at Glen Innes.

The existing Glen Innes 132/66kV 30MVA transformer is not suitable for operation in parallel with a modern standard 132/66kV 60MVA transformer.

It is necessary to make provision for the cost of the second transformer which would otherwise not be included in the ex ante cap.

***Recommendation:* An additional $ 922,708 needs to be included in the ex-ante cap for the second Glen Innes transformer.**

3.3.3 Committed Projects - Wollar Switching Station (Page 99)

It would appear that the estimate of $940,000 for 2004/05 has inadvertently been deleted from the spreadsheet. PBA have not made any comment in their report that would substantiate this reduction and it is assumed that an error of omission has occurred.

***Recommendation:* Reinstate the $940,000 for 2004/05 for the Wollar Switching Station.**