PART II:
SERVICE OBLIGATIONS AND ACHIEVEMENTS TO-DATE

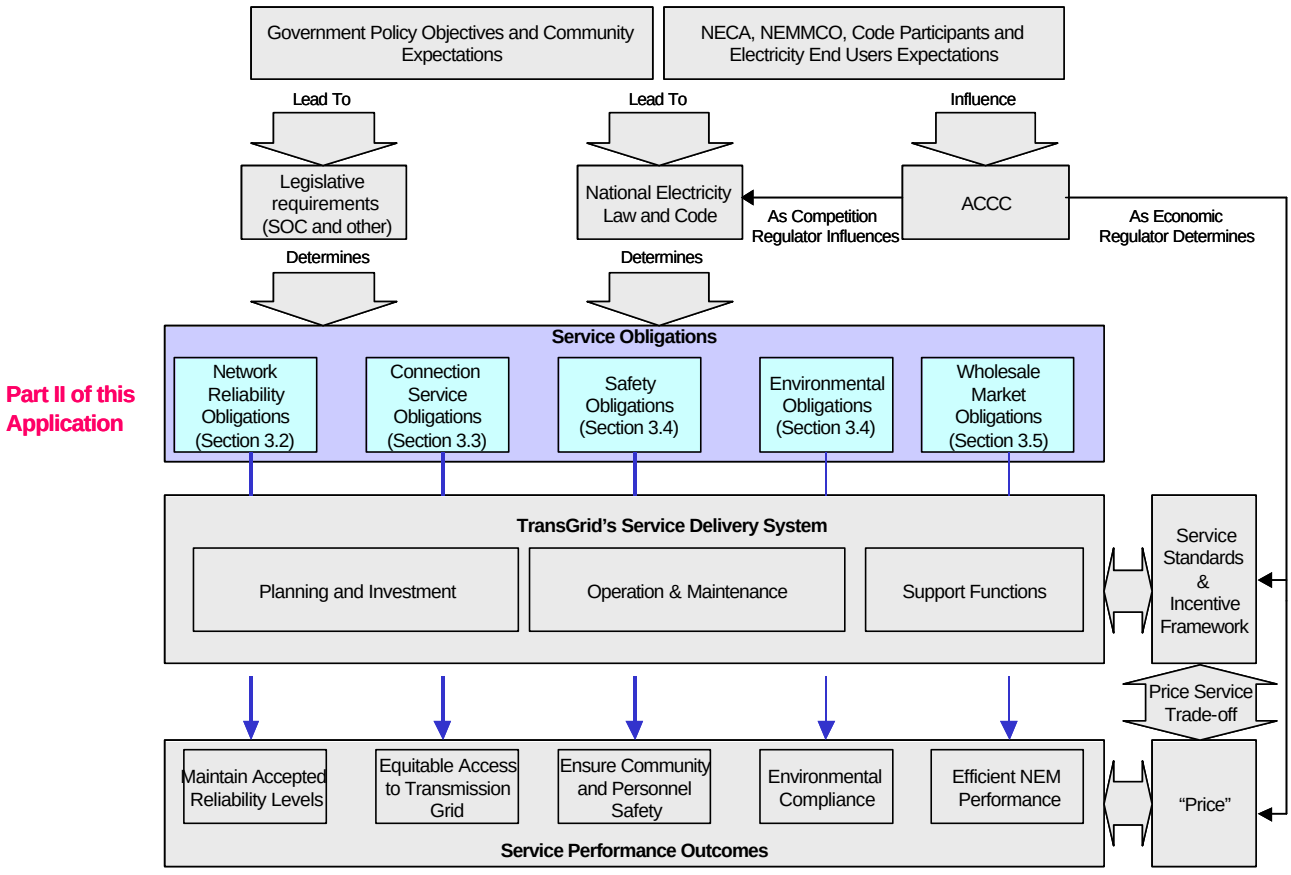
Part II of this Application:

- Explains, in more detail, the five key sets of service obligations that underpin TransGrid's MAR requirements.
- Outlines outcomes that TransGrid has achieved in the current regulatory period in delivering these service obligations and meeting performance targets.
- Identifies transitional issues requiring attention by the Commission, together with proposed approaches to each issue that will enable TransGrid to effectively operate in the next regulatory period and ensure that current performance and outcomes are sustained into the future.

There are two Chapters in this Part as follows:

- Chapter 3: Service Obligations.
- Chapter 4: Sustaining Current Period Outcomes into the Future.

Figure 2-1: Framework for Business Operations and Service Delivery



3 Service Obligations

3.1 Introduction

In developing this Application for the regulatory period commencing 1 July 2004, TransGrid's MAR needs to be determined with reference to the five areas of service obligations highlighted in the business operations framework introduced earlier in Figure 2-1. These service areas are:

- Network reliability;
- Connection services;
- Safety;
- Environment; and
- Facilitating an efficient National Electricity Market.

As previously discussed, all of these service obligations are Statutory and Code obligations. This Chapter explains each of these service areas in more detail, noting some of the implications for this revenue Application.

3.2 Reliable Transmission Services

3.2.1 The Obligation to Provide Reliable Transmission Services

Network reliability relates to the extent, frequency and duration of loss of electricity supply to customers due to network faults. Maintaining network reliability over the short, medium, and long term is TransGrid's principal service objective in relation to its customers. Achieving reliability is very much dependent upon the power transfer capability of the network.

The requirement to provide reliable transmission services is clearly specified in the Energy Services Corporation Act, the Code and in regulations under the Electricity Supply Act. Section 6B of the Energy Services Corporation Act states that the success of TransGrid's business is judged, amongst other things, by reference to its ability to operate efficient, safe and reliable facilities for the transmission of electricity.

Clause S5.1.2 of Schedule 5.1 of the Code imposes network reliability obligations upon TransGrid. The schedule specifies the minimum standards of network service (focussing on power transfer capability) required to achieve reliability both within a region and between NEM regions. In general, the reliability obligation is for TransGrid to, amongst other things, plan and operate its network so as to allow the transfer of power from generators to customers:

- with all facilities in service (and also with certain facilities out of service, if agreed in a connection agreement); and
- whether or not accompanied by a credible contingency event.

This effectively requires TransGrid to plan and operate its network to allow for the transfer of power from generators to customers during, amongst other things, credible contingency events which expressly includes, amongst other things, "the disconnection of any single generation unit or transmission element" (i.e. what is commonly referred to as an "N-1" credible contingency event). A full list of the credible contingency events referred to in clause S5.1.2.1 is contained in Attachment 6.

In addition to the Code, TransGrid must also comply with the network reliability obligations of the Electricity Supply (Safety and Network Management) Regulation 2002 ("Safety and Network Regulation").

The Safety and Network Regulation is imposed by the State of NSW and provides for the Director-General of the NSW Ministry of Energy and Utilities to require network service providers to lodge or amend their 'network management plans' to, amongst other things, address network safety and reliability issues as set out in the legislation. TransGrid has lodged such a plan as required by the regulation. Amongst other things, the Regulation requires TransGrid to operate its network in accordance with the comprehensive safety and reliability requirements set out in the plan.

3.2.2 The Importance of Network Reliability

Reliability is important to TransGrid's customers because of the importance the end user places on it. End users place an extremely high value on reliability because of the nature of the service electricity provides, and the nature of the product.

Electricity end users are not interested in electricity *per se* rather they are interested in the services electricity provides (e.g. light, heat, motive power, refrigeration). Those services are fundamental to the ability of individuals and businesses to be a functioning part of a modern society.

Since the nature of electricity is such that it cannot be stored and a number of the services required by end-users (e.g. lighting) are difficult to provide via other energy sources, this dependency makes reliable electricity supply highly valuable. Indeed, there are few products upon which end users place a similar value on reliability (water and emergency services are two).

More importantly, over time, electricity consumers have come to expect very high levels of reliability.

The importance of transmission network reliability becomes more obvious when the consequences of reliability failure are considered. Reliability failures at the distribution level can generally be isolated to a relatively small group of electricity end users. Reliability failures in generation (i.e. plant failure) may result in increased electricity prices across the board, but less often will result in supply interruption for the electricity end-user. In transmission, however, the costs of reliability failures can be extremely high because of the number of electricity end users that are likely to be affected, and the disproportionate increase in costs this is likely to involve.

An example of the consequences of reliability failure was the incident in Auckland in February 1998, where power was interrupted to the city through the failure of four underground supply cables. Power was not restored for some 52 days, and cost the network service provider NZ$128 million in rectification of lines with more than an additional NZ$10 million in legal action. More recently the blackouts in the North East of the US and Ontario, Canada, affected up to 50 million people. At the time of drafting this Application the exact cause of these blackouts was still being determined. However, transmission network performance was widely regarded as a contributory factor.

In TransGrid's case its 81 substations have, on average, approximately 37,000 electricity end users each. In many instances the number of electricity end users is significantly in excess of this figure. Accordingly, it is not surprising that both the NSW State Government and the distribution companies within NSW take particular interest in TransGrid's reliability outcomes.

The importance of network reliability to customers and electricity end-users is reflected in the Code. Under the Code, network "reliability augmentations" are defined as augmentations necessitated solely by an inability to meet the minimum network performance requirements set

out in Schedule 5.1 or in relevant applicable legislation or regulations. They are evaluated under the first 'limb' of the regulatory test from a cost effectiveness perspective.

This distinction between reliability augmentations and other augmentations recognises the importance placed by the community on TNSP reliability obligations.

TransGrid has previously agreed with the Commission to meet certain reliability targets. Recently, these targets have been included as explicit standards within a Performance Incentive Scheme framework for TNSPs. Chapter 7 of this Application contains further information on TransGrid's reliability service standards relevant to this Scheme.

3.3 Connecting Customers

TransGrid has obligations primarily to customers and prospective customers (e.g. generators, distributors and large end users) to provide effective, timely and efficient connection services. Effective processes for customer connections are important in facilitating open access to the transmission network. Open access supports one of the fundamental objectives of the NEM, which is to enhance competition by ensuring that there is no discrimination in the treatment of access seekers.

Clause 5.2.3(d) of the Code sets out TransGrid's obligations in relation to customer connections. Amongst other things, TransGrid must:

- review and process applications to connect, modify a connection as requested, and enter into a connection agreement with its customers – this ensures that appropriate processes are in place for TransGrid to provide access to customers;
- co-operate with other network service providers who are processing a connection inquiry or connection application to facilitate expeditious processing of applications – this ensures that all connection applications or inquiries are processed efficiently. Clause 5.3 of the Code also sets out certain rules in relation to the timeliness of responding to connection enquiries and applications; and
- work together with other network service providers to plan and develop their networks and connections points - joint planning with other network service providers is necessary since there is typically a range of options for network augmentation each involving different costs.

3.4 Safety and Environmental Considerations

Delivering services without compromising public safety and the safety of its personnel, and in a way that exhibits responsibility to the environment, are key TransGrid service obligations.

As a Statutory state owned corporation listed in Schedule 5 of the SOC Act, TransGrid is required, as the energy transmission operator, to operate safe transmission facilities, and to protect the environment by conducting its operations in compliance with the principles of ecologically sustainable development. The Electricity Supply Act 1995, in promoting the efficient and environmentally responsible production and use of electricity, also requires network operators to construct, operate, repair and maintain their electricity networks as necessary to meet these objectives.

In some instances, TransGrid's safety and environmental responsibilities limit the level of transmission capacity that can be provided. For example, it is not possible to allow transmission equipment to be operated beyond its technical ratings because of the impact on safe line clearances or risk of significant equipment failure.

In other instances these responsibilities impose additional costs. For example, line routes may be longer than the shortest direct route to avoid an environmentally sensitive area, or construction costs more expensive than a comparable service that does not recognise the environmental constraints. These additional costs are incurred to accommodate community concerns and minimise environmental impacts.

As highlighted by the recent Murraylink Preliminary View, the Commission places significant importance on legal requirements when considering environmental matters. The challenge is that the interpretation of these legal requirements is becoming more onerous, particularly when these requirements call for community concerns to be addressed.

3.4.1 Safety – Public and Personnel

Workplace Safety

TransGrid is required under the Occupational Health and Safety Act 2000 to accept a duty of care for the health and safety of all people in the workplace.

Legislation requires that all work activities be based on risk management principles, which includes the identification of hazards, assessment of risks, and control measures to address those risks. Comprehensive risk management procedures have been implemented for all TransGrid work activities and workplaces. This requires continuous review, training and auditing to ensure both the appropriateness of, and compliance to, these procedures.

Safety considerations are also an important element of TransGrid's asset management practices. The maintenance of TransGrid's network assets involves work in live substations operating at voltages up to 500kV and at heights on transmission lines of similar voltages. Substation and transmission line work requires high levels of training with special emphasis on ensuring the safety of both the work force and the community.

This is particularly evident, for example, where TransGrid has developed live line techniques for various transmission line maintenance functions. These are applied where appropriate in order to maintain availability and reliability. By using live line practices to replace broken insulators, repair damaged conductors or mid-span joints, fit vibration dampers or aerial markers, and even to replace poles, TransGrid is able to retain critical lines in service. However, live line techniques contain specific dangers for which only a strict regime of safety controls, highly skilled staff and specialised equipment can ensure the achievement of a safe work place. Such resource intensive activities as training, the ongoing development of safe work techniques and routine pre-work risk assessments place cost pressures on TransGrid's maintenance activities.

Public Safety

Many of TransGrid's high voltage assets (such as switchyards and transmission lines) are located in urban areas. The public (and especially children) are often unaware of the extreme dangers associated with electricity and the capacity for serious injury without having to come into direct contact with live conductors. TransGrid is required to maintain a high level of security to ensure that access to these assets is restricted at all times.

A number of incidents have occurred in the electricity industry where security has been breached with resulting fatalities. It is vital that these establishments are constantly monitored and inspected to ensure the reliability of the security measures installed. Designs and strategies need to be reviewed for adequacy with changing technology and legislation to provide the community with the safety assurances expected by them and to uphold TransGrid's duty of care obligations.

TransGrid has a responsibility to include health and safety considerations in the planning of all work, including new constructions and augmentation of existing facilities. Risk assessments are

conducted at the design and planning stages of projects to identify issues associated with the facilities and the work to be undertaken so that appropriate control measures are implemented during the work activity.

It is vital that all stakeholders are aware of the health and safety issues that may impact on them. New constructions often require public meetings to discuss these issues to explain how TransGrid intends to address them and ensure that its duty of care will be maintained at all times.

3.4.2 Responsibility for Managing Environmental Impacts

About one third of Australia's population is in NSW resulting in land use pressures that are at least comparable to, and that often exceed, those applying in other States. The majority of the population is located on the coastal fringe bounded by the Great Dividing Range and the Pacific Ocean. A significant proportion of TransGrid's lines are required to traverse this Range to link generation sources with population centres creating line routes involving rugged terrain, national parks, state forests, smaller land holdings and urban areas.

Developments can also involve metropolitan Sydney including cable routes through industrial, commercial, and residential areas as well as major substations within the central business district.

It is therefore not surprising that TransGrid's planning and development activities are regulated by a number of environmental protection regimes, many of which require separate approvals to be granted by the relevant determining authorities before certain activities may be carried out.

The principal statute is the Environmental Planning and Assessment Act ("EPA Act"). Under this Act, determining authorities responsible for granting approval for developments are required to take into account all matters affecting or likely to affect the environment[2]. Their assessment must have regard to:

- the register of critical habitat kept by the Director-General of the National Parks and Wildlife Services;
- threatened species, populations and ecological communities and their habitats, and any other protected fauna or native plants;
- the need to obtain (third party) environmental approvals from the Minister for Infrastructure and Planning; and
- recovery and threat abatement plans.

In addition to the EPA Act, there are also a number of other environmental protection statutes containing licensing and approval provisions which must be complied with. They include:

- Protection of the Environment Operations Act 1997.
- Contaminated Land Management Act 1997.
- National Parks and Wildlife Act 1975, sections 120 and 121.
- Threatened Species Conservation Act 1996, Part 6.
- Native Vegetation Conservation Act 1997.
- Forestry Act 1916.
- Wilderness Act 1987.

[2] TransGrid is a "determining authority" in respect of any development undertaken by it for the purposes of the EPA Act (Sec 110). However, under section 115A, where the proponent of an activity is also the determining authority, that activity may not be carried out without the approval of the Minister for Urban Affairs and Planning.

- Heritage Act 1977.

The protection of the environment has implications for the price at which TransGrid is in a position to provide its transmission services. In recent times, these implications have been assuming increasing importance as concerns about the environment have increased.

Put simply, TransGrid is required to meet the most demanding environmental approval processes in Australia, involving extensive and appropriate consideration of the impacts on natural ecosystems and affected property owners. This has an impact on construction costs, line routes, route acquisition costs, and operating and maintenance practices.

This does not prevent the expansion of the network, it simply complicates it, and TransGrid has embraced its environmental responsibilities willingly. In developments such as the recent 132kV transmission line from Coffs Harbour to Kempsey, spun concrete poles were painted to reduce the visual impact along with specifically designed spans in certain areas to minimise any potential impacts on threatened fauna habitat. Similarly, the MetroGrid project included a 3.6 kilometre tunnel and substation design which significantly reduced impacts on affected communities.

3.5 Facilitating Secure and Efficient Operation of the NEM

TransGrid's obligations in relation to facilitating the National Electricity Market are essentially set out in the National Electricity Code. The Code reflects the intended role of TNSPs as non-Market Participants in the wholesale trading arrangements and imposes a 'facilitative' role. This includes providing Market Participants with 'access' to transmission capability on a non-discriminatory basis. It also includes a range of obligations intended to assist NEMMCO in ensuring that the interconnected power system remains in a secure state.

Broadly the key areas of obligation in relation to facilitating a secure and efficient NEM are:

- Providing information to the Market and NEMMCO to ensure that the power system is operated in a secure state and that trading is carried out on the basis of good information.
- Developing the network in accordance with Code procedures to deliver efficient new transmission capacity.
- Keeping the Market informed of intentions in relation to new transmission capacity in order that Market Participants and intending Market Participants can take this into account in making their own investment decisions.
- Maintaining and operating the network to good industry practice, the technical standards set out in the Code, and in accordance with NEMMCO's operating procedures, to assist in ensuring that the power system remains secure.

TransGrid is also required to adhere to the various Code administrative processes such as registration with NEMMCO as a Code Participant, and the Code Dispute Management processes.

One area where there has been considerable discussion among stakeholders concerning TNSP obligations is in relation to investing in new interconnection capability. The Network and Distributed Resources Code change package, gazetted in March 2002, actually provided a clear framework for such developments. Assuming that regulated returns are set high enough, TNSPs have the incentive to pursue new interconnection options. These Code changes also include complementary processes of extensive public disclosure of TNSP proposals including the need for TNSPs to demonstrate that proposals are efficient i.e. that they pass the regulatory test. Together with the approach adopted by the Commission to regulated returns and the

application of the regulatory test, these Code changes should lead to efficient new transmission augmentations. These matters are discussed further in Chapters 4 and 9 of this Application.

3.6 Changes to Existing Service Obligations

The principal service obligations that have formed the basis for this Application are based upon the existing legal obligations as set in the Code, the various NSW laws and statutory instruments.

In view of the evolving regulatory environment, in particular (but not limited to), the recent Parer Report and the various proposals contained in that report in relation to transmission networks, TransGrid recognises the possibility that there may be amendments to the service obligations of TNSPs over the 2005 to 2009 regulatory period. Indeed, TransGrid has identified a large number of Code changes that have been implemented during the current regulatory period, many of which have had an impact on TransGrid's role as either a TNSP, or Code Participant, and therefore, a corresponding impact on how TransGrid delivers its services. This extensive list is set out in detail in Attachment 7 to this Application.

By way of example there has been considerable discussion among stakeholders concerning TNSP obligations relates to the scheduling of transmission outages to minimise the impacts on wholesale trading.

A number of stakeholders have pointed out that network outages occurring when network capability is highly valued can impose significant economic costs on the energy market. The trading risks imposed on Market Participants are also cited as a major concern. Accordingly, it is often proposed that TNSPs should be encouraged to develop operation and maintenance practices that give appropriate consideration to the market impacts of outages. These sentiments were captured by the Parer Review, which expressly recommended that TNSPs be subjected to incentives to schedule outages with regard for market impacts.

TransGrid is already scheduling a number of outages with the intention of minimising possible economic impacts, and is also obliged to consider system security implications when scheduling any outage. Furthermore, TransGrid welcomes the further development of incentive based regulatory arrangements that address these concerns in a way that is economically efficient.

This issue of outage scheduling to minimise market impacts is an excellent example of the differences that occur between the transmission service expectations of some stakeholders and the formal obligations set out in the Code.

Attempts to formalise these requirements have included the RIEMNS Stage 1 Code changes gazetted on 27 June 2002 and the Commission's position as set out in its draft decision on Service Standard Guidelines dated 28 May 2003.

In implementing the RIEMNS Code changes, it has become apparent that these Code changes reinforce the existing 'passive' role of TNSPs in relation to the wholesale market. That is, they encourage TNSPs to schedule outages well in advance, advise the market and NEMMCO of the intended outages, and to endeavour to meet the scheduled arrangements. These Code changes have the effect of discouraging TNSPs from responding to short-term changes in market conditions because of the importance of maintaining the integrity of the information provided to market traders about the timing of transmission outages.

A move to a more 'active' role, where transmission outages are rescheduled at short notice in response to Pool, or Frequency Control Ancillary Services ("FCAS"), price spikes would be a significant change to the passive information based effect of the RIEMNS Code changes (and as favoured by some Market Participants). To the extent that this can be shown to deliver enhanced economic outcomes then TNSP incentives should be altered accordingly. This

Application includes consideration of conceptual options for improving on current arrangements and scope for adjusting TransGrid's commercial incentives to accommodate implementation of these options. These matters are explored further in Chapter 7.

To the extent that future amendments alter the service-price trade off inherent in TransGrid's revenue requirement as set out in this Application, TransGrid believes that it will be necessary to agree a process with the Commission for accommodating such changes. The basis of such an approach would include building on the 'pass through' mechanisms suggested in Chapter 1 and is discussed in more detail in Chapter 10.

4 Sustaining Current Period Outcomes into the Future

4.1 Introduction

The price-service arrangements for the current regulatory reset period have been successful. Service performance targets have been met, and exceeded, while average transmission prices have fallen and remain the lowest in Australia. Ensuring that these outcomes are sustained into the next regulatory period, however, presents a number of challenges.

Many of the decisions taken by TransGrid to achieve these price service outcomes have been based on expectations of how the Commission will transition from the current regulatory period to the next. The actual approach taken by the Commission to this transition will set the precedent that TransGrid, and other TNSPs, will use to inform decision-making in the next regulatory period.

Moreover, load growth, combined with competitive market requirements, is testing the limits of the transmission system more frequently than in the past. This brings the natural tension between service performance outcomes, investment needs and prices more sharply into focus.

A number of new and important regulatory issues arise in transitioning from TransGrid's current reset period to the next reset period with corresponding decisions, which will need to be made by the Commission. The Commission's approach to these issues has far reaching implications for:

- sustaining and, where appropriate, improving service performance;
- providing appropriate incentives for network investment;
- the effectiveness of incentives for sustained operating efficiency improvements; and
- managing medium term transmission price variations.

This Chapter reviews the current regulatory period and identifies the issues requiring attention by the Commission and other stakeholders in the context of TransGrid's regulatory reset. On each of these issues, TransGrid has proposed an approach that will not only ensure that current period outcomes are sustained into the future but also provides a sound platform for the development of a robust set of precedents for the economic regulation of TNSPs.

4.2 The Service Price Outcomes for the Current Regulatory Period

The service price outcomes for the current regulatory period feature:

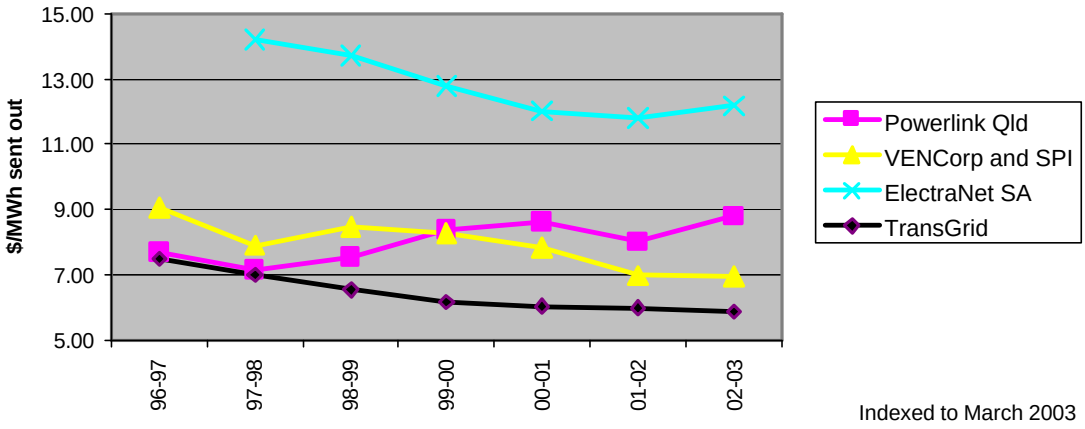
- Exceeding overall circuit availability targets (refer to Figure 4-4), which are among the highest levels in the NEM, and which reflects effective asset maintenance and refurbishment over the period.
- Maintaining high levels of network reliability while accommodating growth in summer demand of 3.2% per annum and winter demand of 2.3% per annum.
- Reductions in real average transmission prices by over 12% in the five years since the decision (from 1998-99 to 2003-04)[3].

[3] This figure reflects transmission prices based only on TransGrid's operations (excluding the Snowy assets).

- Reducing NEM wholesale prices and FCAS costs (due to the interconnection of NSW with Queensland) and improved interconnection capacity between NSW and Victoria.
- Improvements in the provision of information to the market on maintenance outages and the rescheduling of some outages to reduce the likely impact on market conditions, including outages that affect interconnection capability with Victoria during summer.

Closer examination of transmission charges in NSW shows that average transmission charges remain the lowest in Australia and have trended down during the reset period. This outcome is shown in Figure 4-1 below.

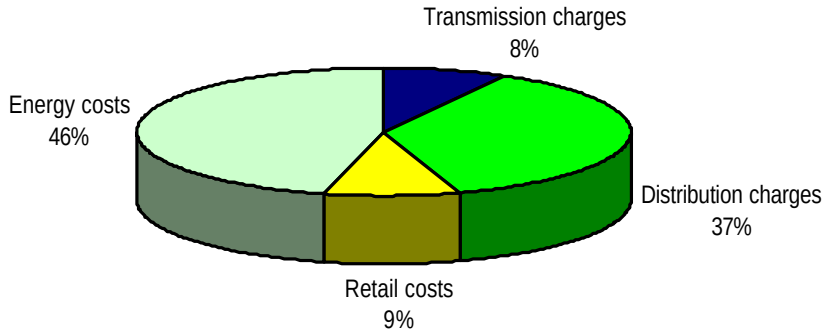
Figure 4-1: Comparison of Average Transmission Price Trends



While it is an important consideration for electricity end users it needs to be kept in perspective. The price of most importance to end-users is the total price paid for electricity including generation, distribution and retail charges. Lower transmission charges may actually result in higher prices to end-users if they are achieved at the expense of new investment necessary to relieve transmission constraints and improve the efficiency of generation dispatch.

In any event, as Figure 4-2 shows, transmission charges are only about 8 % of the total bill of a residential customer. This means that a 10% reduction in transmission charges translates into a less than 1 % reduction in the total electricity price. It also highlights the need to ensure that future price targets are properly balanced by consideration of service outcomes, such as ensuring continuing network reliability and the facilitation of competitive wholesale market outcomes. Both these factors are often far more important to electricity end users than end use price impacts of changes in transmission charges.

Figure 4-2: Breakdown of a Typical Bill for a Domestic Customer[4]



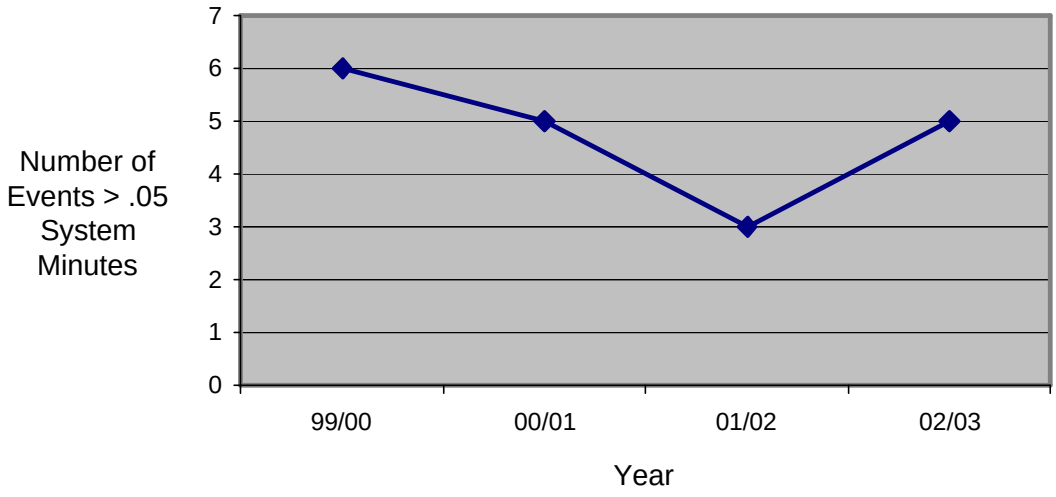
4.2.1 Implications for the 2004 Determination

Examination of service outcomes during the current reset period confirms that targets have been met in relation to reliability and plant performance. There have also been material improvements in other performance areas such as safety, the environment and interaction with the wholesale market trading arrangements. These outcomes are now briefly discussed.

Network Reliability

Figure 4-3 shows TransGrid's overall reliability performance over the current regulatory period. These results have been achieved notwithstanding that TransGrid's network has had to accommodate higher than expected growth in peak summer demand, which raises the risk that the transmission network will be unable to meet demand across the full range of conditions.

Figure 4-3: NSW Transmission Network Reliability Outcomes-

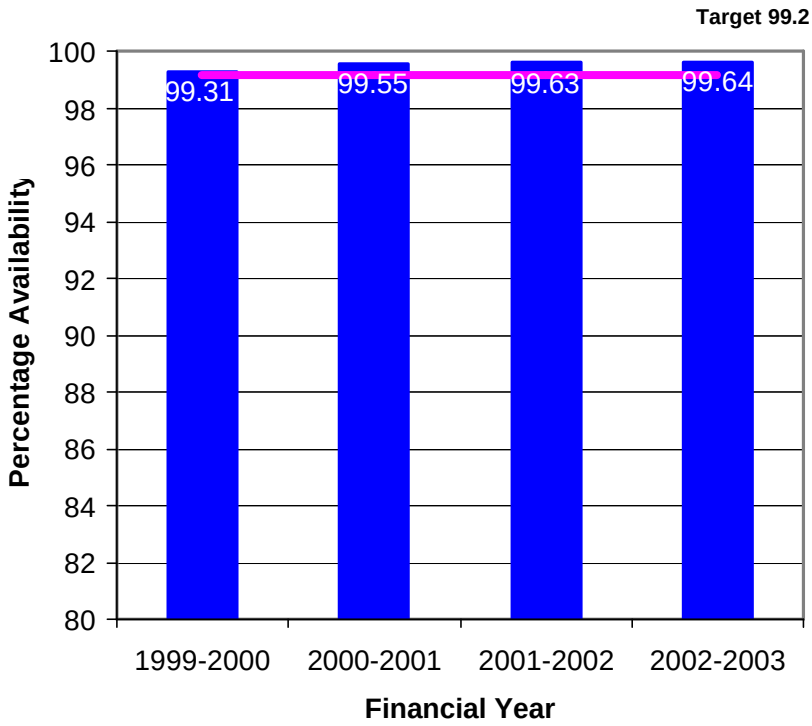


[4] Source: Regulatory arrangements for the NSW Distribution Network Service Providers from 1 July 2004 - Issues Paper DP58 released by IPART, page 6.

Plant Performance

Figure 4-4 shows TransGrid's overall circuit availability performance over the current regulatory period compared with the target set by the Commission in its current decision.

Figure 4-4: Cumulative Circuit Availability*



*Cumulative Circuit Availability as a percentage based on TransGrid owned transmission lines rated at 132kV and above for planned, forced and emergency outages.

Connecting Customers

TransGrid manages the processing of connection applications by following the procedures set down in section 5 of the National Electricity Code. During the current regulatory period connection applications have been received from all categories of existing and prospective NEM Participants. Our responses to each application are as closely matched to meeting the expectation of the applicant as possible. As each applicant has their own specific expectations, each connection application has its own specific key issues.

TransGrid has also developed, consulted on and published a negotiating framework for use with customers in circumstances where negotiable services are involved. TransGrid implements Connection Negotiation and Investigation Agreements for each application so that the scope of work, delivery and cost recovery is clearly defined to the applicant.

For new Market Participants, TransGrid has allocated significant resources to lifting the knowledge of the prospective Participant to a level where they can effectively participate in the connection process, as well as NEM consultations. For example in relation to the wind generation Participants TransGrid and Country Energy, with the support of NEMMCO, jointly ran a workshop on Network Connection in September 2002. Following this workshop a number of prospective wind farm proponents are now effectively expressing views in the relevant forums on the market impacts of implementing wind generation.

Safety – Public and Personnel

Workplace Safety Achievements

Since formation, TransGrid has improved its already very impressive safety performance. The Lost Time Injury Frequency Rate for 2002-2003 was 2.1 accidents/million hours worked which is TransGrid's best performance achieved to date. This rate arises from a total of 4 Lost Time Injuries for the year.

The current Health and Safety Programme commenced in December 1999. This has required commitment and dedication to integrate health and safety into all management systems.

Figures 4-5 and 4-6 below show the trend in overall safety performance since TransGrid was formed in 1995.

Figure 4-5: TransGrid OHS Statistics

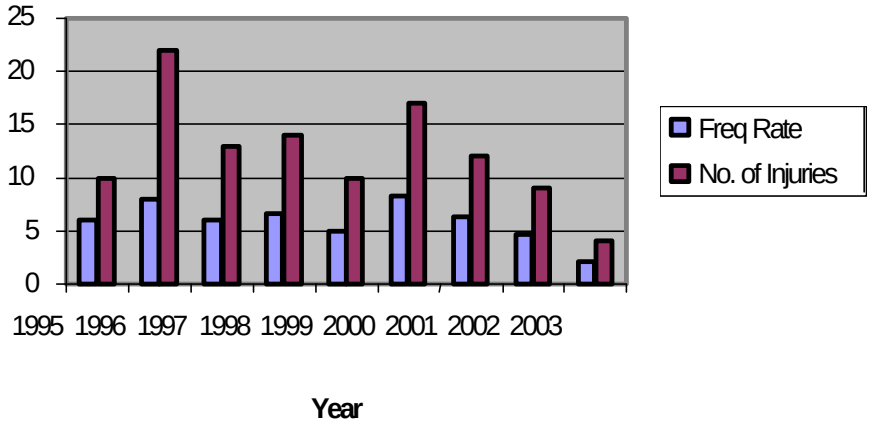
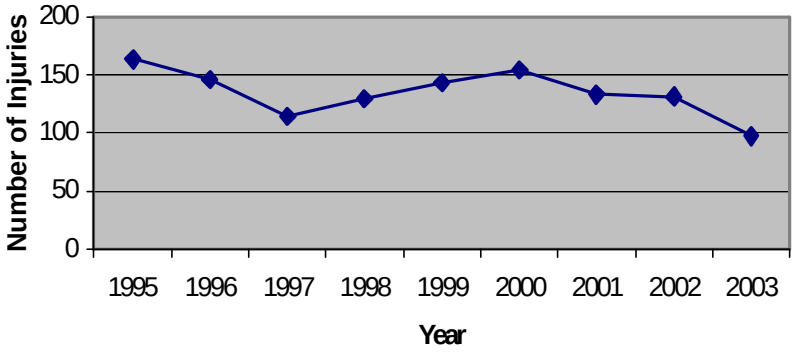


Figure 4-6: Statistics on Total Number of Injuries



As a workers' compensation self-insurer, additional requirements are imposed on TransGrid to maintain this licence. During the OHS audit conducted by Work Cover in August 2002 (as part of the licensing requirements), TransGrid was commended for the commitment shown to health and safety and the effective implementation of the relevant systems.

Public Safety Achievements

TransGrid has developed and implemented a Public Electrical Safety Awareness ("PESA") Plan in accordance with the requirements of the Electricity Supply (Safety and Network

Management) Regulation 2002. This plan, which demonstrates TransGrid's commitment to public safety, outlines how TransGrid's network assets will be managed in relation to public safety.

The objective of the PESA Plan is to make the public aware of the hazards associated with electricity, in particular high voltage transmission lines and substations owned and/or operated by TransGrid. TransGrid has sought to co-ordinate with the NSW distribution companies to increase the effectiveness of this initiative.

The PESA Plan includes initiatives such as:

- presentations to schools in high risk areas;
- publications;
- TransGrid's Web Page;
- radio advertisements;
- media releases and interviews;
- meetings with property owners;
- presentations/exhibitions at trade shows and Field Days;
- public meetings;
- consultation and liaison with emergency services and community groups; and
- participation and/or development of information awareness packages/kits/promotional material.

Environmental Achievements

During the current regulatory period, TransGrid has achieved a number of milestones aimed at ensuring best practice environmental performance. These include:

- Maintained compliance with the international environmental standard ISO14001and the ESAA Code of Environmental Practice.
- Reviewed the TransGrid Environmental Management System.
- Continued and enhanced the environmental audit programme.
- Continued the Environmental Awareness Training programme for all staff.
- Promoted environmental networking both within and external to the organisation.
- Established and are actively involved in the NSW Electricity Network Environmental Group, which aims to consolidate the environmental management approach for the transmission and distribution organisations across the state of NSW.
- Participated in the Government Energy Management Policy and the Greenhouse Challenge.
- Established a Waste Reduction and Recycling strategy for the business.

Notwithstanding these milestones, TransGrid was involved in an incident last year in which easement maintenance actions in NSW and Australian Capital Territory National Parks that were contrary to TransGrid's own policies and procedures. As a result TransGrid has implemented several additional environmental safeguards, including an environmental authorisation system for the business. This system is aimed at job-specific environmental skills assessment and training to complement existing general awareness training.

In addition, and immediately after the incident, TransGrid identified the possible environmental consequences and implemented rehabilitation measures to ameliorate both actual, and potential, impacts.

Facilitating Efficient Wholesale Market Competition

TransGrid has contributed significantly to enhanced wholesale market outcomes throughout the current regulatory period. Two of its key achievements have been:

- The establishment of the Queensland – NSW interconnector ("QNI") jointly with Powerlink Queensland.
- Enhancement of the NSW – Victorian interconnection capacity (jointly with VENCorp).

QNI was first connected in late 2000. This project comprised 330kV and 275kV interconnecting lines between northern NSW and southern Queensland with supporting substation plant and control and communication systems. This is a relatively long interconnection and resulted in the interconnection between all the eastern Australian States over a total distance of the order of 4,500 km. The design of QNI provided a relatively high capacity over a long distance with relatively low loss characteristics.

QNI has provided the following benefits:

- Reduced pool prices in NSW and Queensland.
- Significantly reduced volatility of pool prices in Queensland.
- Sharing of generation capacity in both states to meet the peak load needs in each state.
- Reduced need for frequency control ancillary services in Queensland.

The level of load in southwestern NSW heavily governs the capability for power import by Victoria. During the current regulatory period TransGrid has worked with VENCorp to enhance the interconnection capability, essentially in three phases:

- A capacitor bank was installed at Wagga to overcome limitations imposed by voltage conditions in the Wagga area.
- A network control scheme was installed at Yass to remove potentially significant limitations on Victorian import capability imposed by the rating of a 132kV system in NSW.
- The Lower Tumut – Wagga 330kV line was up rated and a network control scheme was installed at Wagga and Darlington Pt to further ease the impact of southwestern loads.

As a consequence, the Victorian import capability (in combination with additional works in Victoria) has been increased from the order of 1,100 MW to about 1,900 MW.

In addition to interconnection development projects, TransGrid has continued to:

- Re-schedule outages (at TransGrid's expense) where it has been determined that the outages may have a detrimental effect on generator access to the wholesale market e.g. outages affecting the capacity between NSW and Victoria are not taken during summer months where possible.
- Work closely with other TNSPs on a range of activities aimed at minimising the impact of transmission constraints on the efficiency of wholesale market trading. Notably TransGrid is a signatory to the TNSP Co-operation Charter that commits TNSPs to work together on the most important of these activities.

TransGrid has also been an active contributor to the Code where changes impact on the interaction of TNSPs and competitive market trading. Notable among these are:

- NECA's Transmission Pricing Review, which examined the key principles for the pricing of transmission services that would achieve the objectives of the NEM as conceived by COAG and outlined in the Code. A new structure of transmission charges came into effect in NSW on 1 July 2002, reflecting the end of State-based arrangements and the start of pricing of the transmission service fully under the Code.
- The Review into the Integration of Energy Market and Network Services ("RIEMNS"). This Review by NECA was instigated to examine the scope to improve the overall efficiency and effectiveness of the NEM by closer integration of the energy market and network services. The outcome of the RIEMNS Stage 1 Code Changes is a more structured process for advance network outage information reaching Market Participants.
- The Network and Distributed Resources ("NDR") Code Change package, which provides a clearly structured and effective process for managing regulated transmission investment in the NEM.
- The Technical Standards Review, which examined the technical standards expected of plant and equipment that is connected to the network, as well as technical standards applicable to the network.

4.3 Issues Arising in Transitioning From the Current Regulatory Reset Period to the Next

Sustaining the current high levels of service TransGrid is providing into the next regulatory period and beyond presents a number of new challenges, both for the Commission and TransGrid. Increasingly, network capability is being tested by the market and growing customer demand, and the investment cycle is now turning upward. Against this backdrop, the Commission is making its first decision on how to transition regulation of TNSPs from one regulatory period to the next. This decision will set precedents that will largely form the framework for incentive regulation of TNSPs and other Commission regulated industries.

The approach adopted will provide vital indicators to TransGrid, other TNSPs, and regulated infrastructure providers generally, about the business climate for developing and operating capital-intensive infrastructure based services. It is therefore difficult to overstate the seriousness with which it is incumbent on all stakeholders, including TransGrid, to analyse these issues. Of course, the Commission bears the final responsibility for deciding how to convert these issues into regulatory precedent.

Of necessity the Commission's previous decision was based on a number of assumptions and forecasts. These included assumptions about TransGrid's service obligations and associated capital and operating expenditure needs, as well as forecasts of movements in prices and costs across the wider economy. Precisely the same issues of uncertainty about future operating conditions will characterise this decision and all future determinations.

In responding to this Application the Commission is faced with important decisions about how to address the differences between the assumptions and forecasts at the time of its previous determination and actual outcomes during the current reset period. It will also be applying Code requirements, its PTRM approach, and evolving regulatory principles for the first time to a TNSP transitioning from one reset period to another.

In particular, it is crucial that the Commission's approach establishes a set of precedents around how the transition from one regulatory reset period to the next that:

- provides confidence and certainty that all past and future investments that are efficiently and prudently incurred will be incorporated and retained in the regulatory asset base;

- provides confidence and certainty that a commercially appropriate risk adjusted return will be earned on the regulatory asset base;
- places importance on the need to provide positive incentives for TransGrid to invest efficiently to maintain reliability and to expand transmission capability as necessary, consistent with the findings of recent national reviews on the energy market and regulatory arrangements;
- establishes a transparent and economically sensible incentive framework for encouraging operating efficiency gains; and
- provides regulatory arrangements that reward, or at least do not penalise, service providers for responding quickly and appropriately to changing service requirements.

In achieving the above outcomes the Commission's approach to the following issues emerge as having key importance in moving from the current regulatory period to the next:

- Valuation of assets for regulatory purposes.
- Accommodating the phasing out of accelerated depreciation for tax purposes within the PTRM model.
- Determining the appropriate return on capital.
- The appropriate treatment of differences between capital expenditure outcomes and the Commission's assumptions when setting revenue caps.
- Management of exogenous cost drivers, which have impacted costs during the regulatory period.
- Managing medium term transmission price variations.

This section of this Chapter reviews each of these issues in turn.

4.3.1 Valuation Of Assets For Regulatory Purposes

The Commission's draft Statement of Regulatory Principles ("SORP") indicates a preference for the valuation of network assets for regulatory purposes using the Optimised Depreciated Replacement Cost ("ODRC") methodology as a surrogate for the Optimised Deprival Value ("ODV"). For land and easements the draft SORP proposes a modified ODRC methodology where 'windfall' gains in values for the regulated business (due to real increases in property values) are offset by negative depreciation. In more recent revenue determinations for other TNSPs the Commission has moved to using a "deemed" historical cost approach to valuing easements.

TransGrid, unlike other TNSPs, already has an initial valuation (as at 1July 1999) for its land and easements established by the Commission as part of its current revenue determination. It would be reasonable to assume that this value would be the starting point for the calculation of the historical cost of easements applicable at the beginning of the reset period covered by this Application.

All that would be required to achieve an opening value for land and easements for the purposes of this Application would be to add the actual cost of additional land and easements acquired during the current regulatory period to the value established by the Commission at the commencement of the current regulatory period.

If assets other than land and easements were to be valued in line with the draft SORP, these assets would be re-valued using the ODRC methodology and added to the new value of land and easements to arrive at the value of the opening regulatory asset base for the reset period covered by this Application. TransGrid carried out a comprehensive review of the value of its assets using this methodology using the latest available market based information on asset costs. This review included an independent assessment of TransGrid's approach by

engineering consultants, Meritec. The resulting estimated asset valuation as at 1 July 2004 is $3,062 million.

During the preparation of this Application, and in line with the Commission's current stated intention to further review the SORP in parallel with its consideration of this Application, TransGrid was advised that the Commission would welcome the addition of a 'roll forward' option to determining the opening asset value for TransGrid's next regulatory reset period.

TransGrid can understand why the Commission may be attracted to a roll forward approach to establishing asset values and a 'roll forward' asset valuation has been carried out for the Commission's examination.

However, if a roll forward approach is to be adopted then a number of issues remain to be clarified concerning exactly how this is implemented. Given that this is a relatively recent 'in principle' change to the Commission's approach to valuing assets, and that it is the first time that it has been applied in the context of a Post Tax Revenue Model framework, TransGrid has had to make a number of assumptions in formulating the roll-forward approach. For example, a decision needs to be made whether to use the depreciation allowed at the time of the Commission's previous decision or to recalculate depreciation on the basis of actual capital expenditure.

TransGrid has therefore needed to develop what it considers to be an appropriate approach to the roll-forward of its asset base. TransGrid details its methodology in Chapter 8 and Attachment 8.

4.3.2 Accommodating The Phasing Out Of Accelerated Depreciation For Tax Purposes

The Commission's Post Tax Revenue Model incorporates assumptions about the levels of tax liability of the regulated business in question.

The estimated value of this component of MAR is currently increasing from one reset period to another, due to the increasing dominance of newer assets that are not subject to accelerated depreciation provisions. The impact of the phasing out of accelerated depreciation within the Post Tax Revenue Model needs to be recognised and addressed in a way that maintains the commercial position of the business.

In addition, the valuation of assets for tax purposes carried out for TransGrid uses a re-valued rather than historic cost. As a result the tax deductions arising are most likely higher than for an equivalent private sector regulated network business. This may need to be reviewed in light of the principles of competitive neutrality. This issue is explored further in Section 8.9 and an alternative valuation approach suggested.

4.3.3 Determining The Return On Capital

The regulated return applicable to TransGrid's regulated asset base, as established by the Commission, for the current regulatory reset period is higher than provided for in more recent decisions for other regulated businesses. For example, the Vanilla WACC used by the Commission in determining TransGrid's current Maximum Allowable Revenue is 10.84% compared with 8.3% and 8.23% for ElectraNet SA and SPI PowerNet respectively. Some of this reduction is linked to downward movements in market interest rates over time.

However, there have also been reductions due to changes in the exercise of regulatory judgement regarding parameters used in the Capital Asset Pricing Model. In TransGrid's current revenue decision the Commission "made an adjustment in the cost of capital reflecting the risk of the relative 'newness' of the regulatory regime" at the time of the determination. This adjustment included adopting regulated returns at the higher end of the reasonable range.

As set out throughout this Application there has been no abatement in the regulatory uncertainty facing TNSPs in the NEM and, therefore, we consider a strong case exists for continuing to factor this into the level of regulated return applicable to TransGrid's assets.

Any further trending down of the regulated returns applicable to long-term investments such as transmission infrastructure would add to this uncertainty and clearly, of itself, reduce the incentive to invest. As discussed in more detail in Chapter 11 of this Application, if Australia is going to avoid the mistakes made overseas in relation to transmission, this is the time in the investment cycle to create certainty about future returns and encourage TNSPs to seek out and deliver prudent investment.

A higher rate of return would also be consistent with the Productivity Commission's recommendation that regulatory arrangements focus on providing adequate incentives to invest. TransGrid's proposed approach to this issue is introduced in Section 4.4.3 and developed further in Chapter 9.

4.3.4 Differences Between Capital Expenditure Outcomes And The Commission's Assumptions When Setting Revenue Caps

One of the more critical precedent setting issues that the Commission will have to deal with in this determination is the treatment of differences between capital expenditure outcomes and assumptions when establishing the initial regulatory asset base for the next regulatory period. This is a critical issue that, until now, has not been clarified.

Consequently, when making investment decisions TransGrid and other TNSPs have had to make assumptions about how such issues will be treated by the Commission. In TransGrid's case the presumption has been that a TNSP will be fully compensated for any capital expenditure that is prudently incurred during a regulatory period – even if the need for that capital expenditure was not foreseen at the beginning of the regulatory period. It is worth noting that, at the time, TransGrid requested the Commission to provide for higher levels of capital expenditure than the Commission ultimately included in its decision.

As it transpires, TransGrid has invested around $180 million more than provided for by the Commission in order to meet service obligations. In its previous revenue decision, the Commission allowed for capital expenditure totalling $885.58 million for projects commissioned over the five-year period ending 30 June 2004, based on a single set of expected projects. TransGrid's actual aggregate regulated capital expenditure incurred in the period was $1,066.7 million (on an 'as incurred' basis).

More specifically, the variation from the amount provided for by the Commission in the current period resulted from the need to adapt to emerging circumstances and includes some variation in the projects actually undertaken, as well as in the timing, cost and scope of those projects. These differences were due to a combination of factors, notably variations to accommodate environmental and community considerations that became apparent during the public consultation and detailed design phases, changes in the market for supply of equipment, and 'latent' conditions that came into effect during the construction phase. A latent condition is a condition that cannot be foreseen until construction commences but that adds to the cost of works such as the need to tunnel through hard rock instead of earth.

Achieving completion deadlines may involve the acceptance of increased costs in order to ensure delivery of significant benefits earlier. QNI, for example, delivered over $3 million per week of benefits from the date of its commissioning. The MetroGrid project is required to ensure adequate network reliability to the Sydney metropolitan area, particularly at times of summer peak demands.

An important consideration has also been the growth in summer demand, which has proven to be at the top end of the forecast range.

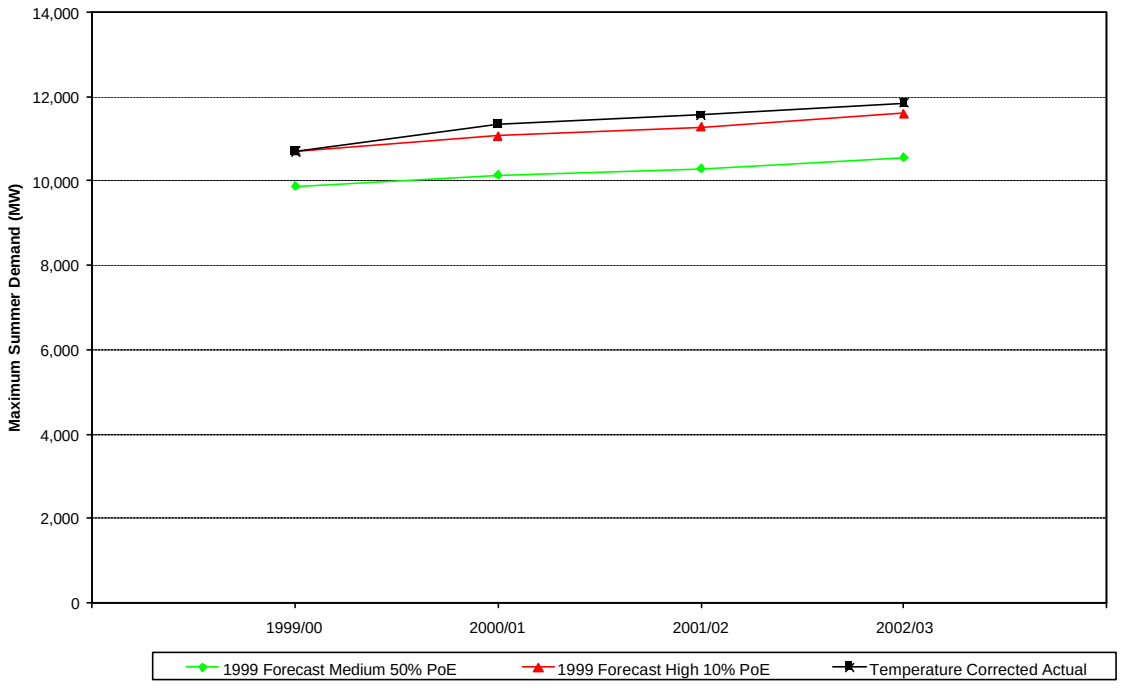
As noted in TransGrid's 2003 Annual Planning Report, the principal factor that has caused actual load growth to differ from the original forecasts for the current regulatory period is increasing air-conditioning load during the summer. Actual temperature corrected NSW summer maximum demands over the past four years have been at the upper range of the forecasts. These forecasts were produced by the National Institute of Economic and Industry Research based on econometric modelling.

Figure 4-7 below shows actual temperature corrected summer demands and two of the forecasts produced in 1999. The two forecasts are for:

- A "base" or medium economic scenario with a 50% probability of exceedence ("PoE"). That is, there is a 50% chance that actual outcomes will exceed the forecast.
- A high economic growth scenario with a 10% PoE.

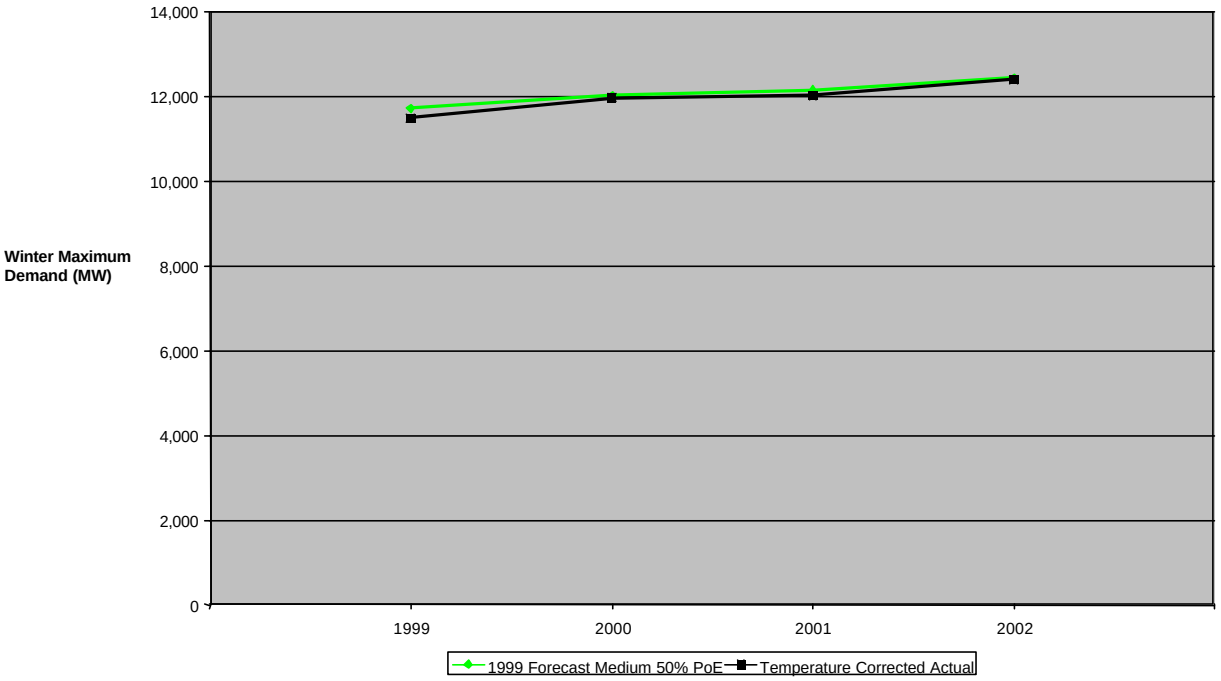
The actual temperature corrected demands have proven to be up to approximately 1,300 MW greater than anticipated in 1999 under the medium economic growth scenario.

Figure 4-7: NSW Temperature Corrected Summer Demands



Winter temperature corrected maximum demands, shown in Figure 4-8 below, have been very close to those forecast in 1999.

Figure 4-8: NSW Temperature Corrected Winter Maximum Demands



This experience is not unique to TransGrid. The NSW distribution businesses have also shared a similar experience and have attributed the growth in summer maximum demand to the impact of increasing usage of air-conditioners.

By way of example, Integral Energy, which services that part of the NSW region that has been identified as having the fastest expected growth in peak demand in TransGrid's 2003 Annual Planning Report, noted in its submission to IPART that:

"The uptake of air conditioning in Western Sydney is also placing immense strain on Integral's network. Ten years ago, about one in four households within Integral's supply area had air-conditioning. Today, one-in-two households are air-conditioned and indications are that this figure will continue to grow.

Air conditioning places a huge strain on Integral's electricity network during summer months. A characteristic of air-conditioning in the Western Sydney climate is that the appliances are usually required on a relatively small number of days. Air conditioners therefore have contributed to a significant growth in peak demand while the total energy consumption has been slightly more modest."[5]

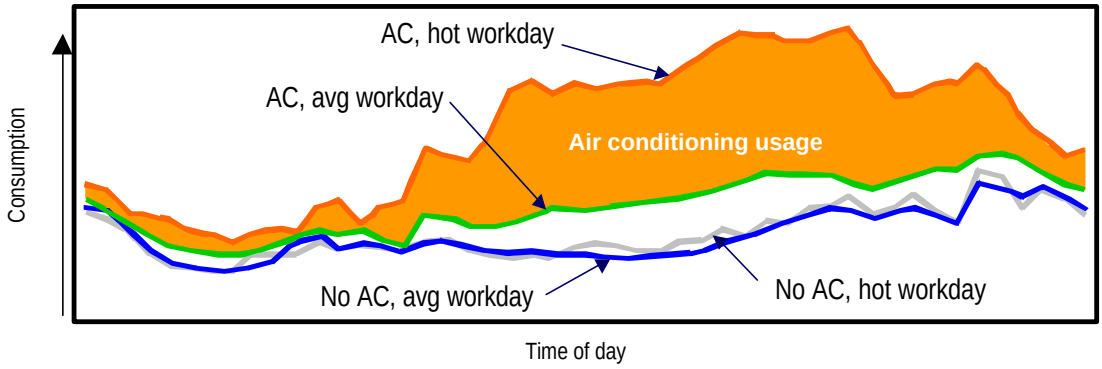
Similarly, EnergyAustralia (whose distribution area represents the largest proportion of TransGrid's load) noted in its submission to IPART that "*…during the current Determination period, there has been a marked divergence in growth between the two [annual energy consumption and peak demand] measures of electricity consumption, with summer peak demand growing considerably faster than forecast, and considerably faster than energy consumption. It is the dramatic increase in summer peak demand that has placed pressure on EnergyAustralia's infrastructure…*"[6]

[5] Integral Energy, 2004 Electricity Network Review Submission to IPART, 10 April 2003, page 21.

[6] EnergyAustralia, Submission to IPART, 10 April 2003, page 6

Figure 4-9 below, which was included in Energy Australia's submission to IPART, shows the impact of air conditioning on their network on hot days.

Figure 4-9: Energy Australia Submission to IPART



The fact that actual load growth has outstripped the expectations of the above distributors, as well as TransGrid illustrates the difficulties involved in accurately predicting such variables.

The higher than expected increase in summer demand over the period has been one of the factors leading to higher capital expenditure. In particular, the MetroGrid project to augment supply to the Sydney CBD was reviewed in the light of the higher demand growth and a decision taken to increase the capacity of the cable to accommodate the higher demand.

The cost of the MetroGrid project has also been impacted by the need to address environmental responsibilities in relation to route selection and substation siting issues within the Sydney area. In particular, the detailed design phase of the project found that longer sections of cable-tunnel were required to meet environmental concerns, and the routing of the cable needed to be extended to bypass certain areas.

Table 4-1 overleaf sets out allowed expenditures and expected outcomes for the current regulatory period as at 30 June 2003. For comparison the capital expenditure allowance sought by TransGrid in 1999 for the current regulatory period is also included.

Table 4-1: ACCC Regulatory Capital Expenditure Allowance, Actual and Projected Capital Expenditure, and Capital Expenditure Sought by TransGrid in its 1999 Application

	Year end 30 June					
Capital expenditure ($million nominal)	**1999/2000**	**2000/01**	**2001/02**	**2002/03**	**2003/04**	**Total**
Regulatory allowance (as commissioned)	52.61	82.08	285.95	92.73*	372.21*	885.58
Actual / projected (as incurred excluding interest during construction)	187.8	155.2	229.2	243.2	251.3	1,066.7
Capital Expenditure Sought by TransGrid in its 1999 Application	145.84	232.75	321.76	66.20	440.92	1,207.47

* Adjusted to include regulated allowance for Snowy Mountain Hydro Electricity Authority Capex.

TransGrid acted prudently and in accordance with good industry practice in undertaking these investments to meet environmental requirements and deliver benefits to end users in terms of lowering wholesale prices and ensuring reliability of supply. The capital expenditure in this period was prudently undertaken and TransGrid welcomes the opportunity to provide technical and other information to the Commission and its consultants to the extent required to support this view.

Ensuring that TransGrid can continue to meet the needs of end users in similar circumstances requires certainty that it will be able to recover the costs of doing so. Failure to recognise the difference between prudently incurred and forecast the Commission's capital expenditure in the upcoming determination will have significant implications for future TNSP decisions on network development. The Commission's approach to this issue has the potential to encourage or discourage future efficient transmission development in the NEM. Section 4.4 of this Chapter outlines the approach taken by TransGrid to this issue in formulating this Application, together with the supporting rationale.

In future, under the conditions of continuing high load growth, network reliability can be expected to decline unless new transmission capacity is added or there is some form of controlled demand reduction. TransGrid expects an increased rate of network reinforcement will be required to accommodate the transition to summer peaks due to the higher rates of summer load growth, the lower equipment ratings associated with high summer ambient temperatures and longer periods of peak demand. Further discussion on this is contained in Chapter 5.

4.3.5 Impact of Exogenous Costs on Operating Efficiency

TransGrid's operating expenditure in the current period is expected to be less than the target for incentive regulation purposes that is implied by the current Commission decision. In arriving at this position it is considered appropriate to make adjustments for cost increases that were outside direct management control (exogenous cost increases). In particular, increasing cost pressures have resulted from:

- Industry-wide wage increases that exceed the inflation rate.

- New NEM requirements e.g. technical standards, RIEMNS, NDR Code changes.
- Increasing regulatory compliance and dispute management costs.
- Additional measures which were required to be taken to reduce bushfire risk.
- Additional security requirements following the events of 11 September 2001 in the US.
- Increasingly stringent environmental requirements.
- Insurance cost increases driven by the wider insurance market.
- Costs associated with rescheduling maintenance outages to minimise the impact on market trade.

Table 4-2 below summarises the operating efficiency between the operating cost target line implied by Commission's 1999 Decision and actual outturn operating costs.

Table 4-2: Regulatory Allowance and Actual and Projected Operating Costs

Operating expenses ($million nominal)	**1999/2000**	**2000/01**	**2001/02**	**2002/03**	**2003/04**	**Total**
Ex-post efficient expenditure**	103.22	107.90	112.47	122.28	126.93	572.80
Actual / projected expenditure	102.92	100.39	103.44	113.80	120.68*	541.23
Variance	0.30	7.51	9.03	8.48	6.25	31.57

* Forecast including Snowy assets, equity raising costs and self-insurance costs.

** Chapter 6 of this Application sets out the calculation of the ex-post efficient expenditure.

Each of the external drivers noted above is briefly discussed in turn.

Industry-wide Wage Increases That Exceed the Inflation Rate

Industry-wide wage increases in excess of the inflation rate have been a major contributory factor to TransGrid's operating cost growth. The general movement in wages and salaries within the wider economy has been 4.1% per annum over the current revenue reset period. This compares with changes in the CPI of only 3.2% per annum and an increase of 4% per annum in TransGrid's total operating costs.

Given that TransGrid's operating costs are dominated by labour costs (either its own labour force or labour services sourced externally) this implies, holding all other factors constant, operating efficiency improvements over the reset period of around 1% per annum. However, in reality, all other factors were not constant with TransGrid's costs rising for a number of exogenous reasons, not least the fact that assets requiring maintenance were increased substantially due to the acquisition of SMHEA assets and installation of substantial other new assets).

When account is taken of these factors the true productivity increase over the current regulatory period is around 2.6% per annum as explained in chapter 6. This compares favourably with the Commission's operating efficiency target of around 1.5% per annum over the same period.

The supply/demand balance in the labour market is forecast to continue broadly in line with recent trends with little prospect of a halt to the increase in real wages. Since the inception of the Australian Bureau of Statistics 'Wage Cost Index' in September 1997, real wages in the electricity, gas and water sectors has grown at an average of 1.1 percentage points above CPI.

A similar trend has been exhibited by the "all industries" wage cost index. This trend is driven by technological innovation and increasing labour productivity in the economy as a whole.

While TransGrid operates in a mature industry with little scope for technological innovation, and consequent labour productivity growth, it must still attract staff and resources away from sectors that do experience such growth in labour productivity. Accordingly, continuing increases in real labour costs are likely to continue well into the next reset period.

Significantly this analysis raises serious questions over the use of the consumer price index (CPI) in the CPI –X operating efficiency incentive target line used by the Commission. Assuming all other factors are held constant (such as scale of operations) achieving a CPI-X target for operating costs requires that the business achieve total factor productivity (TFP) growth of X ***plus*** the average TFP growth in the general economy. That is, X is actually equal to the required TFP growth above and beyond the average TFP growth in the economy.

This issue is outlined further in Chapter 6 and explained in detail in the NERA report at Attachment 10. However, in general terms, this is because the TFP for the general economy is already captured within the measured CPI. The higher the TFP for the economy the less businesses, on average, need to raise prices for any given input price inflation. Thus the higher the TFP for the economy the lower is CPI. If a particular industry is expected to have costs rise slower than CPI it is necessary that either its factor price inflation is lower or its TFP is greater than that for the general economy.

This means that simply keeping operating costs to within increases implied by movements in the CPI implies that the business is already matching the rate of TFP improvement across the wider economy.

New NEM Requirements

Since TransGrid's last revenue determination there have been over 60 packages of amendments to the Code (i.e. approx 1,640 individual amendments), many of which have imposed new and extensive obligations on TNSPs. These include matters such as transmission pricing, technical standards and information to the market and NEMMCO on planned transmission outages (the 'RIEMNS' Code change package). The extent of these new requirements is set out in Attachment 7.

Increasing Regulatory Compliance and Dispute Management Costs

Increased compliance costs include those arising from TransGrid's participation in the National Tax Equivalent Regime, legislative requirements to report the fringe benefits of employees, introduction of the new Tax Effect Accounting Standard, and shareholder reporting as required by NSW Government legislation. Participation in the National Tax Equivalent Regime is undertaken in support of the Regime's objective of promoting competitive neutrality between participating entities and their privately owned counterparts.

Changes to accounting standards can have very significant impacts on reported operating costs. For example, moves to align Australian Accounting Standards with International Accounting Standards (IAS) are expected to influence the allocation of costs between capital and operating accounting categories. While the outcomes of this process were not settled at the time of completing this Application, one possible scenario would see more than $10 million per annum of costs, previously treated as capital expenditure, become operating costs for reporting purposes. Clearly, this is a material exogenous impact that needs to be accommodated within a given reset period.

The dispute management provisions in the Code can and sometimes have resulted in a protracted process in dealing with the dispute. The disputes may, and have in the past, involved appeals to the National Electricity Tribunal (or its successors in the Code) and various Supreme Courts, Courts of Appeal and may even include the High Court. There are high

associated external legal costs and enormous burden on the scarce internal resources of the organisation. The setting of the operating expenditure needs to be cognisant of this burden on TNSPs.

During the current reset period the Commission has introduced additional regulatory compliance obligations including regulatory reporting requirements and ring fencing guidelines. There are also new data collection requirements associated with the reporting of service performance against targets to be established by the Commission at future reset decisions.

Bushfires

The bushfires in NSW and the ACT during December 2002 and January 2003 were particularly devastating. This has led to a review of all associated land management practices including the extent to which easements under high voltage transmission lines should be cleared. As a result TransGrid has a revised bushfire management plan that implies significant additional operating expenditure commencing in the current financial year.

Security

Since the events of 11 September 2001 in the US there has been increased recognition of the need to enhance security across a wide range of areas. Electricity provision has been one of these areas. TransGrid considers that information regarding activities in this area is best treated on a confidential basis with the Commission and its staff. This will be provided under separate cover to illustrate the cost impacts of additional security measures that have proven necessary since the Commission's last determination.

Insurance Cost Increases Driven By The Wider Insurance Market

There have been significant changes to the general insurance market in the past three years that have led to material increases in TransGrid's insurance costs. Since 1999 TransGrid's external premiums have increased by more than 80%. Factors impacting on the insurance market are understood to include depressed investment returns, substantial claims (e.g. the World Trade Centre in New York), corporate collapses (e.g. HIH and Enron), and changes in regulated capital requirements for Australian insurers.

During the current regulatory period TransGrid has been able to address these increases using adjustment provisions in the Commission's current revenue decision for TransGrid. However, the baseline for these costs has moved and this needs to be accommodated in the operating costs targets for the reset period covered by this Application. In addition, given the unsettled outcomes of the US blackouts and other events, it is reasonable to expect further market driven increases in insurance costs affecting the electricity industry.

Increasingly Stringent Environmental Requirements

The need to comply with the increasing stringent level of environmental requirements has placed increased cost pressures on TransGrid. Specifically, it has been necessary for TransGrid to enhance its compliance regime involving the engagement of additional specialists in this area and to conduct increased levels of internal awareness training. Attachment 11 sets out the extent of TransGrid's current responsibilities in this regard.

Responding to Market Expectations

TransGrid has rescheduled some of its network outages to avoid periods where outages are likely to significantly constrain wholesale market competition. . For example, outages that impact on the NSW to Victorian interconnection capacity are usually scheduled to occur outside of summer periods. This has added to TransGrid's operating costs. While these costs are not a result of meeting a formal service obligation there is a strong view among many stakeholders that such rescheduling should be encouraged. Establishment of a process by the Commission

for explicitly recognising these additional operating costs in the next reset period would provide such encouragement.

4.3.6 Smoothing the Impact on Transmission Prices

The previous issues all relate to the appropriate approach to calculating TransGrid's MAR for the forthcoming regulatory period. In particular, they are issues, which arise in moving from the current regulatory period to the next.

Once the MAR is determined, it is also important to consider how the recovery of the MAR will impact transmission prices.

As discussed previously, transmission charges form a very small proportion of electricity end users' overall bill for electricity services. Continuing network reliability and the facilitation of competitive wholesale market outcomes are of greater importance to end-users than end use impacts of changes in transmission charges.

However, to the extent that the implied changes to transmission charges can be 'smoothed' over the regulatory period, this may be beneficial in providing time for end-users to adjust to the changed prices. TransGrid notes that its MAR in the current regulatory period has been smoothed in this way.

In an industry characterised by large, irregular capex requirements, it may also be desirable to consider the inter-period benefits of capital expenditure undertaken in any one period. This could potentially lead to arguments for smoothing price changes across regulatory periods, as well as within periods.

4.4 Proposed Approaches for Dealing with Transition Issues

The previous section identified a number of key issues, which arise in transitioning from the current regulatory period to the new regulatory reset period. As noted above, the Commission's approach to each of these issues will be of key importance in ensuring that the regulatory framework continues to provide appropriate drivers for TNSPs.

This section sets out the approach that TransGrid has taken in addressing each of these issues in this Application.

4.4.1 Valuation Of Assets For Regulatory Purposes

As discussed in the previous section, it has emerged that the Commission's preferred approach to determining the opening asset base for the next regulatory reset period is to roll-forward the asset base determined at the time of the previous Decision.

In Chapter 8 of this Application, TransGrid has set out in detail the approach it has adopted in undertaking this roll-forward. TransGrid submits that the Commission should endorse this approach and adopt it as a key component of the regulatory framework for future reset periods.

4.4.2 Accommodating The Phasing Out Of Accelerated Depreciation For Tax Purposes

As highlighted in the previous section, the phasing out of accelerated depreciation for tax purposes within the Post Tax Revenue Model has an impact on TransGrid's revenue requirement in the forthcoming regulatory period, through increasing TransGrid's required compensation for tax. This impact needs to be recognised as one of the factors contributing to TransGrid's required MAR in the forthcoming regulatory period.

The asset values and remaining lives for taxation purposes are set out in Appendix 1 and are estimated to result in an increase in tax liabilities of approximately $8 million per annum by the end of the next reset period.

4.4.3 Determining The Return On Capital

In determining the return on capital the Commission has relied in the past on the Capital Asset Pricing Model and the very technical debates over the appropriate value of parameters used within that model to determine the level of regulated return applicable to regulated transmission assets within the NEM. TransGrid has set out its position on these parameters and how they should apply to its next reset period in Chapter 9 of this Application.

Ultimately, however, there always remains scope for regulatory judgement on the outcome of the values chosen. Since the Commission's previous revenue determination in relation to TransGrid this judgement has been exercised in a way that has seen regulated returns fall. A continuation of this trend runs the serious risk that TNSPs will form the view that regulated transmission investment will not be commercial in the long-term.

Ideally, to prevent this, the Commission should maintain TransGrid's current level of regulated return into the next reset period, after adjustment for market movements in key parameters.

This would ensure that TransGrid would continue to champion network development projects, including interconnection options. Given the challenges in taking these projects through the various public approval processes, including the regulatory test and environmental approvals, they will not occur without parties, such as TransGrid, having a clear incentive to champion them. At the very least the Commission should consider putting a 'floor' under regulated returns at their current level (after allowing for market movements in key parameters).

This process would consist of setting TransGrid's regulated returns at or above those applicable to ElectraNet SA and SPI PowerNet, and establishing explicit minimum future levels for the various CAPM parameters in the revised Statement of Regulatory Principles. In TransGrid's view, this action would be necessary (but probably not sufficient) to promote the regulated investment needed to address capacity shortfalls predicted to emerge in the near future.

4.4.4 Treatment of Current Period Expenditure

As discussed in the previous section, TransGrid has been required to undertake more capital expenditure in the current regulatory period than had been envisaged by the Commission in the Commission's 1999 Decision. This additional expenditure has been required to allow TransGrid to continue to meet its service standard obligations.

Since TransGrid's MAR for this regulatory period is based on the expenditure projections in the Commission's previous regulatory decision, TransGrid's charges in the current regulatory period do not reflect the additional expenditure that has proven necessary.

Addressing the appropriate treatment of prudent capex above forecast levels is a key aspect of the regulatory framework which must be addressed in this Determination and which must give all stakeholders a clear understanding of how such events will be dealt with. In particular, the Commission's approach will have important implications for TNSPs' continuing incentives to undertake prudent capex.

TransGrid has been willing to undertake the additional expenditure in the current period on the basis that the Commission will roll into its asset base all expenditure that is considered to have been prudent. This is consistent with the practice of other regulators and is consistent with preserving the incentives on TransGrid to undertake expenditure necessary to meet its service standard requirements in the face of changing circumstances, under a regulatory regime in which regulated revenues are set for fixed periods.

TransGrid notes that even if all of its capital expenditure is incorporated into the opening asset base for the next regulatory period this will still not compensate it for the return foregone on the expenditure undertaken in this regulatory period.

That is, the funds, which TransGrid has invested in this regulatory period, have an opportunity cost, which would have been compensated for at the WACC if the need for the additional investment could have been foreseen at the beginning of the previous regulatory period. Again, in order to maintain the incentive on TransGrid to undertake prudent investment which is only identified as being necessary *during* the regulatory period rather than before, and in order to ensure that TransGrid's shareholders are adequately compensated for this investment, it is important that allowance for this foregone return is made in determining future regulated revenues. TransGrid has, therefore, rolled forward its asset base on the basis of actual capital expenditure incurred in the regulatory period and has also included in its opening asset base an amount to reflect the foregone return on its capex during the current regulatory period.

4.4.5 Management of Exogenous Costs Within the Regulatory Regime

TransGrid supports an incentive based approach to setting operating cost targets for each regulatory reset period. This is contemplated in the Code and developed in the Draft Statement of Regulatory Principles to include scope for efficiency gain sharing from one reset period to another.

The Commission established an operating cost target for TransGrid based on a CPI-X incentive regime and has subsequently developed complementary proposals related to service performance outcomes.

TransGrid's experience during the current reset period, as discussed above, is that, for this regime to be effective, further work is required to determine the basis for setting efficiency targets and for identifying and accommodating cost impacts that are outside management control.

In terms of setting the target line for operating efficiency gains, TransGrid proposes that industry movements in wages and salaries be used instead of the consumer price index in the Commission's CPI –X formula. The calculation of X factor also needs to include an adjustment for growth in the size of the asset base being serviced. These proposals are developed further in Chapter 6.

In addition there needs to be a process for clearly identifying and accommodating exogenous factors, that is, cost drivers that arise during a regulatory period that are outside management control. In TransGrid's view a failure to adequately 'pass through' such cost changes will create incentives to run down the condition of assets so that any 'overspend' can be shifted to the next regulatory period – even if this increases the overall cost of maintaining those assets. It is proposed that a process be established to identify these costs when they arise and have them 'passed through' at that time. This is discussed further in Chapter 10 of this Application.

4.4.6 Smoothing the Impact on Transmission Charges

TransGrid is mindful of the possible implications for average transmission prices resulting from large irregular network investments.

TransGrid notes that its current MAR is a smoothed revenue requirement over the entire regulatory period. TransGrid considers that such a smoothing of regulated revenues is appropriate and should continue to be adopted in the forthcoming regulatory period. This implies that TransGrid would have the same X-factor applied to its MAR for each year in the forthcoming regulatory period.

In order to contain price impacts in the current regulatory period, TransGrid proposes that the foregone return on its prudent investment in this regulatory period (discussed above) should be capitalised and rolled-in as part of the opening asset base for the new regulatory period, rather than being separately recovered over the forthcoming period. This is consistent with the Commission's current practice in relation to including previously optimised assets back into the asset base. By incorporating the foregone return in the asset base in this way, the associated revenue will be recovered over a longer period, across several regulatory determinations. The details of TransGrid's treatment of the foregone return are presented in Section 8.5.4 of this Application.

The network augmentation investments that have been undertaken in the current regulatory period will contribute to the network continuing to meet required service standards across more than the next five-year period. As a result, it may be appropriate to smooth the price impact arising from these investments over more than one regulatory period.

However, this issue cannot be considered in isolation of the wider incentive framework for encouraging efficient transmission investment. For example, in the event that regulated returns continue to be reduced by regulators, and/or the principles for setting returns remain uncertain, TNSPs would have an incentive to accelerate recovery of capital.

Accordingly, TransGrid proposes that this matter be settled in the context of the current review of the Commission's Statement of Regulatory Principles, and in advance of the Commission's draft determination of TransGrid's future MAR.

4.5 The Commission's Approach is Vital to Sustaining Successful Service Price Outcomes

This Chapter of the Application has discussed the successful service price outcomes for the current regulatory period, while highlighting issues that need to be addressed by the Commission and stakeholders in managing the transition from the current regulatory reset period to the next. TransGrid has outlined its proposed approach to each of these issues and will be detailing these approaches in subsequent Chapters.

As discussed in earlier Chapters the decisions made by the Commission in resolving these matters have a direct impact on the ongoing capability and efficiency of TransGrid's service delivery system, as well as transmission and wholesale market price outcomes.

Given that this is the first time that many of these issues have been considered for any TNSP the Commission's decisions will also have implications for future arrangements applicable to transmission network service provision across the NEM.

This is particularly important at a time when consensus is emerging that electricity delivery systems will need significant new investment over the next few years to maintain the levels of service considered necessary to support a modern competitive economy.

Accordingly, the position adopted by the Commission in addressing these issues will also facilitate the medium to long-term contribution that transmission will make in delivering network reliability and a competitive wholesale market.

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