

ELECTRICITY PRICES

March 1996



**INDEPENDENT PRICING AND REGULATORY TRIBUNAL
OF NEW SOUTH WALES**

ELECTRICITY PRICES

March 1996

TABLE OF CONTENTS

Overview of Determinations

Report No 1 1996 (Matter SRD/94/08)

Maximum prices for bulk electricity, distribution and retail supply

Report No 2 1996 (Matter SRD/95/07)

Maximum prices for transmission, distribution and retail supply

Report No 2.1 and Determination No 2.1 (*TransGrid*)

Maximum revenues for transmission

Report No 2.2 and Determination No 2.2 (*Electricity Distributors*)

Maximum revenues and gross margins for distribution and retail supply

Glossary

ELECTRICITY SUPPLY INDUSTRY STRUCTURE FROM 1 MARCH 1996

GENERATION

First State Power	Mount Piper Munmorah Vales Point Wallerawang
Subject to legal advice, Eraring will be a subsidiary of First State Power	
Macquarie Generation	Bayswater Liddell

TRANSMISSION

TransGrid

DISTRIBUTION

New Entities

Amalgamating:

EnergyAustralia	Sydney Electricity Orion Energy
Integral Energy	Prospect Electricity Illawarra Electricity
NorthPower Energy	Namoi Valley Electricity New England Electricity NorthPower Northern Rivers Electricity North-West Electricity P-CCC Electricity Tenterfield Shire Council Electricity Division
Advance Energy	Central West Electricity Ophir Electricity Southern Mitchell Electricity Ulan Electricity Western Power
Energy South	Monaro Electricity Murray River Electricity Murrumbidgee Electricity Northern Riverina Electricity Southern Riverina Electricity Southern Tablelands Electricity South-West Slopes Electricity Tumut River Electricity
Far West Energy	Broken Hill Electricity

OVERVIEW

OVERVIEW OF DETERMINATIONS AND REPORTS ON ELECTRICITY TRANSMISSION AND RETAIL SUPPLY

Key Features

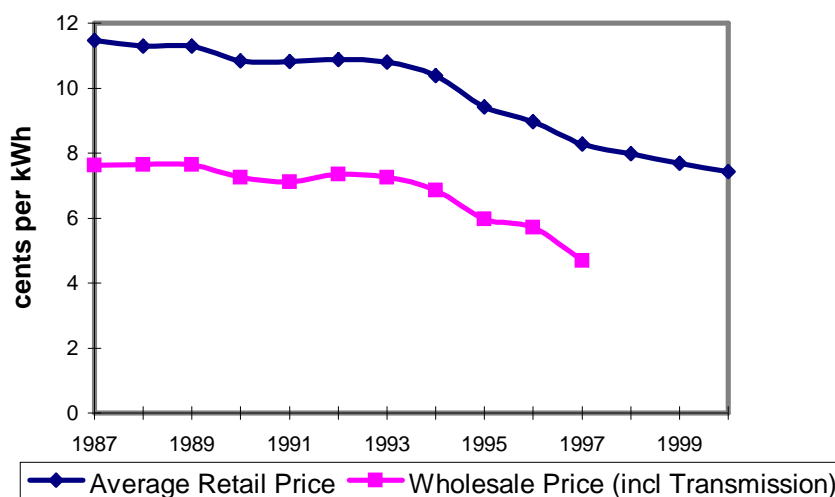
- Average electricity bills will fall from the end of March. This will be the first change in electricity charges since July 1994. On average real electricity tariffs will be 12% lower in 1996-97 than two years ago.
- Average retail electricity prices will fall by 5%, in nominal terms from 31 March 1996, or earlier. This equates to a reduction in customers' bills of \$200m per annum.
- Overall electricity bills will have fallen by \$565m (or 13%) in nominal terms since 1992-93. This is equivalent to a reduction in real terms of 23%.
- The extent of the price reductions will vary between distributors as pre-existing price distortions continue to be unwound.
- The most significant reductions will occur in the metropolitan regions. Average real electricity prices will reduce by 8% and 11% in 1996-97 for EnergyAustralia and Integral, respectively.
- Average real electricity prices in non-metropolitan areas will fall by 3%-5% in 1996-97. In nominal terms, average prices will be unchanged or fall slightly in non-metropolitan distributors.
- The customers to benefit most from these reductions will be those customers who have previously paid more than the costs of supply (such as many medium-to-small businesses).
- This determination puts in place several regulatory elements essential for the establishment of a competitive electricity market.
 - Prices for the use of TransGrid's high voltage transmission system have been set separately from the price for wholesale electricity.
 - Sub-transmission and distribution - the wires component of the local distribution businesses - is regulated separately from the retail function.
- The Tribunal is concerned to ensure that those customers who initially may not have a choice of supplier are adequately protected.
 - no single domestic bill is to increase by more than the greater of:
 - the CPI increase, or,
 - \$5 per quarter for customers not on off-peak tariffs or \$7 per quarter for customers on off-peak tariffs¹
 - average residential tariffs are not to increase by more than 4.2% which is less than the current annual rate of inflation of 5.2%². However, distributors are expected to hold the average increase below this limit.

¹ For the same pattern and level of electricity consumption.

² Year-on-year increase in the Sydney all-groups CPI for calendar year 1995.

- no commercial or industrial customer’s bill is to increase by more than the greater of 5% in real terms or \$50 per annum.³
- The Tribunal considers that, subject to outcomes in the competitive wholesale market, average retail prices can fall by at least 20% in real terms over the period 1994-95 to 1999-2000. This is consistent with the price paths for shadow by the Tribunal in its Interim Report of October 1994. The size of the average reduction in retail prices may vary between the distributors but is expected to range from 14% to 24%.
- Average residential prices are also expected to fall in real terms over this period for all distributors. Not all residential customers will enjoy these reductions. The amalgamated distributors may attempt to harmonise tariffs and restructure tariffs to recover a higher proportion of the costs of supply for customers who use little electricity.
- Revenues of TransGrid and the distributors have been capped on a CPI-X basis for the period to 1998-99. The ‘X-factors’ have been set at between 3.5% and 0% reflecting the varying capacities for efficiency gains and financial needs.
- Revenue regulation - rather than price regulation - has been used to cap overall income in order to encourage demand management and energy efficiency initiatives.

Trends in Electricity Prices
In real terms - 1994-95



³ For the same pattern and level of electricity consumption.

Electricity Industry Overview

The NSW electricity industry is undergoing major structural change in preparation for the introduction of generation and retail sales competition. This has involved:

- amalgamation of the previous 25 distributors into 2 large metropolitan and 4 rural distribution businesses
- separation of transmission from generation and establishment of TransGrid.
- splitting of Pacific Power into 2 generation companies, FirstState and Macquarie.

In addition, new legislation has been introduced to facilitate market trading of electricity. This requires all areas of the industry to review their systems, organisational structures, financial reporting requirements and business practices.

Through the reform of the industry, the Government wishes to introduce effective retail and wholesale competition in the electricity industry. When this has been implemented consumers will have a choice of retail suppliers of energy. Some may also purchase power directly in the wholesale market. The success of the energy retailers will depend on how well, and at what price, they can meet consumers' energy requirements. Retail competition will provide a keener focus to competition in the wholesale market. Retailers will purchase power from a competitive wholesale power pool. In addition they will be able to enter into financial contracts with generators of their choice. Such contracts have the same net effect as bi-lateral supply contracts.

At the time the proposed reforms were announced, the Treasurer requested that the Tribunal defer its scheduled 1995-96 determination pending their implementation. The Tribunal agreed to this request as it considered that more competitive markets would be in the long term interests of customers. However, it expressed concern that the proposed reductions in electricity prices should not be deferred for too long. The Tribunal considers that March 1996 provides the earliest opportunity to implement the deferred determination it had foreshadowed in the interim report⁴ of its major electricity review. Each of the new generation and distribution companies commence operation as corporatised entities on March 1. As from this date, transmission prices are to be separated from the bulk energy costs and purchase costs of wholesale electricity will fall substantially.

The Tribunal's role is to regulate monopoly services. The Tribunal will monitor these markets to ensure genuine competition is occurring and will continue to regulate retail prices for customers up until the time they obtain access to the competitive market.

Role of the Independent Pricing and Regulatory Tribunal

With the introduction of competition the Tribunal will be:

- required to regulate the residual monopoly elements of the industry
- concerned to ensure that competition in electricity markets is effective and provides all customers the opportunity to benefit from wholesale or retail competition.

⁴ Government Pricing Tribunal, *Paying for Electricity: An Interim Report*, October 1994.

In the long term, regulation of the monopoly components will relate predominantly to the transmission and distribution network systems. Furthermore, the regulation of the transmission network may well pass to a national regulatory regime. The introduction of competition in generation is expected to eliminate the need for price regulation of the wholesale electricity market. Also, as customers are permitted to enter the market and select their suppliers, the retail selling price will become deregulated. Initially, not all customers will have a choice of supplier. Hence, the Tribunal will set constraints on prices for franchise customers as the deregulated market is phased in over the next few years.

A key function of the Tribunal will be to ensure non-discriminatory access to the electricity networks in terms of price, technical constraints and, if necessary, anti-competitive behaviour.

This will require:

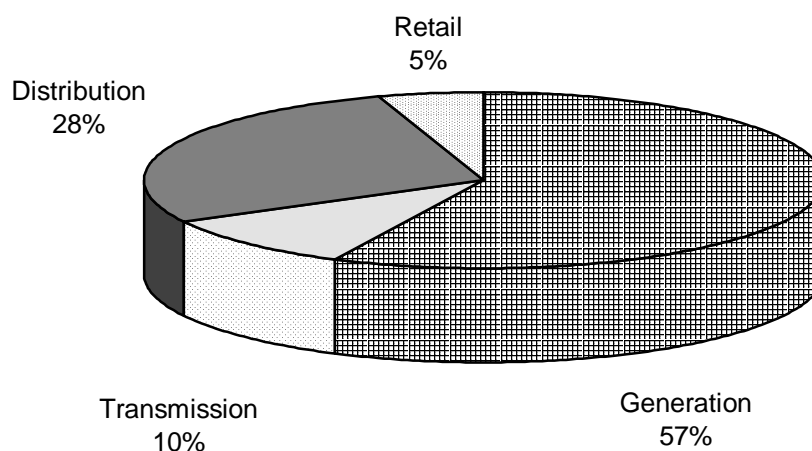
1. the Tribunal to regulate the “wires” component of the distributors’ businesses separately from the retail supply component
2. strong separation or “ring-fencing” of the retail and wires components
3. publication of prices and terms and conditions for the access to the network, which do not discriminate between potential retail supplies
4. procedures for resolution of access disputes.

The separation of the regulation of transmission and distribution from generation and retail supply, respectively, is the key component of this determination. In the past, generation and transmission prices have been bundled together in the Bulk Supply Tariff. Similarly, retail and distribution network charges were combined under retail tariffs. The separate network charges will be constructed, as far as reasonable, on the basis of the efficient costs of supply to individual customers and customer classes in order to reduce any inequities in charging for these monopoly services. This provides a sound platform for competition in the non-monopoly areas.

Structure of Electricity Costs

As shown in the chart below, 57% of electricity prices relate to generation costs, 38% relate to transmission and distribution and only 5% relate to the costs of retail operations. The retail function has been defined initially to include the costs of energy trading and customer billing and inquiries.

Composition of Industry Costs



Competitive electricity markets will see a substantial change in the structure of costs within the electricity industry. Effective competition will increase the pressures to achieve or exceed the substantial efficiency gains foreshadowed in the Tribunal's Interim Report. However, competition will also result in a significant shift in costs and profitability within the industry.

Two of the concerns that the Tribunal has expressed in its previous reports have been:

- the high profitability of Pacific Power (the generation company) especially compared to low recorded profitability of the distribution sector. Pacific Power earned a net operating profit of \$630m on a turnover of \$3075m in 1994-95. Reflecting these concerns, the Tribunal has used reductions in the BST to achieve reductions in retail prices.
- the extent of upward revaluation of assets in the electricity supply industry. In the distribution sector this has resulted in the accumulation of cash despite apparently low profits.

Each of these issues is being addressed through the competitive electricity markets, industry restructuring or the accompanying regulatory structures.

The competitive wholesale market is expected to result in a substantial reduction in wholesale electricity prices, especially in the short term. The pool prices in Victoria have averaged around 4-4.5 cents per kilowatt hour. This compares to a current generation price in NSW of 5.3 cents per kilowatt hour. In order to be competitive in the new market this anomaly will need to be addressed. This is reflected in the assumed price levels for the vesting contracts.⁵

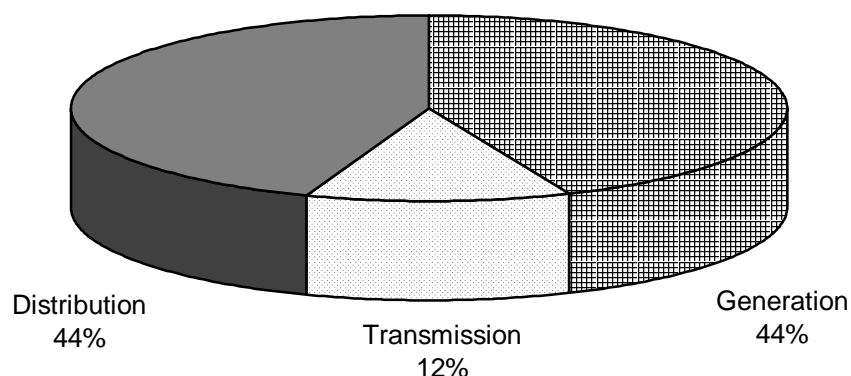
⁵ Vesting contracts are financial contracts to be established between the generation companies and the distribution companies. Initially these contracts will cover the bulk of energy sales and will gradually phase out. The contracts provide a means of managing risks for generators, distributors and captive customers in the transition to competitive markets.

Asset valuations in the distribution sectors have been closely reviewed as part of the establishment of the new, corporatised distributors. The current determination builds in real reductions in asset values⁶ ranging from over 40% in the rural distributors to 17% in EnergyAustralia. Together with a shift in profitability from the generation sector, this will enable profit levels for the distribution sector to reach more commercial levels. Lower depreciation rates and a more commercial capital structure will also avoid a build-up of excessive cash within the distributors.

The chart below shows the proportions of asset values by industry sector. In the past generation has accounted for the majority of the industry's asset base. However, under the modelling by the Electricity Reform Task Force, generation and distribution may account for similar proportions of the asset base. This reflects the separation of transmission assets from generation and a possible write down in the value of generation assets to reflect future cash flows.

Composition of Electricity Supply Assets

Estimate for 1995-96



Critical Issues for Prices

Subject to outcomes in the competitive wholesale market, the Tribunal expects retail prices can fall 20%, on average and in real terms, from 1994-95 to 1999-2000. This is in line with efficiency targets for distributors, TransGrid and Pacific Power incorporated in the Tribunal's Interim Report. Reviews conducted by consultants for the NSW Treasury have since indicated that these gains are achievable. Under the industry reforms distributors will operate under commercial principles with appropriate taxes and costs of equity factored into revenue requirements. This will provide a clearer focus which may assist distributors achieve stronger efficiency gains than expected in the Tribunal's interim report. Modelling by the Electricity Reform Task Force incorporates an underlying 30% drop in real operating costs per customer.

In the past non-metropolitan distributors in particular, had not been exposed to full costs of capital in terms of taxes and required returns on equity. This has

⁶ Compared to previous estimates of the depreciated replacement costs of the assets.

significantly influenced incentives, prices and resource allocations. In this determination, consideration has been given to appropriate financial distributions relating to taxes and equity.

In these determinations the Tribunal has set maximum revenues for TransGrid and the network and retail businesses of the distributors. The initial maximum revenues have been indexed on a CPI-X basis where "X" ranges from 3.5% to 0%. The values set for "X" reflect the varying capacities for efficiency gains and financial requirements.

The challenges relating to electricity pricing which the industry must face are:

- reflecting network charges in retail prices
- establishing appropriate retail and network charges for each distributor following the amalgamations which have left large price differentials between customers
- implementing pricing arrangements which provide incentives for demand management and appropriate investment decisions
- continuing to address cross-subsidies - both between and within customer classes.

These issues are discussed in more detail in the attached determinations.

Results of Financial Modelling for the Industry

The Tribunal's Secretariat has worked closely with the Electricity Reform Task Force in its consideration of appropriate regulation for the industry.

The financial modelling undertaken by the Electricity Reform Task Force based on the following general assumptions:

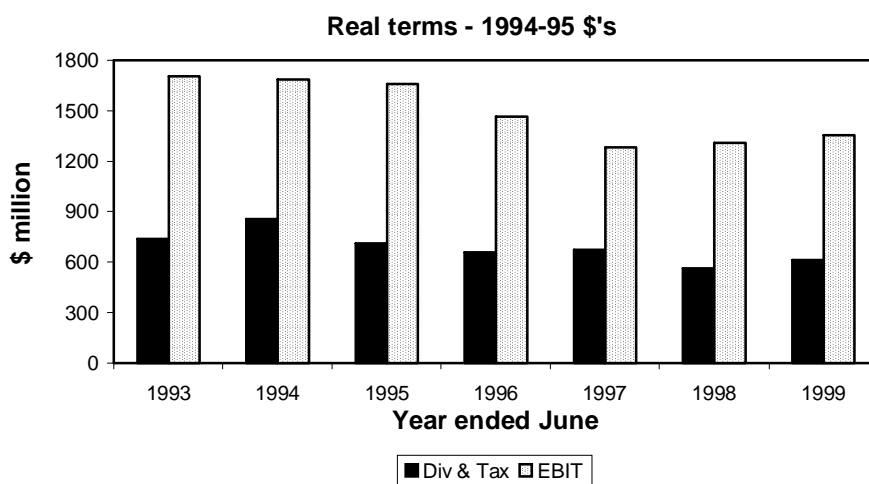
- TransGrid revenues of \$355m (before the transfer of 132 kV Assets)
- wholesale market prices starting at 3.8 c/kWh and rising to 4.4 c/kWh
- average vesting proportions for electricity purchases by distributors of 81%, 71%, 55% and zero for the four years from 1996-97
- vesting price of 4.45 c/kWh
- some loss of market share by NSW generators
- a full deregulation of the retail and wholesale markets by 1999
- write-downs of asset values in all sectors in line with price paths
- 85% distributions of net profits to Government
- application of the existing accounting code for distributors.

The results suggest that with a vesting price of 4.45 c/kWh the retail price reduction for 1996-97 would average 5.0%. This provides the outcomes required to balance asset values, financial viability of industry participants, appropriate price reductions to customers and appropriate returns to Government. The benefits of this reduction are derived largely by metropolitan non-residential customers as previous cross-subsidies are wound down.

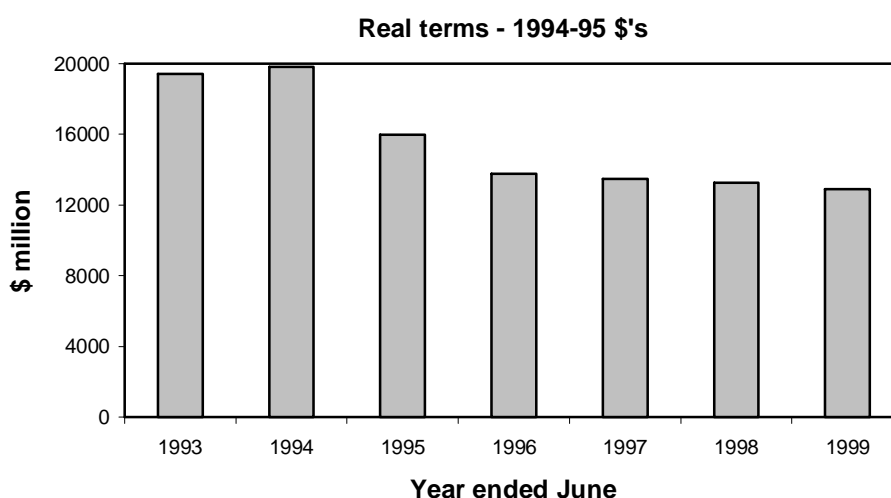
Industry Earnings before Interest and Tax (EBIT) stays relatively constant from \$1,537 million in 1995-96 to \$1,563 million in 1998-99 (the last year of the proposed period of the cap). In real terms (1994-95 dollars) EBIT falls slightly from \$1,464 to

\$1,352. Based on these figures, annual distributions to Government (tax and dividends) stay within the range \$626 million to \$726 million in the period to 1998-99. Asset values fall in 1995-96 for distributors and TransGrid. This improves their reported returns, however, the reduction in generation revenues leads to a slight decrease in the industry's overall reported rate of return.

Earnings and Dividends for the Electricity Supply Industry



Asset Values for the Electricity Supply Industry



Returns for the generators decrease significantly in 1996-97 and distribution returns increase. This reflects a transfer of profitability from generation to distribution to provide a more appropriate cost structure for the two sectors. Clearly, as we move towards a competitive generation market it will not be possible, nor appropriate, to maintain high levels of returns for the generators. Conversely, the traditionally low returns for distributors do not adequately reflect the true costs of capital and may not provide an appropriate signal for new investment.

The overall industry return ranges from 9.5% to 10.5% over the period to 1998-99. The Tribunal, however, places greater emphasis on cash returns on equity. This provides a more direct measure of the returns available to the owner and is not

distorted by the effects of asset valuation and revaluation on depreciation. TransGrid and the distributors (as a whole) are estimated to earn nominal, pre-tax, cash returns on equity of between 13% and 15% in the period to 1998-99. This is consistent with the application of the capital asset pricing model⁷ to the assessment of the return required for equity under a range of plausible assumptions.

The increased returns to equity reflect the higher than anticipated efficiency gains projected in the financial modelling and the risks to which Government will be exposed as the competitive markets are introduced. The Tribunal considers that due credit should be acknowledged, and a reward provided, for undertaking this reform program and driving the industry towards exceptional levels of performance. In the longer term customers should be major beneficiaries of these reforms with considerable benefits accruing to the general economy.

Impacts on Customers

Initially the state market will not include contestable customers. This means that the benefits of reductions in generation prices can be apportioned by distributors to all customers in accordance with side constraints set by the Tribunal. Following the introduction of a competitive retail market, however, competitive pressures could be expected to channel reductions in generation purchase costs to contestable customers. In addition to distributor operating cost reductions, opportunities for further reducing franchise tariffs are limited to reductions in the price of vesting contracts (vesting price) and any excess of wholesale purchases above the volume of sales to contestable customers.

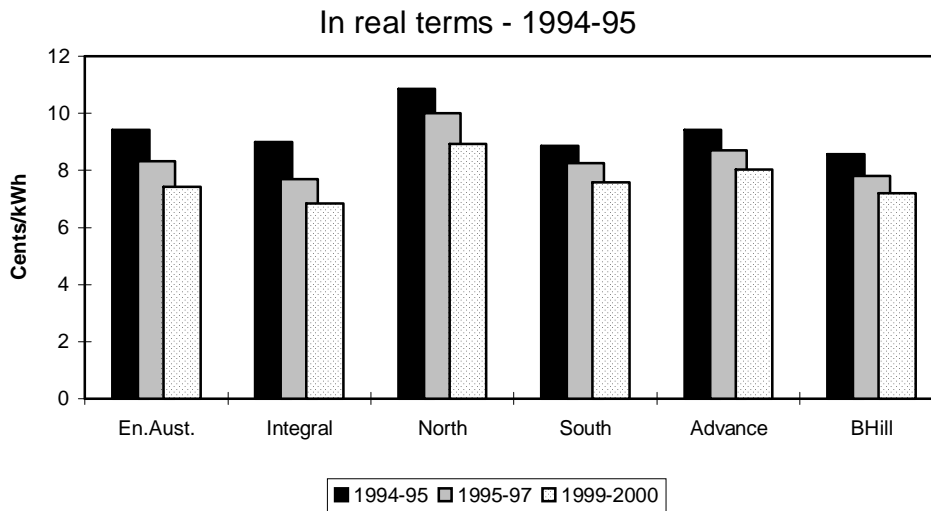
Discussions with distributors have led to the decision that vesting prices for generation should entail uniform energy rates (ie uniform prices per kWh as purchased at the reference node⁸). This results in a larger reduction in energy costs for metropolitan distributors than non-metropolitan distributors. Present arrangements provide metropolitan distributors with lower energy costs due to the averaging of transmission costs and losses.

The result will be differing levels of tariff reductions to customers in the distribution areas. Average prices after 5 years are still projected to be at least 20% below the levels of 1994-95. However, the expected reduction ranges from 24% for Integral Energy to 14% in EnergySouth. In the first year average real prices will fall by between 3% and 5% for customers of the non-metropolitan distributors and 11% and 8% for Integral Energy and EnergyAustralia, respectively. This reflects small nominal reductions in rural areas and larger nominal reductions in average prices in the metropolitan distributors. Over the 2 years since the last change in prices (1994-95) average prices are expected to fall by between 7% and 14% in real terms. These reductions are discussed further in distribution price determination.

⁷ The capital asset pricing model (CAPM) is the most commonly used means of assessing the required return on equity. The model provides for a premium (above the risk free interest rate) which reflects relative risk.

⁸ The reference node for NSW for market settlements and transmission loss assessment is at Sydney West.

Expected Trends in Retail Prices



Impacts on the Government as Owner

In order for the Government to receive the returns projected, it will be necessary for the industry participants to achieve the levels of efficiency gains anticipated. It will also be necessary for wholesale prices determined in the market to average at least the 4.4 cents per kWh assumed. If prices fall below this level (or if average purchase costs during the period of vesting contracts falls below this level) then additional savings will flow to customers.

In addition, if operating cost projections are not achieved or competition from other states erodes market share in either or both the retail and generation markets then Government's returns will reduce. The Tribunal has recognised these risks and provided pricing determinations for the regulated network and franchise retail sectors which enable adequate returns under most scenarios. It is clearly difficult to estimate the probabilities of the risks described. The Tribunal will therefore continue to monitor the market outcomes.

Impacts on the Environment

In its Interim Report, the Tribunal expressed concern about the possible biases against energy efficiency and renewables. However, it considered its proper task was to ensure that prices and the form of regulation did not contribute to this bias. Policies to promote energy efficiency and renewables or to overcome non-price barriers are the domain of the energy and environmental policy agencies.

This determination implements revenue regulation for the distributors and TransGrid. The reasons for adopting this approach are outlined in more detail in the Tribunal's Interim Report and in the discussion paper on Price Regulation and Demand Management. Setting a cap on overall revenue or margins rather than average prices greatly reduces the link between revenues and sales of electricity. This significantly reduces the incentive to promote electricity sales and increases the range of demand management and energy efficiency options which are

commercially feasible. The Tribunal has also excluded revenues from 'green pricing' and supply of remote area power systems from the revenue constraints.

Revenue regulation supports the various initiatives with positive environmental impacts included in the industry reform package. These include:

- establishment of the Sustainable Energy Fund
- requirements for integrated resource planning prior to construction of transmission lines or supply capacity
- requirements for distributors to develop strategies to meet greenhouse gas reduction targets as a condition of obtaining a retail licence.

Outstanding Issues

One of the major issues which will affect this determination is the setting of vesting contracts between the generators and distributors. The determination assumes that the average rate will be 4.45 cents per kilowatt hour and that the proportions of total energy sales covered by vesting contracts are as outlined in the discussion of the financial modelling assumptions.

At present the transition arrangements for retail competition are still to be decided. Once these are determined the Tribunal will be able to finalise an adjustment mechanism to ensure the regulation of retail margins covers franchise customers only.

Another issue is the financial separation (ring-fencing) of retail and network operations of distributors, and also the ring-fencing of transmission and market operations for TransGrid. In the case of distributors there are a number of areas within the existing accounting code which will need to be changed to accommodate a competitive retail market. For example, metering costs and functions has always provoked discussion and may need to be separated from the network business. Public lighting has also been a debatable issue in terms of where it should be allocated for financial reporting purposes. In the case of transmission, there have been no guidelines drafted for ensuring clear separation of those areas which involve cost recovery through the transmission use of system charges and those which are recovered through pool fees.

For the purposes of this determination, the best understandings of boundaries and 132kV asset ownership have been incorporated. However, there will need to be negotiation of transmission charges between distributors and TransGrid over these asset values and the proportional reduction of transmission charges. The Tribunal may need to review transmission and distribution revenue caps to account for any significant variations from original estimates, however, retail revenues will not be adjusted as the transfer is expected to be revenue neutral.

The Tribunal will liaise with the industry and interested groups on arrangements for monitoring compliance and assessing the adjustments to prices on an annual basis. One issue to be considered is the integration of such monitoring procedures with the reporting requirements under the licence conditions of the distributors.

REPORT NO. 1

**INDEPENDENT PRICING AND REGULATORY TRIBUNAL
OF NEW SOUTH WALES**

**REPORT TO THE PREMIER ON MAXIMUM PRICES TO BE CHARGED
UNDER SECTION 11(1) OF THE INDEPENDENT PRICING AND
REGULATORY TRIBUNAL ACT 1992**

Report No 1 1996 (Matter SRD/94/08)

**Maximum prices to be charged for electricity services which have been
declared as monopoly services pursuant to the Government Pricing
Tribunal (Electricity Services) Order 1993**

Recent amendments to the Government Pricing Tribunal Act 1992 have renamed the Government Pricing Tribunal the *Independent Pricing and Regulatory Tribunal*, with a consequential change to the title of the enabling legislation.

In a report on this matter under Section 13(4) of the Act, dated 27 June 1995, the Tribunal indicated that consideration of this determination of maximum prices for electricity prices had been deferred until major changes to the structure of the NSW electricity supply industry had been implemented.

Since the deferral of the determination there has been a major restructure of the electricity supply industry with the creation of 2 generation corporations and 6 electricity distribution corporations. It is expected that these changes will be implemented on 1 March 1996 with the proclamation of the Electricity Corporations Act 1995.

This restructuring has taken place concurrently with the development of plans for the introduction of competition into the State electricity market and a move towards a "national" electricity market. A separate transmission authority has also been created since the commencement of this investigation.

Having regard to restructuring of the industry and changed pricing requirements, especially with the expected introduction of competition, the Tribunal commenced additional investigations (Matter SRD/95/07) for the determination of maximum prices to be charged for electricity services for:

- the transmission of bulk electricity by the Electricity Transmission Authority, trading as TransGrid.
- the sub-transmission, distribution and retail supply of electricity by electricity distributors (within the meaning of the Electricity Act 1945) including Sydney Electricity.

The results of these investigations are contained in Report No 2 and Reports and Determinations Nos. 2.1 and 2.2, 1996 which are being submitted concurrently with this report. *Those reports cover most of the matters that would be covered by this investigation.*

The main area which is not specifically covered by those Reports is maximum prices for the Bulk Supply Tariff (BST) for the generation and transmission of bulk electricity by the Electricity Commission, trading as Pacific Power. Under proposed arrangements for the commencement of the State electricity market on 1 March 1996, the BST will lapse.

Transmission and generation will in future be priced separately. Transmission will remain a monopoly service with prices regulated under Report and Determination No 2.1. Prices for wholesale electricity will increasingly be set in a competitive market and no power will be purchased under the BST, as such, from 1 March 1996. Transitional (vesting) contracts are being put in place but these will not be regulated by the Tribunal.

Having regard to all of these factors, the Tribunal will not be making a determination of any maximum prices for electricity services under this particular investigation. Report No 2 and Reports and Determinations Nos. 2.1 and 2.2 contain details of the Tribunal's current determinations of electricity prices.

Thomas G Parry
Chairman
27 February, 1996

REPORT NO. 2

**INDEPENDENT PRICING AND REGULATORY TRIBUNAL
OF NEW SOUTH WALES**

**REPORT TO THE PREMIER ON MAXIMUM PRICES TO BE CHARGED
UNDER SECTION 11(1) OF THE INDEPENDENT PRICING AND
REGULATORY TRIBUNAL ACT 1992**

Report No 2 1996 (Matter SRD/95/07)

**Maximum prices to be charged for electricity services which have been
declared as monopoly services pursuant to the Government Pricing
Tribunal (Electricity Services) Order 1993**

Recent amendments to the Government Pricing Tribunal Act 1992 have renamed the Government Pricing Tribunal the *Independent Pricing and Regulatory Tribunal*, with a consequential change to the title of the legislation.

Under Section 11(1) of the Independent Pricing and Regulatory Tribunal Act 1992, the Tribunal has investigated the following:

1. The determination of maximum prices to be charged from 1 March 1996 for the transmission of bulk electricity by the Electricity Transmission Authority, trading as TransGrid - see attached Report No 2.1 and Determination 2.1.
2. The determination of maximum prices to be charged from 31 March 1996 for the sub-transmission, distribution and retail supply of electricity by electricity distributors (within the meaning of the Electricity Act 1945) including Sydney Electricity - see attached Report No 2.2 and Determination 2.2.

During these investigations the Tribunal also considered the finalisation of its investigations of maximum prices for the supply of bulk electricity and retail electricity tariffs initiated under matter SRD/94/08 which were deferred pending the implementation of major structural changes to the NSW electricity supply industry. The Tribunal's report on that matter (Report No 1, 1996) indicates that all outstanding electricity pricing will now be covered by this report and determinations.

The determination of prices for electricity distributors from 31 March 1996 will apply to the six electricity distributors (2 large metropolitan and 6 rural distribution businesses) to be created by the amalgamation of the previous 25 distributors. These distributors will formally commence operations on 1 March 1996 following proclamation of the Electricity Corporations Act 1995.

The new distributors - EnergyAustralia, Integral Energy, NorthPower, Energy South, Advance Energy, and Far West Energy - will concurrently be included as standing reference agencies in Schedule 1 of the Independent Pricing and Regulatory Tribunal Act.

The timetable for introduction of contestability in retail markets is yet to be finalised. A factor for exclusion of customers, as and when they become contestable, has been included in the regulatory formulae, but the nature of this adjustment cannot be specified until the approach to retail competition is clarified by the Government. The determination of this factor will be included in a separate report and determination for this matter at a later date.

Recent amendments to Section 15 of the Independent Pricing and Regulatory Tribunal Act extend the range and reporting requirements of matters to be considered by the Tribunal. For investigations begun before the commencement of the amendment the Tribunal is required to give reasons if it did not have regard to these additional matters.

These investigations were commenced several months before the commencement of the amendments. Given the extreme complexity of the issues considered, the tight timeframe for the completion of these determinations following the finalisation of industry restructuring, and progress with plans for the introduction of competition, the Tribunal found that it was not practicable to have specific regard to all of the additional matters. The attached reports have had regard to the original matters listed in Section 15, and consideration of some of these matters is covered in the reports.

Thomas G Parry
Chairman
27 February, 1996

REPORT AND DETERMINATION - TRANSGRID PRICES

**INDEPENDENT PRICING AND REGULATORY TRIBUNAL
OF NEW SOUTH WALES**

**REPORT TO THE PREMIER ON MAXIMUM PRICES TO BE CHARGED
UNDER SECTION 11(1) OF THE INDEPENDENT PRICING AND
REGULATORY TRIBUNAL ACT 1992**

Report No 2.1 1996 (Matter SRD/95/07)

Maximum prices to be charged from 1 March 1996 for the transmission of bulk electricity by the Electricity Transmission Authority, trading as TransGrid (as declared in the Government Pricing Tribunal (Electricity Services) Order 1993).

This report covers the investigation of proposals for the determination of maximum prices to be charged from 1 March 1996 for the transmission of bulk electricity by the Electricity Transmission Authority, trading as TransGrid.

The Tribunal's determination of the maximum prices for these services is set out in Schedule 1 to this report. Other issues relating to this investigation, including comments on consideration of the various matters listed in Section 15 of the Independent Pricing and Regulatory Tribunal Act, 1992, are contained in Report No 2 1996.

An accompanying Report and Determination 2.2 covers the determination of maximum prices to be charged from 31 March 1996 for declared government electricity services by the six electricity distributors which are being created as a result of the current major restructuring of the NSW electricity supply industry.

The Tribunal is also considering the framework for network pricing and access to the NSW networks in compliance with the National Competition Policy Act 1995.

Summary of determination

The determination for TransGrid is presented in Schedule 1. The main features of the determination are:

- TransGrid's annual revenue for monopoly transmission services is capped at \$355 million. The Minister for Energy will set the charges for system control and market operation functions conducted by TransGrid.
- The revenue cap formula for 1997-98 and 1998-99 will be adjusted on the basis of CPI minus X. The X factor will be 3%.
- Transmission prices to distributors are calculated as an average of the cost reflective network price (CRNP) to the bulk supply points for each distributor. The demand and energy charges to Far West Energy will be capped at the next highest (i.e. NorthPower) rates. The subsidy will be shared among the other distributors for the period of this determination.
- Structure of transmission prices to distributors will comprise 50% fixed, 25% demand and 25% energy charges.

- Pacific Power will pay \$20 million to TransGrid for transmission to direct customers. This charge will be capped at CPI - 3% for each year of the regulatory period.
- Transmission prices to generators are to relate only to connection charges. This is consistent with the approach taken in Victoria and with the minimum requirements under the National Grid Management Council's firm access proposal. This charge will be capped at CPI - 3% for each year of the regulatory period.
- Regulation of TransGrid will take the form of a revenue cap to better reflect TransGrid's cost drivers.
- Transmission prices established within TransGrid's revenue caps will be maximum prices with scope for negotiation below these maximum prices. The Tribunal will issue guidelines for negotiation around the maximum prices set in this determination.

Main submissions

In October 1994, the Tribunal released *Paying for Electricity: An Interim Report*. The report canvassed the Tribunal's view that significant reductions in average prices could be achieved in the electricity industry. These reductions could be allocated to reducing cross subsidies within the electricity industry. The Tribunal requested submissions to its inquiry and held public hearings prior to preparation of the pricing determination. That determination was deferred in May 1995 at the request of the Treasurer and Minister for Energy pending major restructuring proposals for the NSW electricity supply industry.

The Tribunal released discussion papers on *Price Regulation and Demand Management* (September 1994) and *Pricing for Electricity Networks and Retail Supply* (August 1995). The Tribunal asked for submissions for these papers and held hearings in relation to the August 1995 paper.

The Tribunal's determination took into consideration points raised in submissions made by TransGrid, Pacific Power, electricity distributors, industry groups, consumer groups, National Grid Management Council, Victorian Pool Exchange, PowerNet and other government agencies.

Major issues raised in the submissions to the recent discussion papers:

TransGrid:

- argued that the financial viability should take account of extra risks being taken on by TransGrid.
- argued for consistency with the NGMC cost reflective network pricing approach.
- controllable costs intended to be reduced by 25% over a three year period (i.e. 8% per annum).

Pacific Power:

- pointed out the need for the "grandfathering" of the transmission cost components for existing tripartite and direct contract arrangements.
- pointed out the NGMC's leaning towards firm access as a means of charging generators for the use of the network.
- argued that network service providers should be liable for loss of performance in the network.

Victorian Power Exchange:

- argued that uniformity of network charges between transmission network owners was a crucial requirement for non-discriminatory access to the network.
- cost reflective network pricing attempts to provide a balance between equitable recovery of sunk costs and economic signalling of future costs.

TransGrid structure

The Electricity Transmission Authority (now trading as TransGrid) began operating on 1 February 1995. It is responsible for the extra high voltage transmission network - a natural monopoly. At the time of its establishment, an agreement was reached between the State Government, Pacific Power and TransGrid as to the level of revenue TransGrid should earn for the remainder of 1994-95. This amounted to an annual income of \$385 million, \$380 million for network services provided to Pacific Power and \$5 million for network services provided to ACT Electricity and Water (ACTEW)¹.

The Tribunal accepted, as an interim arrangement, that TransGrid continue to receive an amount equal to an annual income of \$385 million for the provision of network services for Pacific Power and ACTEW.

It was always the Tribunal's intention to conduct a detailed review of TransGrid's revenue requirements once it was fully separated from Pacific Power. This determination provides a review of the required revenue for TransGrid.

Regulatory parameters

TransGrid's principal functions are :

- network services: entry and exit equipment, high voltage meshed networks, radial network segments and inter-regional links.
- market development and system operations.
- contracting for the supply of ancillary services such as black start capability, reactive power and provision of reserves.

¹ ACT Electricity and Water, \$5 million relates to network services for the Commonwealth Reservation of Snowy energy.

The Tribunal has responsibility for regulating the non-contestable network services component of the TransGrid's functions. Section 79 of the Electricity Supply Act, 1995, requires the Minister for Energy to determine fees to recover the costs incurred by the market and system operator. Nor does the Tribunal have responsibility for setting charges for ancillary services.

Factors considered in the determination

Section 15 of the Government Pricing Tribunal Act 1992 requires that the Tribunal has regard to a range of specific factors in reaching its determinations. This list is not exclusive, as the Act provides for the Tribunal to consider other factors it considers relevant, but it includes:

- the costs of the service provided
- efficiency of service provision
- protection of customers from the abuse of monopoly power
- return to the government as shareholder
- protection of the environment through pricing policies
- the impact on the financial position of the government trading enterprises

These various considerations do not necessarily conflict directly with each other. However there is a degree of tension which does require a careful balancing of the interests of the various stakeholders.

Major considerations in the determination of maximum prices for monopoly network services.

In its determination the Tribunal gave careful consideration to a range of issues. Of particular concern was the direction taken by the National Grid Management Council on the network pricing methodology. The major considerations fall under the following headings:

- objectives of transmission pricing.
- NGMC's cost reflective network pricing methodology.
- productivity improvements.
- impacts on incentives for demand management.

Objectives of network pricing

Pricing for network use must meet a range of objectives: economic, financial, environmental and equity. Furthermore, the methodology to derive network prices should be simple and transparent if the burdens of price regulation are to be minimised.

From an economic perspective, network prices should reflect the marginal cost of providing the user with access to the network. Short run marginal costs such as marginal losses need to be incorporated into the costs borne by customers. Long run marginal costs allow for future capital expenditure rather than the recovery of past capital expenditure. To the extent possible, network prices should send appropriate signals to users and investors regarding the use of existing capacity and provide locational signals for future investment.

In the case of a capital intensive organisation like TransGrid, prices based solely on marginal costs would be complex to administer and unlikely to provide an adequate revenue base. The pricing structure for TransGrid needs to recover fixed and sunk costs and so a degree of averaging and adjustment of charges is inevitable.

National Grid Management Council

The National Grid Management Council (NGMC) has specified that there should be non-discriminatory access to the network. Non-discriminatory access is recognised as crucial to ensuring effective competition within the electricity industry.

The current NGMC Code is silent on the issue of negotiating access to networks. The absence of the option to negotiate prices would place greater pressure on the regulated prices. Regulation of prices to provide optimal prices at all points in the network would be an extremely difficult task.

Chapter 6 of the draft National Electricity Code of Conduct details the network pricing approach developed by the National Grid Management Council. The methodology is referred to as cost reflective network pricing.

The three stages in cost reflective network pricing are to :

- 1). Determine the aggregate annual revenue requirements for the network owner.
- 2). Allocate the costs to individual locations or customer categories based on use of the system. The costs include entry and exit costs, the transmission network and common service costs.
- 3). Structure the allocated costs into network prices based on the use of the system.

Annual revenue requirements

Step 1 in the equation involves calculating the total annual cost of providing the network service. The annual revenue requirements are based on asset related costs and operating costs. The assets incorporated include the monopoly components of the network provider including: connection assets; transmission network; subtransmission network, and common service.

The asset related costs are based on an appropriate rate of return and depreciation. Schedule 6.2 of the Code runs through the calculation of costs of debt and equity using a weighted average cost of capital approach. The asset base is calculated on all assets using an optimised deprival value.

Allocation of costs

The allocation of the transmission costs will be based on:

- generators paying only for direct connection charges as defined in the draft National Electricity Code of Conduct.
- distributors paying for the transmission network, and residual common costs based on a detailed modelling of asset use and estimates of replacement costs and assets.

Transmission Pricing Structure

The draft Code leaves the structure of network prices to the discretion of the network service provider.

Tribunal's concerns with CRNP

The Tribunal fully supports the initiatives to establish a national electricity market. However, the Tribunal is concerned that:

- 1) There is an excessive emphasis on one parameter - return on assets - in assessing revenue requirements.
- 2) The adoption of a CRNP approach at a disaggregated level may result in significant variations in prices and introduce greater complexity for little, or no, economic gain.
- 3) The proposed access regime appears to provide little scope for negotiation to reach appropriate prices in lieu of regulation.

The CRNP method is based on allocating fixed and sunk costs and operation and maintenance costs among users based on use of the system. From an economic perspective, recouping sunk or past fixed costs has no economic merit because it fails to provide signals to users about the current costs of providing the network service. Network prices resulting from the CRNP approach do little to signal network prices for future investment. The CRNP approach does however, fulfil financial requirements. The recovery of past costs needs to be flagged as a financial and equity matter rather than being attributed to economic efficiency. The Tribunal is concerned that in recovering sunk costs on a complex allocation of the usage of assets, the CRNP approach introduces substantial variations in charges which need not reflect economic costs. Such variations could have significant effects in some communities, especially in rural areas, for little, if any economic benefit.

Concerns raised by King² suggest serious doubts about the economic merits of price signals based on the valuation of sunk costs using the current CRNP methodology. Prices to individual bulk supply points resulting from this methodology could have significant detrimental impacts on customers. The Tribunal considers that the impacts on customers would not be warranted since the economic merits of the methodology are doubtful.

² King, Stephen P. (1995) Review of Transmission Pricing for Electricity. Research Paper No. 5.

The Tribunal is concerned that there is limited scope for negotiation. In particular, the so called "non-discriminatory principle" appears not to provide explicit scope for negotiation of transmission prices to allow for specific circumstances. The Tribunal is concerned that this rigid approach may not contribute to economic welfare.

The Tribunal understands there are plans for joint planning meetings to be conducted with TransGrid and transmission network users. This planning approach will go some way to overcoming deficiencies in the lack of investment signals resulting from CRNP.

Efficiency factor

As part of the separation from Pacific Power, TransGrid was required by the Minister for Energy to commission an independent efficiency review. The review was designed to determine the potential productivity improvements and appropriate organisational structure and staffing and performance benchmarks.

The outcome of the efficiency review recommended that controllable costs could be reduced by 25% by June 1998. Controllable costs include labour and overheads and maintenance. In its submission to the Tribunal, TransGrid has stated that productivity improvements are expected to be achieved evenly over the next three years, that is, at about 8% per annum. Eight per cent of controllable costs translates to about 3% productivity improvement overall.

The Tribunal has decided that TransGrid's revenue for the monopoly transmission services should be adjusted by CPI minus 3%. This rate is consistent with productivity improvement requirements being placed on distributors.

Form of regulation - incentives for demand management

In September 1994, the Tribunal published a discussion paper, *Price Regulation and Demand Management*. This paper examined a number of alternative regulatory approaches including price capping and revenue regulation.

The Tribunal has endorsed using a regulated revenue cap approach for regulating TransGrid. This approach sets a limit on the level of revenue that TransGrid may earn each year. Regulating TransGrid with a revenue cap rather than a price cap dampens incentives for increasing electricity sales. Instead, greater returns to TransGrid will be achieved by productivity improvements rather than increasing electricity sales. The objective is to reduce the bias against potential demand management initiatives.

The Tribunal's approach to NSW network pricing

The Tribunal recognises the need to avoid regulatory "road blocks" to the establishment of the national market. In framing the determination the Tribunal has sought to ensure:

- 1) Transmission pricing for generators is, as far as possible, consistent with national proposals. Differences in pricing transmission for generation can result in distortions in the wholesale market.
- 2) The competitive and monopoly elements in electricity supply are clearly separated.
- 3) Transmission pricing for supply points (other than generation) is broadly consistent with national proposals while meeting state specific concerns. Variations in the extent of averaging of prices or valuation of assets for these monopoly services will not inhibit effective retail or wholesale competition. However, such variations can ease the transition to competitive markets.
- 4) Regulation of transmission can migrate to a national body on a consistent basis.

The Tribunal has endorsed an approach to network pricing which is based on the CRNP methodology but is an average of the CRNP prices to the bulk supply points within each distributor's region. The charge for Far West Energy will be set at the next highest of the rates. The difference will be made up by other distributors. This method simplifies the transmission pricing structure to each of the distributors.

Annual revenue requirements

In its determination of the TransGrid revenue cap, the Tribunal considered a range of financial measures to provide a balanced assessment of the financial position of TransGrid. The annual revenue requirement for TransGrid determined by the Tribunal is significantly less than the revenue arrangement decided on at the time of TransGrid's separation from Pacific Power.

The Tribunal is concerned that there may be an excessive focus on one particular measure of performance, namely, rate of return on assets. In particular, the Tribunal is concerned about the reliability of the asset values used in calculating such measures. In TransGrid's case, a validation of the asset base has not as yet been finalised. Until asset valuation issues are resolved, there should be less weight placed on rate of return as part of the price determination.

The Tribunal has looked at projections of TransGrid's rate of return, cash return on equity, operating efficiencies, asset values and earnings before interest and tax. The impacts on dividends and tax equivalent payments to the State Government was also considered.

Financial modelling of TransGrid undertaken by the Electricity Reform Task Force and the Tribunal indicate that TransGrid's profits are projected to be at around \$91 million for 1996-97 (nominal). Profit projections range from \$99 million to \$116 million (nominal) over 1997-98 to 1999-2000. Earnings before interest and tax (EBIT) increase from \$184 million in 1996-97 to \$234 million (nominal) in 1999-2000. Analysis indicates that the cap will enable TransGrid to achieve a 10% accounting return on assets. This is based on a assumption that assets would be reduced by 10% following the application of the optimised deprival value methodology. The assumed revaluation in the asset base follows financial modelling by the Electricity Reform Task Force for regulatory purposes.

The Tribunal has had particular regard to the cash return on equity for TransGrid. This indicator measures the return available to the shareholder (Minister for Energy). The analysis by the Tribunal compares dividends, debt reduction and new capital expenditure to equity.

Cash return on equity for 1996-97 is projected to be 12.4%. The following table presents projected cash returns on equity to 1999. Debt increases for 1995-96 and 1996-97. The following two years show reductions in debt.

Cash Return on Equity	1995-96	1996-97	1997-98	1998-99
Cash distribution to Government	23	75	77	84
Movements in net debt	68	5	-29	-65
New capex	16	34	93	128
Cash available for equity holder	107	114	141	147
Equity (including asset revaluation reserve)	851	920	981	1 064
Cash return on equity	12.6%	12.4%	14.4%	13.8%

The EBIT to sales figure ranges from 51% in 1995-96 to 58% in 1998-99. (The sales figure only includes the revenue for transmission services (estimated 1995-96) and excludes system control and other revenues.) By normal standards this figure is quite high. In part it reflects the capital intensity of the industry but it also provides an assurance that the regulated revenues provide a very sound financial base for TransGrid.

	1995-96	1996-97	1997-98	1998-99
EBIT/Sales	51%	52%	55%	58%

These figures are based on existing volume projections. Should these volumes vary significantly, then returns to TransGrid will also vary. The revenue path formula has 50% linked to demand and energy related components and therefore revenue is subject to volume risk.

Structure of transmission prices

Transmission prices to users are fixed within the revenue cap requirements. The revenue required from each distributor is calculated using the averaged CRNP approach. The transmission price to each distributor is structured to reflect the cost drivers. Network costs can be separated into fixed and variable costs. The fixed costs are largely sunk, while the variable costs are primarily driven by demand (capacity measured by MW) and to a lesser extent energy (volume measured by MWh).

The structure of transmission prices also has an impact on the incentives for demand management and embedded generation. A high fixed component will discourage users to implement demand management initiatives. While a high proportion of variable costs may encourage an inefficient level of embedded generation and limit the extent to which the network operator can recoup fixed costs.

The Tribunal has endorsed a network pricing structure to distributors based on :

- fixed charge (50)%,
- demand charge (25%)
- energy charge (25%).

Regulated maximum revenue

The maximum revenue formula used to regulate TransGrid's revenue reflects this pricing structure. This formula reflects cost drivers faced by TransGrid.

In 1996-97, TransGrid's revenue has been set at \$355 million. This revenue will be prorated for the period from 1 March to 30 June 1996.

The maximum revenue has been set with no adjustment for the 132kV asset transfers. At this stage, the Tribunal prefers that the asset valuation and pricing implications will be negotiated between TransGrid and the affected distributors. The Tribunal may need to review progress on this issue.

In the following years TransGrid's revenue cap will be adjusted according to:

$$\begin{aligned} \text{Maximum Revenue} = & \text{(Fixed charge * (CPI - X))} + \\ & \text{((Energy charge * Projected peak and shoulder KWh) * (CPI - X))} + \\ & \text{((Demand charge * Projected demand MW) * (CPI - X))} \end{aligned}$$

A more detailed explanation of the maximum revenue calculation for following years is shown in Schedule 1.

The demand and energy projections will be agreed to between TransGrid, the distributors and an independent party, possibly the Tribunal.

Regulatory period

This determination covers the following periods:

- 1 March 1996 to 30 June 1997 (16 months)
- 1997-98
- 1998-99.

Definition of Consumer Price Index (CPI)

The Tribunal uses the Sydney all-groups CPI. The CPI increase is calculated by dividing the total of the four quarter indices for the year to March by the four quarter indices for the previous year. The year-to-March index is used to avoid the need to forecast the June quarter CPI in calculating the indexation factor.

Network charges to distributors

Table 1 shows the new gross network charges to each of the distributors³. The charges to EnergyAustralia and Integral exclude charges for Pacific Power direct customers. The prices have been changed slightly since the release of the Statement of Regulatory Intent. These changes reflect factors highlighted as uncertainties in the Tribunal's Statement. In particular, the method for calculating generator connection charges has been updated. Network prices have not been adjusted for the transfer of 132kV assets.

Table 2 shows the total transmission charges for distributors net of the inter-distributor transmission charges. This represents the actual cost of transmission for the customers of each distributor. This issue does not impact Far West. (Inter-distributor charges for use of distribution networks have not been taken into account. The Tribunal expects distributors will negotiate these charges).

Table 3 shows pre 1 March 1996 network charges including fixed, demand and energy charges.

At this stage the Tribunal is not prepared to adjust transmission prices based on the preliminary asset values calculated to date for the 132kV assets. The Tribunal prefers that the onus on assessing asset values and related impact on network prices be negotiated between TransGrid and the affected distributors. Essentially, the Tribunal is expecting the result of the asset transfers to be price neutral to the distributors and final customers. This may require further review by the Tribunal.

Connection prices for existing generators have been updated in line with the latest NGMC definitions. Under the latest proposal, the direct connection charges and associated joint costs are allocated to the generators. This has increased the connection charges to existing generators and consequently reduced the average price to distributors.

The arrangement to cap transmission charges to Far West Energy will need to be reviewed at the end of the regulatory period (i.e. 1998-99). One option would be to remove the cross subsidy to Far West Energy and charge the transmission rates under the averaged CRNP methodology. Whether a payment is made under the social policy program is a matter for Government consideration.

The Tribunal will organise with TransGrid to conduct information sessions explaining the CRNP methodology and the calculation of transmission charges. These information sessions will be open for all interested parties to attend.

³ Gross network charges have not been adjusted for inter-distributor transfers. However EnergyAustralia and Integral charges exclude impacts of Pacific Power direct customers.

Table 1: Transmission charges 1 March 1996

	Transmission Charges (a) (Fixed 50% plus Demand 25% plus Energy 25%)						
	Fixed	plus Peak & Shoulder		plus Demand		Total	
	\$'000 p.a.	c/kWh	\$'000 p.a.	\$/kW p.a.	\$'000 p.a.	\$'000 p.a.	c/kWh
EnergyAustralia (b)	64 476	0.31	32 738	7.52	32 738	130 952	0.64
Integral Energy (c)	39 705	0.32	19 852	7.37	19 852	79 409	0.63
NorthPower	19 523	0.70	9 761	15.04	9 761	39 046	1.28
Advance Energy	10 607	0.57	5 303	12.29	5 303	21 214	1.04
Energy South	17 142	0.56	8 571	12.91	8 571	34 284	1.02
Far West Energy	1 862	0.70 (d)	1 036	15.04 (d)	825	3 723	1.11
Pacific Power Retail (e)	11 701	0.15	5 851	4.59	5 851	23 403	0.25
ACTEW	8 434	0.33	4 217	7.65	4 217	16 868	0.71
ACTEW (Snowy)	-	-	-	-	-	-	-
Pacific Power Generation (f)	6 100	-	-	-	-	6 100	-
Snowy Gen	0	-	-	-	-	0	-
Totals	180 550	0.70	87 331	8.16	87 119	355 000	0.67

Notes:

- (a) The MW demand is an estimate of the diversified maximum demand.
- (b) EnergyAustralia's charges excludes charges to Pacific Power's direct customer - Capral but includes supply to NorthPower Stroud.
- (c) Integral's charges excludes charges to Pacific Power's direct customer - BHP but includes supplies to EnergyAustralia Sydney West and Energy South Dapto.
- (d) The demand and energy rates for Far West Energy (including mine supply) are equal to the highest of the rural distribution groups i.e. NorthPower. The fixed rate has been set equal to the sum of the demand and energy components.
- (e) A network charge of \$20 million has been determined for Pacific Power Retail. Charge shown in table includes charges to EnergyAustralia, Vales, Eraring, Liddell, Munmorah.
- (f) The connection assets for generators have been altered in accordance with the 31 January 1996 version of the NGMC Code of Conduct.

Table 2: Total net transmission charge to each distributor from 1 March 1996

	Net transmission \$'000 p.a.
EnergyAustralia	135 076
Integral Energy	73 698
NorthPower	39 857
Advance Energy	20 987
Energy South	35 286
Far West Energy	3 723
Total	308 627

Notes:

- (a) Net transmission includes within territory charges plus charges for inter-distributor transmission charges.
- (b) Charges are based on rounded figures.

Table 3: Network charges pre 1 March 1996

	1994-95			Existing BST	
	Estimated demand	Energy GWh		Network Charge 1994-95	
	MW (a)	Total	Peak & Shoulder	\$'000 p.a.	c/kWh
EnergyAustralia	4 642	22 707	11 532	166 459	0.73
Integral Energy	2 849	13 590	6 556	99 811	0.73
NorthPower	649	3 040	1 395	34 507	1.13
Advance Energy	432	2 041	928	21 965	1.08
Energy South	664	3 376	1 529	34 747	1.03
Far West Energy	55	334	148	3 200	0.96
Pacific Power Retail	834	5806	2472	4 638	-
ACTEW	551	1 707	914	14 715	0.86
ACTEW (Snowy)	-	670	361	4 958	0.74
Pacific Power Gen	-	-	-	0	-
Snowy Gen	-	-	-	0	-
Total	10 675	53 270	25 833	385 000	0.72

Notes:

- (a) The MW demand is an estimate of the diversified maximum demand.

Network pricing for generators: firm access

Under the "firm access" proposal being considered by the National Grid Management Council, the network service provider would, as a minimum, only charge generators for costs associated with network entry equipment plus a small non location based charge. This revenue would be incorporated into TransGrid's maximum revenue calculation.

Generators may also opt to purchase "firm access" rights with a cost up to the maximum of the long run marginal cost to the network service provider. The firm access proposal is intended to allow generators to manage risks associated with potential network constraints. Network constraints may prevent the generators from supplying into the trading pool. Part of the firm access payments may be used by TransGrid to insure itself with a third party against the risks of network constraints. It is understood that the generators' payments for firm access will be outside of the regulated revenue requirement.

The level of firm access being paid by a generator to TransGrid will depend on the perceived probability of a constraint and the estimated level of spot prices should a constraint occur. The firm access proposal provides generators and network service providers with locational pricing signals. Generators in high risk areas would be paying higher costs for access which would be reflected in electricity prices. Generators in less risky areas would have a cost advantage. New generators would be encouraged to locate in areas where there were no constraints to reduce the cost of firm access.

At this stage it is understood that the firm access proposals may not be in place at the start of the national market. This potentially places some risks on the generators in the case of constraints on the network.

Arrangements for direct customer transmission costs

Pacific Power has four contracts direct with retail customers for the supply of energy. These contracts were negotiated on the basis of not recovering the same level of fixed costs as for all other customers. The contracts were negotiated prior to the separation of the generation and transmission charges.

The full cost of transmission to these direct customers has been calculated at around \$36 million. The Tribunal has directed that Pacific Power contribute \$20 million to the transmission costs for the direct customers. Given that these contracts were based on marginal costs, the Tribunal considers it is appropriate that the split of the revenues between generators and TransGrid reflects opportunity costs rather than fully distributed costs.

Arrangements for transmission costs of tripartite contracts

In previous years contracts were established between large customers and the main generator for the supply of energy. The energy usually also flowed through a distribution network. A payment for use of the distribution system was paid to the local distributor.

The negotiated price for the contracts included energy, transmission and distribution bundled together. As with direct customer contracts, these contracts were negotiated on the basis of not recovering the same level of fixed costs as for all other customers.

The vertical separation of generation and transmission has required the costs allocations of the tripartites to also be reviewed. It has been decided that Pacific Power will pay the full CRNP costs (averaged within a distributor's area) associated with transmission for the tripartite contracts.

Market and system operator, and other revenues

Charges for the market and system operator will be recouped through pool fees. The Tribunal is not responsible for setting the fees for these functions.

TransGrid is also able to derive revenue from services such as capital contributions, recoverable works and other miscellaneous charges. If concerns are raised, the Tribunal may be required to investigate TransGrid's charging practices for the non-regulated services.

Contestability

The National Electricity Code, provides for parts of the network owner's business to be considered as "excluded" and "non-regulated" activities. When the Tribunal is assured that a contestable market exists for connection charges, then this revenue will be excluded from the regulated revenue for TransGrid. Contestable connections charges will be negotiated between the generator and the connection provider and will be outside the regulated revenue.

Treatment of losses

Energy losses are a cost (variable) of transportation of energy. Energy losses (or in some cases gains) are incurred in the transportation of energy.

In the NSW market, transmission losses will be traded through the market. Energy purchasers will need to ensure that sufficient energy is purchased to cover metered consumption by customers plus system losses. Losses are not a monopoly service as they relate to purchases in the wholesale market which will be competitive in the future. However, the Tribunal has agreed with industry participants that loss factors will be calculated as set out in the following.

Loss factors for each distributor supply point will be calculated by TransGrid based on modelled results for each supply point. The calculated loss factor would be averaged within the distributor's boundaries to provide a single loss factor for each distributor. This mirrors the approach used for transmission charges. Losses on the transmission system average about 2% of sent out energy. Losses to Far West Energy will be limited to the next highest rural distributors' loss value.

The calculated loss factors are based on marginal losses. This will result in over-recovery of charges by TransGrid which will be reallocated back to distributors in the settlement process.

Losses for inter-distributor transfers

The Tribunal understands that TransGrid proposes to handle the settlement of losses for inter-distributor transfers⁴. The Tribunal suggests that the affected distributors and TransGrid should negotiate the appropriate loss factors.

Access to the NSW transmission network

In changes to the Tribunal's legislation, the Tribunal has responsibility for regulating NSW access regimes. Under section 12 of the Independent Pricing and Regulatory Tribunal Act, 1992, the Tribunal may be asked to investigate access to the TransGrid transmission network, connection agreements and possibly the arrangements for access to the spot market/ trading market. In this determination, the Tribunal has been mindful of compliance with the access laws in place under the Competition Policy Act, 1995.

Negotiation

The Tribunal's preferred approach to network access and connection agreements is to allow negotiation among the involved parties. The Tribunal believes that negotiation is desirable to allow agencies some flexibility in managing the use of the system and pricing policies.

However, in recognition of the natural monopoly position of the network business, the Tribunal's determination sets an overall cap on TransGrid's revenue and maximum reference prices for different points of supply. Scope is to be provided for negotiation of prices below these maximum prices but TransGrid would not be able to recover forgone revenue from other customers. Another issue is that negotiated prices should not fall below avoidable costs, otherwise an economic cross subsidy occurs.

The Tribunal intends to work with the industry on developing guidelines for negotiation below maximum network prices. This would specify circumstances where negotiations may be desirable and outline factors to be considered. The Tribunal would expect negotiated prices to be published and available to other customers with the same circumstances. Negotiation can provide scope for a more flexible approach to pricing to reduce distortions under the CRNP averaging approach.

In situations where disputes arise during negotiations mediation and, possibly, arbitration, may be necessary.

TransGrid, legally, is no longer in a monopoly position for the provision of network services. The Tribunal considers that increasing contestability of the market can be achieved by allowing customers to bypass - i.e. set up their own transmission infrastructure. This provides a constraint on inappropriate pricing.

⁴ Inter distributor transfers occur when one distributor receives energy through another distributor's network.

**INDEPENDENT PRICING AND REGULATORY TRIBUNAL
OF NEW SOUTH WALES**

Schedule 1

**DETERMINATION OF MAXIMUM PRICES TO BE CHARGED UNDER
SECTION 11(1) OF THE INDEPENDENT PRICING AND REGULATORY
TRIBUNAL ACT 1992**

Determination No 2.1 1996 (Matter SRD/95/07)

Maximum prices to be charged from 1 March 1996 for the transmission of bulk electricity by the Electricity Transmission Authority, trading as TransGrid (as declared in the Government Pricing Tribunal (Electricity Services) Order 1993).

TRANSGRID'S ANNUAL REVENUE

Regulatory period

This determination covers the following periods:

- 1 March 1996 to 30 June 1997 (16 months)
- 1997-98
- 1998-99.

Maximum revenue: 1 March 1996 to 30 June 1997

TransGrid's annual revenue for monopoly transmission services will be capped at \$355 million for the period from 1 March 1996 to June 1997. The \$355 million will be prorated for the four months to 1 July 1996.

TransGrid will receive additional revenue from system control and market operation functions. These revenues are not regulated by the Tribunal.

Transmission prices established within TransGrid's revenue caps will be maximum prices with scope for negotiation below these maximum prices.

X Factor

The revenue cap formula for 1997-98 and 1998-99 will be adjusted on the basis of CPI minus 3%.

Maximum revenue formula 1 July 1997 to June 1999

In 1997-98 and 1998-99 TransGrid's revenue will be adjusted and capped according to the following formula:

$$\text{Maximum revenue} = (\text{Fixed charge} * (\text{CPI} - \text{X})) + \\ ((\text{Energy charge} * \text{Projected peak and shoulder KWh}) * (\text{CPI} - \text{X})) + \\ ((\text{Demand charge} * \text{Projected demand MW}) * (\text{CPI} - \text{X}))$$

Where CPI is the increase in the average all-groups CPI for Sydney for the four quarters to March on the average index value for the four quarters to the previous March.

Determining the fixed, energy and demand price structures

The following steps are to be followed in the determination of price structures:

1996-97 charges

Annual revenue to be set at \$355 million. This revenue is to be allocated to individual distributors based on the average of the costs at each bulk supply point within a distributor's supply area. The cost of supply at each point is calculated using the cost reflective network pricing (CRNP) methodology.

This defines the annual revenue requirement (ARR) for transmission to each distribution area (DA). Charges for use of transmission within each distribution area is calculated as follows:

Fixed

- Fixed component is $50\% * ARR(DA)$

Demand

- Demand revenue is set at $25\% * ARR(DA)$
- Demand rate = $\frac{\text{Demand revenue}_{1996-97}}{\text{Demand (MW)}_{1994-95 \text{ actual}}}$

Energy

- Energy revenue is set at $25\% * ARR(DA)$
- Energy rate = $\frac{\text{Energy revenue}_{1996-97}}{\text{Energy (GWh)}_{1994-95 \text{ actual}}}$

Where :

$ARR(DA)$ = Annual revenue requirement for transmission to each distribution area.

The calculated charges to apply from 1 March 1996 to 30 June 1997 are set out in Table 1 in this Schedule.

Adjustments after 1996-97

If actual demand and / or energy are higher than 1994-95 actuals then the revenue for "over-recovered" amount will need to be adjusted in next year's revenue cap. If actual demand is lower, the "under-recovered" amount is recouped by TransGrid in the next year.

This will result in each distributor paying the total indicated in the Table 1 for 1996-97 regardless of demand and energy results.

Prices for 1997-98 and 1998-99

TransGrid's annual revenue requirements for 1997-98 are the sum of the annual revenue requirements (ARR) for each distribution area (DA). The ARR is the volume times price.

Pricing structure for each distribution area will be based on the prices for that distribution area in 1996-97 adjusted by the following formulae:

$$(a) \text{ Fixed price}_{1997-98} = \text{Fixed rate}_{1996-97} * (\text{CPI} - X)$$

$$(b) \text{ Demand price}_{1997-98} = \frac{\text{Actual demand revenue}_{1996-97}}{\text{Actual demand}_{1996-97}} * (\text{CPI} - X)$$

$$(c) \text{ Energy price}_{1997-98} = \frac{\text{Actual energy revenue}_{1996-97}}{\text{Actual energy}_{1996-97}} * (\text{CPI} - X)$$

Where demand revenue and energy revenue are the amounts specified in Table 1.

Where:

TransGrid's ARR for 1997-98 will be adjusted for "overs" or "unders" for the previous year after calculation of the unadjusted rate. This is in recognition of problems with projecting demand and energy for the first year. To implement this an adjusted price will be applied to the prices for each distributor. For 1998-99 there will not be an adjustment account.

The unadjusted price will be rolled forward to calculate charges in 1998-99 based on the indexed charges in 1997-98.

TransGrid's revenue

In 1997-98, the TransGrid annual revenue will be the sum of distributors:

- ARR(DA) Fixed revenue; plus
- ARR(DA) Demand revenue; plus
- ARR(DA) Energy revenue.

TRANSMISSION PRICES

- Transmission prices to distributors will be calculated as an average of the CRNP prices to the bulk supply points for each distributor. The demand and energy charges to Far West Energy will be capped at the next highest (i.e. NorthPower) rates. The differences will be shared among the other distributors for the period of this determination. Far West Energy's loss factors will be capped to NorthPower's loss factor.
- Pacific Power will pay \$20 million to TransGrid for transmission to direct customers. This charge will be capped at CPI - 3% for each year of the regulatory period.
- Transmission prices to generators are to be based on the National Grid Management Council's firm access proposal. This charge will be capped at CPI - 3% for each year of the regulatory period.

Structure of prices

- Structure of transmission prices to distributors will comprise 50% fixed, 25% demand and 25% energy charges.

NETWORK CHARGES**Table 1: Transmission charges 1 March 1996**

Transmission Users	Transmission Charges (a) (Fixed 50% plus Demand 25% plus Energy 25%)						
	Fixed	plus Peak & Shoulder		plus Demand		Total	
	\$'000 p.a.	c/kW h	\$'000 p.a.	\$/kW p.a.	\$'000 p.a.	\$'000 p.a.	c/kWh
EnergyAustralia (b)	65 476	0.31	32 738	7.52	32 738	130 952	0.64
Integral Energy (c)	39 705	0.32	19 852	7.37	19 852	79 409	0.63
NorthPower	19 523	0.70	9 761	15.04	9 761	39 046	1.28
Advance Energy	10 607	0.57	5 303	12.29	5 303	21 214	1.04
Energy South	17 142	0.56	8 571	12.91	8 571	34 284	1.02
Far West Energy	1 862	0.70 (d)	1 036	15.04 (d)	825	3 723	1.11
Pacific Power Retail (e)	11 701	0.15	5 851	4.59	5 851	23 403	0.25
ACTEW	8 434	0.33	4 217	7.65	4 217	16 868	0.71
ACTEW (Snowy)	-	-	-	-	-	-	-
Pacific Power Generation (f)	6 100	-	-	-	-	6 100	-
Snowy Gen	0	-	-	-	-	0	-
Totals	180 550	0.70	87 331	8.16	87 119	355 000	0.67

Notes:

- The MW demand is an estimate of the diversified maximum demand.
- EnergyAustralia's charges excludes charges to Pacific Power's direct customer - Capral but includes supply to NorthPower Stroud.
- Integral's charges excludes charges to Pacific Power's direct customer - BHP but includes supplies to EnergyAustralia Sydney West and Energy South Dapto.
- The demand and energy rates for Far West Energy (including mine supply) are equal to the highest of the rural distribution groups i.e. NorthPower. The fixed rate has been set equal to the sum of the demand and energy components.
- A network charge of \$20 million has been determined for Pacific Power Retail. Charge shown in table includes charges to EnergyAustralia, Vales, Eraring, Liddell, Munmorah.
- The connection assets for generators have been altered in accordance with the 31 January 1996 version of the NGMC Code of Conduct.

REPORT AND DETERMINATION - DISTRIBUTORS' PRICES

**INDEPENDENT PRICING AND REGULATORY TRIBUNAL
OF NEW SOUTH WALES**

**REPORT TO THE PREMIER ON MAXIMUM PRICES TO BE CHARGED
UNDER SECTION 11(1) OF THE INDEPENDENT PRICING AND
REGULATORY TRIBUNAL ACT 1992**

Report No 2.2 1996 (Matter SRD/95/07)

Maximum prices to be charged from 31 March 1996 by electricity distributors for government monopoly electricity services (as declared in the Government Pricing Tribunal (Electricity Services) Order 1993).

This report covers the investigation of proposals for the determination of maximum prices to be charged from 31 March 1996 for declared government electricity services by the six electricity distributors (2 large metropolitan and 6 rural distribution businesses) to be created by the amalgamation of the previous 25 distributors. These distributors will formally commence operations on 1 March 1996 following proclamation of the Electricity Corporations Act 1995.

The new distributors - EnergyAustralia, Integral Energy, NorthPower, Energy South, Advance Energy, and Far West Energy - will concurrently be included as standing reference agencies in Schedule 1 of the Independent Pricing and Regulatory Tribunal Act.

The Tribunal's determination of the maximum prices for these services is set out in Schedule 1 to this report. Other issues relating to this investigation, including comments on consideration of the various matters listed in Section 15 of the Independent Pricing and Regulatory Tribunal Act, 1992, are contained in Report No 2 1996.

An accompanying Report and Determination 2.1 covers the determination of maximum prices to be charged from 1 March 1996 for the transmission of bulk electricity by the Electricity Transmission Authority, trading as TransGrid.

The timetable for introduction of contestability in retail markets is yet to be finalised. A factor for exclusion of customers, as and when they become contestable, has been included in the regulatory formulae, but the nature of this adjustment cannot be specified until the approach to retail competition is clarified by the Government. The determination of this factor will be included in a separate report and determination for this matter at a later date.

Summary of determination

This determination is being made while major structural changes continue to be implemented within the electricity supply industry (ESI). Pacific Power has been split into two generation companies, the twenty-five distributors have been amalgamated into six and the Electricity Transmission Authority has commenced operations since the last determination.

This determination applies from the 31st March 1996 and is presented in Schedule 1.

The main features of the determination are:

- Average electricity bills will fall from the end of March. This will be the first change in electricity charges since July 1994. On average real electricity tariffs will be 12% lower in 1996-97 than two years ago.
- Average retail electricity prices will fall by 5%, in nominal terms from 31 March 1996, or earlier. This equates to a reduction in customers bills of \$200m per annum.
- The extent of the price reductions will vary between distributors as pre-existing price distortions continue to be unwound.
- The most significant reductions will occur in the metropolitan regions. Average real electricity prices will reduce by 8% and 11% in 1996-97 for EnergyAustralia and Integral, respectively.
- Average real electricity prices in rural areas will fall by 3-5% in 1996-97. In nominal terms, average prices will be unchanged or fall slightly in non-metropolitan distributors.
- The customers to benefit most from these reductions will be those customers who have previously paid more than the costs of supply (such as many medium-to-small businesses).
- This determination puts in place several regulatory elements essential for the establishment of a competitive electricity market. In particular, sub-transmission and distribution - the wires component of the local distribution businesses - is regulated separately from the retail function.
- The Tribunal will regulate revenue of the 'wires' business.
- The Tribunal will regulate the gross margin for the retail supply business. Each distributors gross margin will be adjusted as retail competition is introduced.
- The Tribunal is concerned to ensure that those customers who initially may not have a choice of supplier are adequately protected:
 - no single domestic bill is to increase by more than the greater of:
 - the CPI increase¹, or,
 - \$5 per quarter for customers not on off-peak tariffs or \$7 per quarter for customers on off-peak tariffs
 - average residential tariffs are not to increase by more than 4.2% which is less than the current annual rate of inflation of 5.2%. However, distributors are expected to hold the average increase below this limit.
 - no commercial or industrial customers bill is to increase by more than the greater of 5% in real terms or \$50 per annum.

¹ Year-on year increase in the Sydney all-groups CPI for calendar year 1995. This is 5.2% to December 1995.

- The Tribunal considers that, given current expectations for wholesale market prices, average electricity prices can fall by at least 20% in real terms over the period 1994-95 to 1999-2000. The size of the average reduction may vary between the distributors but is expected to range from 14% to 24%.
- Residential prices on average are also expected to fall in real terms over 1994-95 to 1999-2000 for all distributors. Not all residential customers will enjoy these reductions. The amalgamated distributors may attempt to harmonise tariffs and restructure tariffs to recover a higher proportion of the costs of supply for customers who use little electricity.
- Revenues of the distributors have been capped on a CPI-X basis for the period to 1998-99. The 'X-factors' have been set at between 3.5% and 0% reflecting the varying capacities for efficiency gains and financial needs.
- Revenue regulation - rather than price regulation - has been used to cap distributor overall income² in order to encourage demand management and energy efficiency initiatives.

Factors considered in determination

Section 15 of the Government Pricing Tribunal Act 1992 requires that the Tribunal has regard to a range of specific factors in reaching its determinations. This list is not exclusive, as the Act provides for the Tribunal to consider other factors it considers relevant, but it includes:

- the costs of the service provided
- efficiency of service provision
- protection of customers from the abuse of monopoly power
- return to the government as shareholder
- protection of the environment through pricing policies
- the impact on the financial position of the government trading enterprises

These various considerations do not necessarily conflict directly with each other. However there is a degree of tension which does require a careful balancing of the interests of the various stakeholders.

The main submissions

The Tribunal's determination was made after careful consideration of issues raised by Pacific Power, electricity distributors, government agencies, industry groups and consumer groups. The main issues included:

- The distributors argued for tariff adjustments which would improve their gross margins and provide a re-balancing of profits from Pacific Power to the distributors. This would narrow the gap between Pacific Power's and the distributors' real rates of return on assets.

² For non-contestable businesses.

- The metropolitan distributors, at that time, argued that domestic tariffs should stay constant in real terms, (i.e. a nominal increase in line with CPI) and that the margin on off peak sales should be increased.
- Some distributors argued that tariffs, including domestic tariffs, should be restructured to incorporate a fixed charge. It was stated that current tariffs do not recover costs of serving premises with low electricity consumption.
- The distributors argued that the phasing out of cross subsidies between different types of consumer groups should be accelerated and completed before the introduction of competition with the start of the national electricity market. The main cross subsidies are:
 - Differentials between tariffs applying in different regions within the same distributor and customer class.
 - business/commercial consumers, in aggregate, subsidise domestic/rural consumers.
 - within various tariff classes high volume electricity consumers subsidise low volume electricity consumers.
- Welfare groups considered that households should not be disadvantaged by any changes in the level and/or the structure of electricity prices.
- Environmental groups supported an increase in focus on demand management, including the decoupling of distributors revenue from electricity sales, explicit recognition of both environment costs and the cost of excess generation capacity, and the introduction of an energy efficiency levy.

Financial modelling of distribution sector

Financial modelling of the electricity industry has assumed a 20% average real reduction in electricity prices as an achievable target in 1999-2000 from restructuring and efficiency. This is consistent with the path for retail prices proposed in the Tribunal's interim report. In addition the modelling assumes:

- 2% net margin³ for retailers in 1996-97 (year 1 of the determination)
- earnings before interest and tax (EBIT) for the industry of around \$1500 million which maintains returns derived by Government from the industry.
- productivity gains of around 30% for the distributors on average for the period to 1999-2000.

The financial distributions provide an appropriate commercial return on assets invested. Application of a recoverable amounts test based on the Tribunal's pricing determination results in a write down of asset values.

Vesting contracts have been priced at 4.45 c/kWh. Current expectations are that from 1 March 1996 an administered generation price will cover 100% of electricity purchases for distributors set at vesting rates. The first tranche of vesting contracts is expected to be introduced from 1 May 1996 with an 85% coverage of purchase volumes. For the remaining 15% distributors would be able to purchase through the

³ Net margin is net profit over total sales.

wholesale electricity market. A second tranche of vesting contracts will cut in from 1 January 1997 and will provide full cover for estimated franchise customer loads.

The financial modelling undertaken by the Electricity Reform Task Force in consultation with the Tribunal provides a gross revenue for distributors of \$3,834 million in 1996-97. This includes \$1,304 million for network use of system charge and a retail earnings before interest and tax of \$85 million.

Factors in Determination of Revenue Caps for Distributors

Revenue caps have been determined on the basis of a wide range of factors. The more significant of these are

- accurate and uniform ring fencing of network operations.
- appropriate asset valuations
- commercial risks
- appropriate costs of capital
- relative levels of efficiency
- reliability of supply

Accurate and uniform ring fencing of network operations

Electricity distributors currently provide two major business services:

- transmission of electricity through the sub-transmission and distribution system - the "wires" business, and
- bulk purchase and retailing of electricity - retail business.

Competitive electricity markets require the separation or ringfencing of these two businesses. The effectiveness of this ringfencing will be a critical factor in the strength of retail competition.

The Accounting Code of Practice under which NSW distributors prepare their financial statements was recently amended to accommodate the separation of retail and network operations. This separation provides a consistent and workable basis for the Tribunal.

In conjunction with the development of legislation for the introduction of competition into the electricity industry the accounting code is being reviewed. In particular metering costs still form part of the network and public lighting is not included in the network. Prices provided in this determination are based on the existing Code of Accounting practices.

Complete accounting separation is the minimum requirement for ringfencing.

In its report on access to the gas distribution sector, the Gas Council stated:

*"..there is considerable debate that accounting separation is insufficient, and there is a need for separate management as well as restrictions on the flow of operating information between the arms of the gas distribution business."*⁴

The Tribunal will pursue these issues in consultation with the industry and the Electricity Reform Task Force.

Appropriate asset valuations

Distributors have undertaken a revaluation of assets based on Treasury guidelines for optimised depreciated replacement cost. This review resulted in lower estimates of the replacement value of the assets. Exclusion of assets previously funded through customer contributions also substantially reduced asset values in rural areas. These values generally align with the "line in the sand"⁵ asset value under a recoverable amount test given the Tribunal's proposed price path. "Line in the sand" provides a reduction in asset values of about 40% for rural distributors. This largely reflects the proportion of capital contributions received by these distributors for which a return on assets would be inappropriate.

Commercial risks and appropriate costs of capital

Prices should allow distributors network operators to earn returns on new investments which reflect their relative levels of risk. It is recognised that the financial viability of distributors is largely protected by enabling them to recover all direct operating costs (adjusted for relative efficiency levels). The remaining risks revolve around the accuracy of load projections. Reductions in asset values stemming from optimisation will reduce the asset base of the network owner and may result in equity write-downs.

Submissions received from NSW Treasury and others have provided significant analysis of risk factors associated with metropolitan distributors. Overall, it is judged that while these risks are significant, the risks for monopoly components are less than typical business risks in other industries. In assessing the reasonableness of returns, risk factors of between 0.5 and 1.0 times the average business risk premiums have been considered.

Table 1 sets out projected cash movements and cash returns on equity for the distribution sector. Over the period cash returns increase to around 15.0% in nominal pre-tax terms. Capital restructuring of the distributors has impacted on cash distributions to Government and movements in net debt figures in the first two years.

⁴ Gas Council of NSW. *An Inquiry into Access to Natural Gas Distribution Networks of NSW*. January 1996. p.91.

⁵ Line in the sand approach values asset at the net present value of future income streams.

Table 1: Cash Returns on Equity

	1995-96	1996-97	1997-98	1998-99
Cash distributions to Govt	1,209	544	339	348
Movements in net debt	(1,128)	(214)	38	52
New capital expenditure	116	120	115	112
Cash available for equity holder	196	450	492	512
Equity (include asset revaluation reserve)	3,439	3,168	3,287	3,418
Cash returns on Equity (nominal, pre-tax)	5.7%	14.2%	15.0%	15.01%

The Tribunal has recognised the need for electricity prices to include a return on funds invested (equity). This is essential for efficient resource allocation. However it is also recognised that this is only one of a range of factors that the Tribunal has had to consider.

Relative levels of efficiency

Detailed modelling of the distributors undertaken by the Tribunal has provided insight into the relative levels of operating efficiency, having regard to a range of mitigating factors. Based on this and overseas benchmark data, individual distributor's efficiency levels have been assessed. Together , this evidence suggests considerable scope for further reductions in costs by distributors.

Reliability of Supply

There is a trade-off between reinforcing the network to provide a high level of reliability of supply and minimising capital investment and increasing the potential risk of system outages.

Worlds best practice would optimise the balance between system investment and the cost of outages. The Tribunals determination of revenue caps has been based on such an approach.

This is an area where the Tribunal believes considerably more attention will need to be devoted to ensure customers receive levels of service in line with expectations. Minimum standards on a wide range of services should form part of the conditions of receiving a network franchise licence. This issue is included in the Electricity Supply Act 1996.

Distribution Network Use-of-System charges

Network Use-of-System charges for the wires business of each distributor have been set for 1996-97 in Table 2.

Table 2: Network revenue caps

Distributor	Network Revenue Cap (\$000)	Adjustments to come for the distribution components of inter-distributor transfers
EnergyAustralia	815,236	<ul style="list-style-type: none"> to NorthPower from Integral
Integral Energy	431,714	<ul style="list-style-type: none"> to EnergyAustralia to Energy South
NorthPower	181,222	<ul style="list-style-type: none"> from EnergyAustralia from Advance
Energy South	129,860	<ul style="list-style-type: none"> from Integral
Advance Energy	80,553	<ul style="list-style-type: none"> to NorthPower
Far West Energy	11,635	

The network revenue caps (distribution use of system charges or DUSC) for 1996-97 (year 1) have been calculated based on:

DUSC = Network operating costs (excluding depreciation and interest)
Plus Transmission use of system charges (TUSC)
Plus Market operations, system control and ancillary service⁶ costs
Plus Depreciation
Plus Earnings before interest and tax (EBIT)
Less Other income (including net proceeds from public lighting)

Therefore, these revenue caps do not include incomes from capital contributions, public lighting revenues, miscellaneous charges, specific "green pricing" initiatives and approved renewable energy schemes. It will also not include transmission costs relating to direct Pacific Power customers as these have not been included in distributors' TUSC's. (Note: Public lighting charges are regulated under the side constraints relating to retail tariffs and the Tribunal will continue to monitor these arrangements).

Formula for regulating network revenue path

The network revenue caps will be regulated by a CPI-X formula. The "X" factor is discussed in a later section. The formula will be:

$$\text{DUSC} = [a + (b_1N_1 + b_2N_2 + b_3N_3) + cM + dL + K] * (1 + (\text{CPI} - X))$$

⁶ Relates to generation related ancillary services.

where:

N= customer number by customer size

N_1 = small = 0 to 20,000 kWh pa

N_2 = medium = 20,000 to 200,000 kWh pa

N_3 = large = above 200,000 kWh pa

M= MWh sales

L= circuit kilometres

K= loss adjustment factor

a= is a residual fixed term capturing other costs (\$'000s)

b= dollars per customer for each customer size

c= dollars per MWh

d= dollars per circuit kilometres

Table 3: Network revenue cap coefficients

	a	b_1	b_2	b_3	c	d
EnergyAustralia	211,219	210	2000	8500	9.50	0
Integral Energy	112,614	210	2000	8500	9.50	0
NorthPower	49,256	210	1800	6500	9.50	100
Energy South	40,154	210	1800	6500	9.50	100
Advance Energy	25,756	210	1800	6500	9.50	100
Far West Energy	1,450	210	1800	6500	9.50	100

Note: "a" factor is in \$'000s, "c" is \$/MWh.

Table 3 shows the network revenue cap coefficients for the distributors. Two sets of coefficients, one for all metropolitan distributors and one for all rural distributors have been developed. The "a" factor has been individually set for each distributor. An approximate 70/30 weighting has been applied in the formula for customer numbers and MWh sales for metropolitan distributors. This is based on the results of the study undertaken by Erldunda Associates, which showed that costs were driven more by customer numbers than by sales volume. An approximate 75/25 weighting between the coefficients for customer numbers and MWh sales has been applied for the rural distributors. This variation from the metropolitan weighting reflects the results of the Erldunda Associates study. Under the formula proposed, a 10 per cent increase in sales would allow revenues to increase by around 2.5 per cent (multiplied by CPI-X).

The MWh sales will be based on actual meter reading data as at 30 June each year. No accruals will be included. This will apply to all sales figures included in the regulatory formulae.

The formula is to apply for the 15 months from 31 March 1996 to 30 June 1997. The formula is to be indexed by CPI-X and apply for 1997-98 and 1998-99. The relevant CPI measure is the increase in the average CPI for the four quarters to March with the four quarters to the preceding March.

The coefficient relating to kilometres of line only applies to rural distributors to reflect the significant costs involved with maintaining new extensions which may relate to relatively small numbers of customers and/or low consumptions.

There has been no dissection of the MWh coefficient in the formula for peak/shoulder and off-peak consumptions. This follows discussion with the industry which indicated that such detail was unnecessary. However, due the separation of these time periods in the TUSC there is a potential incentive for excessive marketing of off-peak sales. The Tribunal will monitor the operation of this formula and may introduce a revenue neutral adjustment to an off-peak coefficient to better approximate the TransGrid charge structure.

The loss adjustment factor will be calculated by:

$$K = (Z_{\text{current year}} - Z_{\text{(Average for previous 5 years)}}) * AWPP_{\text{current year}} * MWh_{\text{current year}}$$

Where:

Z = Percentage losses

AWPP = Average Wholesale Pool Price \$/MWh

The loss factor may need to be calculated based on the 12 months to 30 April each year.

“X” Factor

The Tribunal has determined “X” factors for individual distributors to be as follows:

EnergyAustralia	3.5%
Integral Energy	3.5%
NorthPower	3.0%
Energy South	0.0%
Advance Energy	0.5%
Far West Energy	0.0%

The variations in X factors reflects a number of conflicting interests which have needed to be reconciled. Initially the X factors were to represent the continuing expectations for distributors to achieve efficiency gains approaching world best practice in order to maintain their financial positions. However, in modelling the separation of the industry into competitive sectors and monopoly sectors there is a need to address cross subsidies which had been implicit in the BST (ie an averaging of transmission costs and losses).

The lower X factors applying in rural areas reflect a transitional approach to addressing these subsidies over a three to four year period rather than imposing significant price shocks in the first year. Corresponding lower price reductions and

returns on assets have also been provided to rural distributors, particularly in the initial years.

Vesting contracts

For the first two months 100% of the electricity will be purchased under vesting contracts. From 1 May 1996, it is anticipated that 85% of the electricity will be purchased under vesting contracts and the remainder from the state wholesale market. There will be a reduction in the average selling price of bulk electricity to all electricity distributors. Of this reduction an average 5% reduction is to be passed through to customers to reflect efficiency gains within the generation sector with the remainder of the reduction required to facilitate financial restructuring within the industry.

Proxy BST

In discussions with Pacific Power and distributors considerable attention was paid to issues relating to existing contracts with customers (direct and tripartite), private generators and cross border suppliers. In particular, the Tribunal was made aware of the references to the previous Bulk Supply Tariff in these contracts. The replacement of the BST with, firstly an administered price and subsequently vesting contract prices, creates a dilemma which would necessitate a renegotiation of these contracts. Such negotiations may contravene Trade Practices legislation. Given the short deadlines in preparing this determination the Tribunal have agreed to establish a proxy BST.

For the purposes of those contracts involved the proxy BST is deemed to have been reduced by 5% from the previous BST. This will enable contracts to continue under current terms and conditions for an interim period. It is not anticipated that there will be any future amendments to this charge. Parties affected are encouraged to negotiate alternative agreements in line with the expected wholesale and retail market arrangements.

Tripartite contracts

Pacific Power will be charged full transmission charges associated with tripartite contracts. Distributor margins on these contracts, up until the time they cease, will be frozen at their present levels. After providing distributors with an appropriate margin and paying for transmission, Pacific Power will receive the residual of funds paid by customers. Precise administrative arrangements will need to be negotiated between the parties.

132kV asset transfer

A number of 132kV assets are to be transferred between TransGrid and the distributors. Modelling the financial impact of these transfers was not resolved in time for inclusion in this determination. Hence, the Tribunal's determination has not taken into account the 132kV asset transfers. Distributors and TransGrid will need to negotiate the value of assets to be transferred and the consequent changes to Transmission and Distribution Use of System Charges.

The Tribunal considers that the negotiated income transfers should:

- provide for operating maintenance costs, overheads, depreciation and an appropriate weighted average cost of capital;
- not affect retail prices or the total transmission and distribution charges;
- for each asset transfer considered separately, not affect transmission charges for other distributors.

If negotiation is unsuccessful the Tribunal can arrange mediation or arbitration.

Customer classes

Customer categories need to be selected for the tariffs for the network business by voltage level, load class, and/or by zone. The work done by Erldunda Associates, which was outlined in the Tribunal's Interim Report and Discussion Paper on Network Pricing, needs to be taken into account.

The Tribunal recommends that distributors establish minimum Network customer categories of :

- Low voltage - residential, commercial, off-peak
- High Voltage
- Sub-transmission

However, beyond this distributors will have considerable freedom in choice of strategy subject to the side constraints set by the Tribunal.

Distributors may choose to establish additional categories where their costs of supply for the network indicate this is appropriate, or where side constraints on Retail charges prevent the immediate rationalisation of existing tariffs.

Inter-distributor transfers

Inter-distributor transfers occur where purchases and sales of bulk electricity are made between distributors using distribution assets rather than direct from transmission assets. Pricing for inter-distributor transfers is to be negotiated by the relevant distributors, with recourse to the Tribunal for arbitration only if necessary.

These negotiations will need to consider transmission charges incurred by the supplying distributor, distribution assets used by the supplying distributor and associated distribution operating costs.

The DUSC's applied in this determination include assumptions for the costs of transmission recovered from recipient distributors by supplying distributors. However, there has been no adjustment to allow for the value of distribution charges which will also need to be recovered. When the parties have negotiated final pricing arrangement for inter-distributor transfers the DUSC's of recipient distributors will need to be increased and the Tribunal will make the necessary adjustments.

There should be no adjustment necessary for supplier distributor revenue caps, however, the amounts recovered from the retail business will be decreased and, hence, tariffs to customers will need to be lower to reflect this reduction. A

corresponding increase should be allowed for by recipient distributors when developing retail tariffs.

Capital contributions & recoverable works

The industry is establishing a capital contributions code for contestability under the auspices of a working party convened by the Department of Energy. Charges for monopoly services have been set in previous determinations to support contestability. These charges cover matters such as essential design and specification, and contract supervision.

The industry proposed significant increases in the monopoly charges and extension of the coverage of these charges to support the extension of contestability of new works.

The Tribunal supports the extension of contestability but is concerned about the proposed increases in supporting charges. It proposes not to change the supporting charges at this stage or the manner by which capital contributions are calculated. It will, however, conduct a separate review covering:

- the calculation of capital charges which are not contestable
- supporting charges for contestable capital works
- recoverable works

Charges for recoverable works are to continue to be calculated on the existing basis pending this review.

Miscellaneous charges

Miscellaneous charges have been set based on the charges outlined in the Tribunal's Interim Report and are set out in Schedule 2.

Negotiation and bypass

The Tribunal's preferred approach to network access is to allow negotiation among the involved parties. The Tribunal believes that negotiation is desirable to allow agencies some flexibility in managing the use of the system and pricing policies.

However, in recognition of the natural monopoly position for the network business, the Tribunal's determination sets an overall cap on network, or "wires", revenue and maximum reference prices for different points of supply. Scope is to be provided for negotiation of prices below these maximum prices but distributors would not be able to recover forgone revenue from other customers.

The Tribunal intends to work with the industry on developing guidelines for negotiation below maximum network prices. This would specify circumstances where negotiations may be desirable and outline factors to be considered. The Tribunal would expect negotiated prices to be published and available to other customers with the same circumstances.

In situations where disputes arise during negotiations, mediation and, possibly, arbitration may be required.

Scheduled prices will be highly averaged by necessity. Negotiation can provide scope for a more flexible approach to pricing to reduce the inevitable distortions under average pricing.

The Tribunal considers that increasing contestability of the market can be achieved by allowing firms to bypass -i.e. set up their own distribution infrastructure. This provides a constraint to inappropriate pricing.

Regulation of retail gross margin for distributors

The Tribunal has decided to regulate the gross margin for the retail businesses of distributors. The gross margin will be adjusted as retail competition is introduced. The gross margin is only intended to cover non-contestable (franchise) customers. Gross margin can be defined as electricity revenue minus electricity purchases. The formula to regulate gross margin can be written as:

$$GM = [(a + (b_1N_1 + b_2N_2 + b_3N_3) + cM) - Y] * (1 + (CPI - X))$$

where:

GM= Gross margin based on electricity sales income in \$'000

Less: electricity purchases
DUSC

DUSC includes TUSC, market operations and system control costs and ancillary charges (generation related)

N= customer number by customer size

N_1 = small = 0 to 20,000 kWh

N_2 = medium = 20,000 to 200,000 kWh

N_3 = large = above 200,000 kWh

M= MWh sales

a= is a residual fixed term capturing other costs (\$'000s)

b= dollar margin per customer for each customer size

c= dollars margin per MW

Y= an adjustment factor to remove the gross margin attributable to contestable customers.

In calculating gross margin the Tribunal may specify that purchase costs are to be calculated on the basis of vesting contract prices or a weighted average of vesting contract prices and average prices in the competitive market. If the latter is used, the weight would reflect the proportions of purchases for supply to contestable customers made under vesting contracts.

The adjustment factor to remove the gross margin attributable to the contestable customers will be determined once the transition path to contestability is determined by the Government.

Table 4: Gross margin cap coefficients

	a	b₁	b₂	b₃	c
EnergyAustralia	28,243	35	150	1000	0.65
Integral Energy	12,442	35	150	1000	0.65
NorthPower	5,767	35	150	1000	0.65
Energy South	6,670	35	150	1000	0.65
Advance Energy	3,632	35	150	1000	0.65
Far West Energy	1,204	35	150	1000	0.65

Note: "a" factor is in \$000's, "c" \$0.65/MWh.

The regulated gross margin does not include premiums from green pricing revenue from sales of remote area power systems, miscellaneous charges, capital contributions, recoverable works or other distributor ancillary services.

The coefficients for retail gross margins are considerably different from those presented in the network revenue formula, however, the operation and definition of variables remain the same.

The metropolitan and rural distributors have different cost drivers. Therefore, separate gross margin formulae are required for the metro distributors and rural distributors. The formula for the annual gross margin is to apply to gross margins for the 15 months from April 1996 to 30 June 1997. The formula is to be indexed by CPI-X and will apply for 1997-98 and 1998-99. The relevant CPI measure is the increase in the average CPI for the four quarters to March with the four quarters to the preceding March.

"X" factor

The "X" factors for Retail gross margin regulation will be the same as those applying to each distributor's network business.

Regulation of franchise market

With the introduction of competition into the retail market the Tribunal recognises that there is no need for regulation of the portion of the market that is contestable. There is a need for clear separation of the contestable market from the franchise market so that regulation can be applied to the franchise market. The means chosen to implement this is to impute gross margin for the contestable customers. The contestable customers gross margin would be subtracted from the total gross margin to give the franchise market gross margin to which regulation will apply.

Side constraints

As outlined in the Interim Report the Tribunal has determined the following constraints on individual customers bills:

- no single domestic bill⁷ (or domestic component of a rural tariff) is to increase by more than the greater of:
 - the CPI increase, or,
 - \$5 per quarter for customers not on off-peak tariffs or \$7 per quarter for customers on off-peak tariffs
- average residential tariffs are not to increase by more than 4.2% which is less than the current annual rate of inflation of 5.2%⁸.
- no commercial or industrial customers' bill⁹ is to increase by more than the greater of 5% in real terms or \$50 per annum.

For the changes in prices from 31 March the relevant CPI increase is 5.2%. This is the increase in the average of the all-groups CPI for Sydney for the four quarters to December 1995 compared to the same period in the previous year. In subsequent years, the relevant index is the increase in the average of the all-groups CPI for Sydney for the four quarters to March compared to the same period in the previous year.

Price paths for residentials

The Tribunal considers that distributors will not need to utilise full CPI increases for residential customers. Hence, it will agree target end-points for residential tariffs which should provide further real reductions.

Price structures

Distributors will be free to restructure tariffs as long as side constraints are not exceeded. Distributor bills will need to show network and energy components on customer bills once retail competition is introduced.

Loss factors

In the NSW market, transmission losses will be traded through the market. Energy purchasers will need to ensure that sufficient energy is purchased to cover metered consumption by customers plus system losses.

Loss factors for each distributor supply point are set by TransGrid based on modelled results for each supply point. These have been averaged within the distributor's boundaries to provide a single loss factor for each distributor. This is basically the same approach used for transmission charges. Losses on the transmission system average about 2% of sent out energy. Due to the substantial losses associated with Far West Energy the Tribunal has requested TransGrid to cap Far West's loss factor at the maximum of the other rural distributors. This provides a figure of 3% for Far West.

⁷ For the same level and pattern of consumption of electricity.

⁸ Year-on-year increase in the Sydney all-groups CPI for calendar year 1995

⁹ For the same level and pattern of consumption of electricity.

Initially, marginal loss factors will be applied to each distributor for calculating energy purchases. This will result in over-recovery of charges by TransGrid which will be reallocated back to distributors in the settlement process.

Loss Factors for individual distributors are as follows:

EnergyAustralia	1.0
Integral Energy	1.0
NorthPower	1.03
Advance Energy	1.016
Energy South	1.029
Far West Energy	1.03

These loss factors refer to the average transmission losses for each distributor, from the reference point (Sydney West) to the distributor's bulk supply points. These losses have been factored into the costs of purchases when determining relevant generation costs.

Losses for inter-distributor transfers

The Tribunal understands that TransGrid proposes to handle the settlement of losses for inter-distributor transfers¹⁰. The Tribunal suggests that the affected distributors and TransGrid should negotiate on the appropriate loss factors.

Impact on environment

The separation of the wires and retail businesses raises the issue of the effect of the form of regulation on the different businesses. Although initially the separation of these businesses may be seen as notional, this will become real as the retail business is opened up to competition. The form of regulation of the wires and retail supply business will largely determine the extent of incentives or disincentives for each of these businesses to undertake energy-efficiency programs. In its Interim report the Tribunal proposed that regulation should:

- focus the incentive for energy-efficiency on those best placed to provide it on a commercial basis. This suggests that the retail supply business may have primary responsibility for energy-efficiency because it has a direct relationship with the customer.
- provide for cost-effective energy efficiency programs in response to generation price signals, profitable opportunities caused by information gaps or other factors which discourage customers from undertaking energy-efficiency directly, and transmission and distribution constraints.

The introduction of revenue regulation under this determination supports these objectives. By greatly reducing the link between electricity sold and revenue, revenue regulation reduces the incentives to sell more electricity. Hence, it reduces the bias against energy efficiency programs.

¹⁰ Inter distributor transfers occur when one distributor receives energy through another distributor's network.

**INDEPENDENT PRICING AND REGULATORY TRIBUNAL
OF NEW SOUTH WALES**

**DETERMINATION OF MAXIMUM PRICES TO BE CHARGED UNDER
SECTION 11(1) OF THE INDEPENDENT PRICING AND REGULATORY
TRIBUNAL ACT 1992**

Determination No 2.2 1996 (Matter SRD/95/07)

Maximum prices to be charged from 31 March 1996 by electricity distributors for government monopoly electricity services (as declared in the Government Pricing Tribunal (Electricity Services) Order 1993).

NETWORK CHARGES

Distribution network use-of-system charges

The 1996-97 network use-of-system charges (network revenue cap) for the wires business of each distributor are shown in Table 1.

Table 1: 1996/97 Distributors network revenue caps

Distributor	Network Revenue Cap (\$000)	Adjustments to come for the distribution components of inter-distributor transfers
EnergyAustralia	815,236	<ul style="list-style-type: none"> • to NorthPower • from Integral
Integral Energy	431,714	<ul style="list-style-type: none"> • to EnergyAustralia • to Energy South
NorthPower	181,222	<ul style="list-style-type: none"> • from EnergyAustralia • from Advance
Energy South	129,860	<ul style="list-style-type: none"> • from Integral
Advance Energy	80,553	<ul style="list-style-type: none"> • to NorthPower
Far West Energy	11,635	

The network revenue caps (distribution use of system charges or DUSC) for 1996/97 (year 1) have been calculated based on:

DUSC = Network operating costs (excluding depreciation and interest)
Plus Transmission use of system charges (TUSC)
Plus Depreciation
Plus Earnings before interest and tax (EBIT)
Less Other income (including net proceeds from public lighting)

Therefore, these revenue caps do not include incomes from capital contributions, public lighting revenues, miscellaneous charges, specific "green pricing" initiatives

and approved renewable energy schemes. It will also not include transmission costs relating to direct Pacific Power customers as these have not been included in distributors' TUSCs. (Note: public lighting charges are regulated under the side constraints relating to retail tariffs and the Tribunal will continue to monitor these arrangements).

Formula for regulating network revenue path

The maximum network revenue caps will be regulated by a CPI-X formula. The "X" factor is discussed in a later section. The formula will be:

$$\text{DUSC} = [a + (b_1N_1 + b_2N_2 + b_3N_3) + cM + dL + K] * (1 + (\text{CPI} - X))$$

where:

DUSC = Total revenue in \$'000s

N = customer number by customer size

N_1 = small = 0 to 20,000 kWh pa

N_2 = medium = 20,000 to 200,000 kWh pa

N_3 = large = above 200,000 kWh pa

M = MWh sales

L = circuit kilometres

K = loss adjustment factor

a = is a residual fixed term capturing other costs (\$'000s)

b = dollars per customer for each customer size

c = dollars per MWh

d = dollars per circuit kilometres

The timetable for introduction of contestability in retail markets is yet to be finalised. A factor for exclusion of customers, as and when they become contestable, has been included in the regulatory formulae, but the nature of this adjustment cannot be specified until the approach to retail competition is clarified by the Government. The determination of this factor will be included in a separate report and determination for this matter at a later date.

Table 2: Distributor network revenue cap coefficients

	a	b₁	b₂	b₃	c	d
EnergyAustralia	211,219	210	2000	8500	9.50	0
Integral Energy	112,614	210	2000	8500	9.50	0
NorthPower	49,256	210	1800	6500	9.50	100
Energy South	40,154	210	1800	6500	9.50	100
Advance Energy	25,756	210	1800	6500	9.50	100
Far West Energy	1,450	210	1800	6500	9.50	100

Note: "a" factor is in \$'000s.

The formula is to apply for the 15 months from 31 March 1996 to 30 June 1997. The formula is to be indexed by CPI-X and apply for 1997-98 and 1998-99. The relevant CPI measure is the increase in the average all-groups CPI for Sydney for the four quarters to March with the four quarters to the preceding March.

The coefficient relating to kilometres of line only applies to rural distributors to reflect the significant costs involved with maintaining new extensions which may relate to relatively small numbers of customers and/or low consumptions.

The loss adjustment factor will be calculated by:

$$K = (Z_{\text{current year}} - Z_{\text{(Average for previous 5 years)}}) * AWPP_{\text{current year}} * MWh$$

Where:

Z = Percentage losses

AWPP = Average wholesale pool price \$/MWh

Therefore, these revenue caps do not include incomes from capital contributions, public lighting revenues, miscellaneous charges specific, "green pricing" initiatives and approved renewable energy schemes. It will also not include transmission costs relating to direct Pacific Power customers as these have not been included in distributors' TUSCs. (Note: public lighting charges are regulated under the side constraints relating to retail tariffs and the Tribunal will continue to monitor these arrangements).

"X" Factor

The Tribunal has determined "X" factors for individual distributors to be as follows:

EnergyAustralia	3.5%
Integral Energy	3.5%
NorthPower	3.0%
Energy South	0.0%
Advance Energy	0.5%
Far West Energy	0.0%

Proxy BST

A number of tripartite contracts are indexed by the bulk supply tariff (BST). As the BST will cease to exist from 1 March, the Tribunal has been requested to set a proxy BST.

For the purposes of tripartite contracts and cross border tariffs which are linked to this BST, the proxy BST is deemed to have been reduced by 5% from the previous BST. It is not anticipated that there will be any future amendments to this charge. Parties affected are encouraged to negotiate alternative agreements in line with the expected wholesale and retail market arrangements.

Tripartite contracts

Pacific Power will be charged full transmission charges associated with tripartite contracts. Distributor margins on these contracts, up until the time they cease, will be frozen at their present levels. After providing distributors with an appropriate margin and paying for transmission, Pacific Power will receive the residual of funds paid by customers. Precise administrative arrangements will need to be negotiated between the parties.

132kV asset transfer

A number of 132kV assets are to be transferred between TransGrid and the distributors. Distributors and TransGrid will need to negotiate the value of assets to be transferred and the consequent changes to transmission and distribution use of system charges.

The negotiated income transfers should:

- provide for operating maintenance costs, overheads, depreciation and an appropriate weighted average cost of capital;
- not affect retail prices or the total transmission and distribution charges;
- for each asset transfer considered separately, not affect transmission charges for other distributors.

If negotiation is unsuccessful the Tribunal can arrange mediation or arbitration.

Inter-distributor transfers

Pricing for inter-distributor transfers is to be negotiated by the relevant distributors, with recourse to the Tribunal for arbitration only if necessary.

These negotiations will need to consider transmission charges incurred by the supplying distributor, distribution assets used by the supplying distributor and associated distribution operating costs.

When the parties have negotiated final pricing arrangement for inter-distributor transfers the DUSCs of recipient distributors will need to be increased and the Tribunal will make the necessary adjustments. There should be no adjustment necessary for supplier distributor revenue caps.

Capital contributions & recoverable works

Where provision of underground residential development (URD) connection works is contestable, the proposed capital contributions are not regulated. Supporting charges for contestability set in the Tribunal's 1994-95 determination of electricity prices are to continue unchanged.

Where the works for which capital contributions are not contestable, capital contributions should not exceed those calculated under the existing methodology. The Tribunal will conduct a separate review covering:

- the calculation of capital charges which are not contestable
- the phasing out of infrastructure charges
- supporting charges for contestable capital works
- recoverable works

Charges for recoverable works are to continue to be calculated on the existing basis pending this review.

Miscellaneous charges

Miscellaneous charges have been set based on the charges outlined in the Tribunal's Interim Report and are set out in Attachment A.

Negotiation and bypass

The Tribunal will develop guidelines for bypass and negotiation of network charges below maximum scheduled tariffs.

RETAIL SUPPLY CHARGES

Regulation of retail gross margin for distributors

The Tribunal will regulate the gross margin for the retail businesses of distributors. Gross margin is defined as electricity revenue minus electricity purchases. The formula to regulate gross margin is:

$$GM = [(a + (b_1N_1 + b_2N_2 + b_3N_3) + cM) - Y] * (1 + (CPI - X))$$

where:

GM= Gross Margin based on Electricity sales income in \$'000s

Less: Electricity purchases
DUSC

DUSC includes TUSC, market operations and system control costs and ancillary charges (generation related)

N= customer number by customer size

N₁ = small = 0 to 20,000 kWh

N₂ = medium = 20,000 to 200,000 kWh

$N_3 = \text{large} = \text{above } 200,000 \text{ kWh}$

M = MWh sales (franchise sales)

a = is a residual fixed term capturing other costs (\$'000s)

b = dollar margin per customer for each customer size

c = dollars margin per MWh

Y = an adjustment factor to remove the gross margin attributable to contestable customers.

In calculating gross margin the Tribunal may specify that purchase costs are to be calculated on the basis of vesting contract prices or a weighted average of vesting contract prices and average prices in the competitive market. If the latter is used, the weight would reflect the proportions of purchases for supply to contestable customers made under vesting contracts.

The adjustment factor to exclude contestable customers from the overall cap will be determined by the Tribunal once the timing and scope and of contestability has been determined by the Government.

Table 3: Gross margin cap coefficients

	a	b ₁	b ₂	b ₃	c
EnergyAustralia	28,243	35	150	1000	0.65
Integral Energy	12,442	35	150	1000	0.65
NorthPower	5,767	35	150	1000	0.65
Energy South	6,670	35	150	1000	0.65
Advance Energy	3,632	35	150	1000	0.65
Far West Energy	1,204	35	150	1000	0.65

Note: "a" factor is in \$'000s, "c" \$0.65/MWh.

The regulated gross margin does not include premiums from green pricing revenue from sales of remote area power systems, miscellaneous charges, capital contributions, recoverable works or other distributor ancillary services.

"X" Factor

The "X" factors for retail gross margin regulation will be the same as those applying to each distributor's network business.

Side constraints on retail prices

As outlined in the Interim Report the Tribunal has determined the following constraints on individual customers bills:

- no single domestic bill¹ (or domestic component of a rural tariff) is to increase by more than the greater of:

¹ For the same level and pattern of consumption of electricity.

- the CPI increase, or,
- \$5 per quarter for customers not on off-peak tariffs or \$7 per quarter for customers on off-peak tariffs
- average residential tariffs are not to increase by more than 4.2% which is less than the current annual rate of inflation of 5.2%².
- no commercial or industrial customers' bill³ is to increase by more than the greater of 5% in real terms or \$50 per annum.

For the changes in prices from 31 March the relevant CPI increase is 5.2%. This is the increase in the average of the all-groups CPI for Sydney for the four quarters to December 1995 compared to the same period in the previous year. In subsequent years, the relevant index is the increase in the average of the all-groups CPI for Sydney for the four quarters to March compared to the same period in the previous year.

Price paths for residential consumers

The Tribunal considers that distributors will not need to utilise full CPI increases for residential customers. Hence, it will agree target end-points for residential tariffs which should provide further real reductions.

Price structures

Distributors will be free to restructure tariffs as long as side constraints are not exceeded. Distributor bills will need to show network and energy components once retail competition is introduced.

Thomas G Parry
Chairman
28 February 1996

² Year-on-year increase in the Sydney all-groups CPI for calendar year 1995

³ For the same level and pattern of consumption of electricity.

Attachment A

Miscellaneous Charges

Allowable Charges	Maximum allowable \$	After hours maximum \$
Dishonoured bank transaction charge	Twice bank fee	Twice bank fee
Special reading charge	30	75.00
Meter test charge	50	125.00
Conveyancing inquiry charge (standard) or rural distributors (if desired):		
desk inquiry	25	62.50
field visit	50	125.00
total	75	187.50
Application fee	35	87.50
Off-peak conversion charge	40	100.00
Reinspection charge (minimum 1 hr)	per half hour 25	62.50
Temporary supply charges:		
- underground single phase	130	325.00
- underground three phase	190	475.00
- overhead single phase	240	600.00
- overhead three phase	320	800.00
Late payment/reminder charge	5	5.00
Personal visit		
- if no disconnection (payment received)	30	na
- disconnection (payment not received)	60	na
- pole top disconnection	100	na
Maximum total (pole & meter disconnections)	160	na
Rectification of illegal connection	150	475.00

GLOSSARY

GLOSSARY

ACCC	Australian Competition and Consumer Commission (successor to the Trade Practices commission and the Prices Surveillance Authority) which came into existence on 6 November 1995.
BST	Bulk Supply Tariff. The tariff under which Distributors previously purchased electricity from Pacific Power. It included generation and transmission.
Capital Contribution	Up-front payment required to be paid by customers to cover cost associated with connection to the distribution transmission network.
Code of Conduct	The code of conduct developed by the NGMC for the regulation of the national electricity market.
Co-generation	Generation of electricity as part of an industrial process. May involve net import or export of energy from the network.
Contestable Customer	Means a customer who is eligible to buy electricity from its <i>local retailer</i> , another <i>retailer</i> or through the wholesale market. A contestable customer is also known as a <i>non-franchise customer</i> .
CRNP	Cost Reflective Network Pricing. Approach proposed by the NGMC for network pricing
Distribution Network	The network used to transport electricity from the high-voltage <i>transmission</i> grid to customers.
Distribution Use of System Charge	Component of network access charge which covers use of the distribution network.
Distributors	Entities established to distribute and supply electricity. Includes network, or 'wires' function and retail function.
Embedded Generator	Generator or co-generator which is connected to the distribution network instead of the transmission network.
Franchise Customer	Means a customer who may buy electricity only from the customer's <i>local retailer</i> . The prices are regulated by the Independent Pricing and Regulator. Franchise customers are also known as <i>non-contestable customers</i> .

Green Pricing	Green pricing in electricity supply, means an agency offers its customers an opportunity to buy 'green electrons'. If a customer agrees to pay something extra on his or her bill, the agency will, in turn, invest this money in renewable energy technologies, and meet a portion of customers' demand using these technologies.
Load Profile	A customer's electricity consumption as measured periodically (usually every half hour) over a length of time such as a day, a week or a year.
Network Use of System Charge	Access charge for use of the transmission, sub-transmission and distribution system for the supply of electricity.
NGMC	National Grid Management Council.
Non-Contestable Customer	A customer who may buy electricity only from its <i>local retailer</i> . Non-contestable customers are also known as <i>franchise customers</i> .
Non Franchise Customer	A customer who is eligible to buy electricity from its <i>local retailer</i> , another <i>retailer</i> or through the wholesale electricity market. Non-franchise customers are also known as <i>contestable customers</i> .
ODV	Optimised deprival value. Method of valuing assets based on eliminating stranded assets and adjusting for technological and construction cost changes. ⁰
Retailer	Means a company which is licensed to sell electricity. A retailer may be the retail arm of a <i>distribution business</i> or an <i>independent retailer</i> .
Supply Point	A point where a supply of electricity last leaves a facility owned or operated by a <i>wire business</i> before being supplied to a customer. In most cases, the supply point is located near the meter.
Transmission Grid	The component of a <i>distribution business</i> which distributes (transports) electricity from the <i>transmission grid</i> to customers across a <i>distribution network</i> . A wires business is operated under a distribution licence.
WACC	Weighted Average Cost of Capital. Measure of required return on assets based on assessment of the cost of debt and equity.