

**2004 Electricity Distribution Review -
Preliminary Analysis**

Secretariat Discussion Paper

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1 INTRODUCTION

The Independent Pricing and Regulatory Tribunal of New South Wales (the Tribunal) is responsible for regulating the state's four Distribution Network Service Providers (DNSPs). These businesses are EnergyAustralia, Integral Energy, Country Energy and Australian Inland, and are wholly owned by the New South Wales Government. The Tribunal is required to regulate the prices DNSPs charge under the National Electricity Code (the Code), in accordance with the objectives and principles set out in the Code.

The Tribunal's current price determination will expire on 30 June 2004. In line with the requirements of the Code, the Tribunal has notified the owner of the distribution network in NSW, that it will introduce new regulatory arrangements at the start of the next regulatory period (1 July 2004). It has also advised the owner that the new arrangements will include a weighted average price cap for the distribution component of network tariffs, a pass through of transmission charges and price caps for miscellaneous charges and monopoly fees.

The Tribunal is currently preparing its determination for the regulatory period commencing 1 July 2004. The Tribunal and its Secretariat have released an issues paper and discussion papers on inclining block tariffs, demand forecasts, quality of supply and prescribed and excluded services. Submissions have been received from the DNSPs, and interested parties. In addition, the Tribunal has hosted four public forums. The Tribunal's Secretariat has reviewed all submissions received as at August 2003 and has undertaken preliminary analysis on a number of the positions put forward in those submissions. The Secretariat wishes to ensure that its advice to the Tribunal is as well informed and as comprehensive as possible, and is therefore seeking comments on this preliminary analysis.

The views expressed in this paper are preliminary views only. The Secretariat will review the responses to this paper and will undertake further analysis prior to finalising its advice to the Tribunal. Moreover, this paper is not exhaustive. There are a number of issues (for example, dollar amount of the building block components, and demand forecasts) where the Secretariat has not formed even preliminary views pending the results of reviews which are now underway and which will be the subject of separate consultation.

Submissions should be received by no later than 6 pm on 20 October 2003. Unless confidentiality is established all submissions will be regarded as public and will be placed on the Tribunal's website.

The Tribunal expects to release a draft determination in December 2003. Comments will be invited on the draft determination prior to its finalisation.

2 REGULATORY ARRANGEMENTS

The Tribunal has established that it will regulate network tariffs and other fees by using:

- a weighted average price cap to set distribution charges
- a pass through of transmission charges
- set all miscellaneous service and monopoly service fees.¹

To set the weighted average price cap for distribution charges, the Tribunal will:

- undertake a building block analysis to determine a notional revenue requirement for each year of the regulatory period for each DNSP
- test these notional revenue requirements using financial analysis to ensure they will allow the businesses to remain financially viable
- take the notional revenue requirements and, using growth forecasts, convert them into price movements
- consider whether other factors should be included in the weighted average price cap, such as a service quality incentive mechanism, a correction factor, demand management payments, other specified costs and a mechanism to deal with forecasting inaccuracies.

2.1 The Weighted Average Price Cap price control formula

This process will establish the amount by which average distribution charges will move over the regulatory period. The Tribunal will express this price movement through the 'X' factor in the price control formula:

$$\frac{\sum_{i=1}^n \sum_{j=1}^m p_{ij}^{t+1} * q_{ij}^{t-1}}{\sum_{i=1}^n \sum_{j=1}^m p_{ij}^t * q_{ij}^{t-1}} \leq (1 + CPI_t - X_{t+1}) \quad i=1, \dots, n \text{ and } j=1, \dots, m.$$

where the DNSP has n tariffs, which each have up to m components, and:

p_{ij}^t is the price currently being charged for component j of tariff or charge i

p_{ij}^{t+1} is the proposed price for component j of tariff or charge i in the coming year

q_{ij}^{t-1} is the quantity of component j of tariff i that was sold in the previous year

X_t is the real change in average prices from year t to year $t+1$ of the regulatory period.

The price control formula might also include additional terms for

- a service quality incentive mechanism
- a correction factor (as provided for under section 6.10.5(8) of the Code), which would allow factors arising in the current regulatory period to be carried forward into the next regulatory period
- a mechanism to provide incentives to undertake demand management

¹ IPART, Notice under clause 6.10.3 of the National Electricity Code – Economic Regulatory Arrangements, NCR-10, June 2002.

- a mechanism for passing through other specified costs
- a risk hedging factor to account for significant differences between forecast and actual throughput.

Distribution charges will then be added to the transmission charge component to deliver a total network price. The Tribunal will allow a pass through of actual transmission charges (and may allow passing through payments to embedded generators and inter-distributor transfers through the same mechanism).

The Tribunal has stated that it will limit the movement in individual network prices for individual customers (the sum of the distribution and transmission tariffs). It has also stated that it will consider separately limiting the movement in the distribution tariffs for individual customers.²

2.2 Other factors that could be included in the price control formula

As noted above, the price control formula could include a range of factors to meet other objectives. The following section describes the Secretariat's preliminary views on three possible factors:

- service quality incentive mechanism
- cost pass through mechanism
- a volume forecast risk hedging factor.

This list reflects the Secretariat's analysis to date and does not exclude other factors from being included in the price control formula, should the Tribunal decide it appropriate.

2.2.1 Service quality incentive mechanism

In the November 2002 Issues Paper the Tribunal stated its view that it would be desirable to incorporate explicit incentives for the provision of efficient levels of service quality into the regulation of network prices, as part of the 2004 Electricity Network Review. DNSPs are proposing to spend large amounts on capital projects over the coming regulatory period, including projects to maintain, and in some cases increase, the levels of service quality for customers. The Tribunal therefore supports the use of a formal mechanism to link expenditure explicitly to service quality outcomes.

The Tribunal released an Issues Paper in May 2003 consulting on the provision of incentives for service quality. This paper, and the stakeholder workshop held in July 2003, consulted on the possibility of introducing an S-factor into the CPI-X pricing formula. Respondents to consultation expressed broad support for an S-factor, at least in principle, with some respondents in favour of a scheme with monetary incentives from 2004, and others in favour of a 'paper trial' with no revenues at stake.

² IPART, *Notice under clause 6.10.3 of the National Electricity Code – Economic Regulatory Arrangements*, NCR-10, June 2002.

The Tribunal's preference is for the introduction of an S-factor in some form from July 2004. However, there may be implementation issues that must be resolved prior to any S-factor being introduced.

Further work is therefore centering on the following:

- DNSPs will shortly be requested to provide further details of the levels of service quality that corresponds with the levels of capital expenditure outlined in their April 2003 submissions – although most DNSPs have already provided some quantitative information as originally asked for, further data will be requested, including data by feeder type where this has not already been provided.
- As the next review period progresses, DNSPs will be requested to provide information showing whether or not they have delivered the levels of service quality that are consistent with allowed capital expenditure levels. If DNSPs have failed to deliver these service quality levels, the Tribunal will consider making an adjustment to revenue at the next review.

Copies of work to date, including the May 2003 Issues Paper and responses, and the July workshop brief and slides are available at www.ipart.nsw.gov.au/elec.htm#dss.

2.2.2 Cost pass through mechanisms

A cost pass through mechanism is when cost increases are passed directly onto customers through increased prices. The mechanism acknowledges that there are some cost increases which are beyond the control of the business, and importantly, that it is unreasonable for the business and ultimately the shareholders to bear the risk alone.

The effect of a cost pass through mechanism is to decrease the financial risks associated with the operation of the business. This result is considered reasonable for a limited class of costs, which, it is argued, a business in a workably competitive market would also simply pass onto customers. The mechanism is an attempt to make a similar option available to regulated businesses within the regulatory framework. It is expected that a cost pass through mechanism may address concerns raised in submissions regarding the presence of asymmetric risk for DNSPs – that is, outcomes such as changes in statutory requirements that only act to reduce DNSPs profits.

While the principle of having such a mechanism may be justified on the basis of an efficient or appropriate risk allocation, difficulties arise in the actual formulation of the mechanism. A number of alternative formulations are possible including:

- pass through of costs into annual charges within a regulatory period with limited review and approval by the Tribunal
- pass through of costs into annual charges upon application to, and approval by the Tribunal following an independent review of the costs
- retrospective pass through of costs at the next price review based on guiding principles to increase certainty to the business that the costs will be passed onto customers.

Each of these approaches to a cost pass through mechanism requires a clear definition of the instances when costs will be considered for pass through to customers. Given the difficulty in providing this definition, the Secretariat considers that a cost pass through mechanism with only a limited review by the Tribunal may increase risks to customers that inappropriate costs will be passed through.

A problem with waiting until the next price review to retrospectively pass costs onto customers is that it does not provide the businesses with sufficient certainty that the costs are likely to be passed through. This uncertainty may result in the business attempting to avoid the additional costs where possible even when, from a risk management perspective it would be inappropriate to do so.

The option of allowing businesses to apply to the Tribunal for the inclusion of some costs at the next annual price change, within a regulatory period provides a good balance for managing the risks associated with the mechanism. It will allow the Tribunal to ensure that unnecessary cost increases are not directly passed onto customers by requiring the business seeking the cost pass through to justify that the costs are beyond their control. It also gives the businesses an opportunity in the event of uncontrollable cost increases to pass these through to customers, rather than waiting until the next price review, which in some instances could be a number of years away.

The implementation of a cost pass through mechanism which involves an application to the Tribunal and subsequent review requires:

- a clear definition of the circumstances for which the mechanism applies
- a materiality threshold to avoid insignificant claims being made by businesses
- sufficient time for the Tribunal to review the request
- specification of how the pass through mechanism would be applied within the regulatory framework.

At a minimum the mechanism should be available for changes in statutory requirements placed on the business, including changes to work safety requirements and environmental requirements. Other circumstances for which the mechanism may be applicable include costs incurred due to acts of terrorism and natural disasters which are not able to be insured.

In addition to statutory requirements, EnergyAustralia, Country Energy and Integral Energy argue in their submissions for a cost pass through mechanism to apply to:

- changes in service quality obligations or other regulatory changes (eg to the Code)
- insurance 'events' (unforeseen, material increases in insurance costs)
- any other material changes in costs, including those not arising from statutory obligations (including unforeseen events that it was not 'prudent' to insure against).

A materiality threshold ensures that businesses do not bring small cost increases resulting from circumstances for which the mechanism is applicable to the Tribunal for direct passing through to customers. This reflects the view that these small costs should be considered part of the ordinary operation of the business, and not passed directly onto customers. The threshold also reduces the administrative costs associated with implementing the mechanism.

The Tribunal would require sufficient time within the mechanism to conduct a public consultation process on any request for costs to be passed through to customers, engage consultants as necessary to review the costs, review results of consultancy reports and public consultation processes prior to formulating a decision and fulfilling its reporting requirements. It is envisaged that a minimum length of time to conduct such a process would be 90 days, depending on the type of costs wanted to be passed onto customers. However, in the case of some costs, (a recent example would have been costs associated with the implementation of full retail contestability) the Tribunal may require additional time.

It would be appropriate to apply the same approach to reviewing operating and capital expenditure which a business is seeking to pass through to customers as is ordinarily conducted by the Tribunal at a regulatory review. This would mean that only prudent actual expenditure, and efficient forward expenditure would be considered by the Tribunal for passing through to customers. Given that costs may continue to be incurred into the future, allowing businesses to claim both actual and forecast costs would also be appropriate.

The cost pass through mechanism would be implemented as an adjustment to the regulatory control formula in addition to the X-factor. The modification to annual charges would then be expressed as $CPI \pm X + P$, where P is the increase in prices needed to provide sufficient revenue to the business for the costs which the Tribunal has allowed to be passed through.

'P' would equal the total pass through costs in the next year divided by notional revenue requirement in the previous year.

The Secretariat preliminary view is that there is merit in implementing a cost pass through mechanism for uncontrollable costs at the 2004 review. It would only apply to additional costs resulting from statutory changes impacting on the business. The preferred mechanism would involve an application by the business to the Tribunal prior to an annual price change for the costs to be passed through to customers. The Tribunal would then conduct an independent review of the costs, passing through the efficient costs if they were considered appropriate for passing through to customers. Stakeholders are invited to comment on such a mechanism.

2.2.3 Forecast risk hedging factor

The WAPC form of regulation sets a cap on the average price that a DNSP may charge but does not cap nor place a floor under the amount of revenue they may earn. Fluctuations in the actual volumes and demand that the DNSP faces could see it realise actual revenue that is higher or lower than the notional revenue requirements established by the Tribunal.

In its notice on the form of regulation and also in its issues paper³, the Tribunal raised the option of including a 'hedging factor' in the WAPC price control formula that addressed this forecast risk.

³ IPART, *Notice under clause 6.10.3 of the National Electricity Code – Economic Regulatory Arrangements*, NCR-10, June 2002.

In initial submissions there was little support for a forecast risk hedging factor. For example, EnergyAustralia submitted:

EnergyAustralia does not support the pursuit of a forecast risk hedging mechanism. Its introduction could re-introduce many of the serious deficiencies associated with the current revenue cap, and would dampen the incentives that IPART was trying to achieve with the adoption of the WAPC.⁴

Country Energy also submitted:

The Tribunal's risk hedging proposal may be viewed to be contrary to the fundamental principle of CPLX incentive regulation, in that it claws back profits and allows the pass-through of losses.⁵

However, Integral Energy indicated that it saw merit in a 'well designed forecast volume hedge instrument'⁶ but that it was:

... not convinced that inclusion of a hedging mechanism in the price control formula is the most effective method of implementing a hedge as volume perturbations in one year would affect the price cap in all future years of the regulatory period.⁷

In its supplementary submission, Integral Energy submitted:

Based on its analysis of its risk under the WAPC, Integral believes that:

- variations in weather alone would not result in material variations in revenue over the 2004 regulatory period;
- there is a potential asymmetrical risk/reward ratio associated with forecast error risk, with Integral facing greater downside revenue risk than upside revenue gain.

Integral believes that an asymmetric risk profile is inappropriate, and therefore seeks a hedging mechanism to ensure a symmetric risk profile.⁸

Integral Energy supplementary submission indicated that it did not believe the H factor mechanism option outlined in the Tribunal's issues paper would be effective in mitigating forecasting error risk and that it is analysing other hedging options that may more adequately mitigate forecast risk.⁹

The Secretariat is currently examining options for the introduction of a risk hedging factor. These options include there being no risk hedging mechanism in the regulatory framework. The Secretariat invites comments from stakeholders on the Integral Energy proposal.

⁴ EnergyAustralia submission, p xviii.

⁵ Country Energy submission, p 9-5.

⁶ Integral Energy submission, p 192.

⁷ *Ibid.*

⁸ Integral Energy supplementary submission, p 45.

⁹ *Ibid.*, p 46.

2.3 Length of the regulatory period

In its November 2002 issues paper, the Tribunal proposed a regulatory control period of five years commencing 1 July 2004. The Tribunal indicated that it believed that five years would strike a balance between providing incentives for improving efficiency, reducing regulatory uncertainty and minimising the risk that changes in the industry affect the appropriateness of the regulatory regime.

Submissions from DNSPs and other stakeholders¹⁰ indicated general support for a five-year regulatory period. Based upon the evidence before it to date, the Secretariat's preliminary view is that the Tribunal adopt its preferred five-year regulatory period.

2.4 Prescribed and excluded services

Under the Code, excluded distribution services are not regulated under the weighted average price cap, and all associated costs and revenues are excluded from the calculations for the price control formula and transmission arrangements.

The Tribunal released its Draft Decision on Prescribed and Excluded Distribution Services in February 2003. The Draft Decision proposed a definition of prescribed distribution services as 'those distribution services that are not listed as excluded distribution services.' Submissions received in response to the Draft Decision indicated support for this approach.

The proposed excluded distribution services in the Draft Decision are:

- Customer funded connections – design and construction of new connection assets; construction of customer-funded network augmentations.
- Customer-specific ancillary services – including inspection and maintenance of customer installations and connection assets (excluding separately defined monopoly services); asset relocation works; conversion to aerial bundled cable; other customer-requested services.
- Metering services – meter supply, installation and maintenance; meter reading and data forwarding; and other metering services which are currently defined as miscellaneous services – provision of metering data, special meter reads, meter tests.
- Public lighting – construction and maintenance of public lighting assets.¹¹

For information on how the Tribunal arrived at its list of excluded distribution services, and on the proposed form of regulation, please refer to the Draft Decision on Prescribed and Excluded Services.¹²

¹⁰ For example, EnergyAustralia, Origin Energy, PIAC, Country Energy, Integral Energy.

¹¹ There are three services associated with public lighting:

a) the energy consumed by the street light

b) provision of distribution services (DUOS) for delivery of energy to the street light

c) constructions and maintenance of the street lighting assets (currently known as SLUOS).

The Draft Decision refers to (c) construction and maintenance, where it was proposed that this be an excluded distribution service, based on the potential for contestability advised by the Ministry of Energy & Utilities. It is currently regulated as a prescribed distribution service.

¹² IPART, *Review of Prescribed and Excluded Distribution Services*, Draft Decision DP59, February 2003.

As excluded services, all costs and revenues associated with these services have been excluded from the models in this paper, except in the case of metering. Metering services, for the purposes of this paper, have been modelled based on the status quo arrangements, that is, as a prescribed distribution service. This is due to the fact that the government has not yet made a decision on the contestability of metering.

3 DNSPS' PROPOSALS FOR DISTRIBUTION NETWORK PRICE CHANGES

The structure of the electricity market in New South Wales is such that DNSPs usually do not have a direct relationship with customers. Rather, network tariffs (combined distribution and transmission charges) are charged to retailers, based upon the network tariff for the class of customer served by the retailer. The retailer then passes these network charges, along with energy costs and retail margins, on to final customers. In the case of regulated default retail tariffs¹³, the Tribunal's current determination treats network tariffs as a pass through item, subject to limits on price movements. For retail customers on negotiated contracts, these contracts typically pass on to customers any increases in network tariffs.

All the DNSPs have requested substantial increases in average distribution prices over the 5 years from 1 July 2004. Table 3.1 presents the price increases proposed by the DNSPs, as detailed in their submissions. All four DNSPs' submissions proposed a larger increase in distribution prices in 2004/5 followed by 'smaller' increases in the following years.

In developing their submitted proposals, the DNSPs have used differing assumptions over a number of parameters such as inflation, interest on borrowings and investment, dividend payout rates and debt to equity ratios. Table 3.1 also estimates the impact on the DNSPs' proposals of assuming common values for these parameters – that is, 'standardising' the proposals based upon a common set of assumptions:

- inflation (assumed at 2.5 per cent over the regulatory period)
- a common split between prescribed and excluded services (see section 2.4)
- interest rate on borrowings and investments (6.8 per cent over the regulatory period)
- dividend payout rate of (75 per cent)
- debt to equity ratio (60 per cent).

EnergyAustralia and Integral Energy have both proposed pricing paths that fully recover their expected revenue requirements over the 2004–09 regulatory period. These proposals involve an initial price increase in 2004/05 (a P-nought adjustment) to increase average prices in 2004/05 to the new higher cost level. Reflecting this approach by EnergyAustralia and Integral Energy, the standardised pricing proposals are calculated in the same manner.

Country Energy and Australian Inland's price proposals reflect a decision by those DNSPs to forego a proportion of their notional revenue requirements in order to limit price increases to customers. The DNSPs' price proposals reflect their judgement as to 'reasonable' price increases that balance the interests of customers with those of the DNSP. In standardising the price proposals for these DNSPs, the Secretariat has assumed that the submitted price proposals apply. Standardising then affects the level of NPV of costs not recovered by the proposed price paths.

¹³ These tariffs apply to customers that have chosen not to enter the contestable market and enter into a negotiable contract with a retailer for the supply of electricity.

Other than the parameters discussed above, the standardised proposals reflect the pricing proposals detailed in DNSPs submissions. That is, the values reflect the DNSP's proposals for:

- capital and operating expenditures
- the calculation of the opening 2004 regulatory asset base (RAB)
- the WACC
- the treatment of capital spending in excess of the allowances during the current regulatory period
- the treatment of the residual unders and overs account balance.

In their submission EnergyAustralia has proposed changes to its effective asset lives¹⁴. The standardised proposal presented in this paper for EnergyAustralia includes their proposed changes to asset lives. This does not reflect that the changes in asset lives are appropriate.

Chapter 4 details the Secretariat's preliminary views on a number of key regulatory decisions and illustrates the impact on the DNSPs' distribution pricing proposals of the Secretariat's preliminary views on these issues.

Table 3.1 DNSPs' distribution price proposals

	Proposal as per submission	Standardised proposal	
		Proposed annual price change - distribution	NPV of costs not recovered
EnergyAustralia ¹	CPI + 16.3% in 2004/05 then CPI+1%	CPI + 19.4% in 2004/05 then CPI + 1%	0
Integral Energy ²	CPI + 11.1% in 2004/05 then CPI +1%	CPI + 11.1% in 2004/05 then CPI + 1%	0
Country Energy ³	CPI + 13.2% in 2004/05 then CPI + 5.7%	CPI + 13.2% in 2004/05 then CPI plus 5.7%	\$233m
Australian Inland	CPI + 15.6% in 2004/05 then CPI + 6.6%	CPI + 15.6% in 2004/05 then CPI + 6.6%	\$12m

Note:

1. EA's submission refers to a CPI plus 16.4 per cent in 2004/05. However, in correspondence to the Tribunal dated 21 July 2003 EA points out that CPI plus 16.4 per cent refers to an increase in combined network charges (both DUOS and TUOS). Subsequent to their April submission EA has revised the allocation of expenditures between transmission and distribution. This results in a CPI plus 16.3 per cent increase in DUOS.
2. IE resubmitted model 19 May 2003.
3. Country Energy's option number 4 in its submission.

Table 3.2 provides a comparison of the assumptions underlying the DNSPs' proposals.

¹⁴ In the 1999 determination, IPART has calculated depreciation rates for system assets on the basis of the effective lives of asset classes assumed in the GHD/Arthur Anderson/Worley International studies.

Table 3.2 Comparison of assumptions underlying the DSNP'S price proposals

Assumption	EnergyAustralia	Integral Energy	Country Energy	Australian Inland
WACC	7.5%	7.5%	7.8%	7.8%
Inflation	2.05%	2.5%	2%	2.5%
Metering	Prescribed	Prescribed	Prescribed	Prescribed
Public Lighting	Excluded	Prescribed	Prescribed	Prescribed
Non Standard Services	Excluded	Prescribed	Prescribed	Prescribed
Unidentified Assets (98)	Not included	Partially included	Included	Not included
Unit rates indexation (98)	Not included	Not included	Included	Not included
Depreciation	Straight line	Straight line	Straight line	Straight line
Depreciation rates – standard 99	No	Yes	Yes	Yes
Determination lives used				
Capex overspend ¹ (excluding FRC and cap cons)	\$457.8m - And: \$89.4m of holding costs included in asset base	\$315m	\$161m	\$1m
Capex included as depreciated or undepreciated in 1 July 04 RAB	Undepreciated	Undepreciated	Depreciated	Undepreciated
Forecast capex	\$2.1bn	\$1.4bn	\$1.2bn	\$15m
Opening RAB 1 July 04	\$3.97bn	\$2.4bn	\$2.8bn	\$67m
Demand forecasts	Medium scenario	medium scenario	medium scenario	medium scenario
Over / Under recovery adjustment to	\$99m over recovery - RAB	\$64m over recovery - Revenue	\$31m under recovery - Revenue	\$3m under recovery - RAB
Recovery period (for over recovery)	1 year	1 year	5 years	1 yr
% recovered (for over recovery)	100%	100%	100%	100%
Discount rate applied to over recovery	NA – applied to RAB in first year	0%	8.8%	NA applied to RAB in first year
Gearing ratio	60%	45%	60%	60%
Tax rate	30%	30%	30%	Not included
Dividend payout	76%	100%	75%	75%
Indexation of RAB	CPI indexation	CPI indexation	CPI indexation	CPI indexation

Note: all numbers are in nominal term. Inflation rate 2.5%

1: allowed capex in the 1999 determination has been indexed for actual inflation to 2003

4 BUILDING BLOCKS COMPONENTS

The Tribunal will use a cost building block approach to determine notional revenue requirements for each DNSP.

The cost building blocks comprise an allowance for each of the following costs:

- efficient capital, operating and maintenance expenditures
- a rate of return on its regulatory asset base (RAB)
- the cost of working capital
- depreciation of the RAB.

This section outlines the DNSPs' proposals with respect to the building block requirements and the Secretariat's initial analysis of these positions.

4.1 Efficient capital, operating and maintenance expenditure

DNSPs have forecast to spend a total \$4.7 billion in capital expenditure and \$3.8 billion in operating expenditures over the 5 years to 30 June 2009 (tables 4.1 and 4.2).

Table 4.1 DNSPs' actual and projected capital expenditure¹⁵ (nominal \$ million)

	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	2003/ 04	2004/ 05	2005/ 06	2006/ 07	2007/ 08	2008/ 09	Total 2004/05- 08/09
EA	256	272	294	305	325	407	417	408	423	438	2093
IE	98	98	146	163	228	278	275	255	279	288	1375
CE	124	142	181	221	229	237	242	245	255	261	1240
AI	3	3	4	4	5	3	3	3	3	3	15
Total	481	515	625	693	787	925	937	911	960	990	4723

Source: DNSP submitted financial data.

Table 4.2 DNSPs actual and forecast operating and maintenance expenditure¹⁶ (nominal \$ million)

	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	2003/ 04	2004/ 05	2005/ 06	2006/ 07	2007/ 08	2008/ 09	Total 2004/05- 08/09
EA	209	249	318	273	291	281	296	304	311	317	1509
IE	160	147	166	193	212	204	209	216	224	231	1084
CE	160	190	203	196	203	211	219	227	236	245	1138
AI	7	8	10	9	10	10	10	10	10	10	50
Total	536	594	697	671	716	706	734	757	781	803	3781

Note: Totals may not add due to rounding.

Source: DNSP submitted financial information.

The Tribunal has engaged Meritic Ltd to review the efficiency of proposed capital, operating and maintenance expenditures. Meritic will provide its final report in September. This report will be publicly released for comment.

¹⁵ Excludes expenditures for public lighting, non-standard services and for EA transmission from 2004/5. Assumes inflation of 2.5 per cent.

4.2 Regulatory Asset Base

The amount allowed for in the cost building blocks for the return of and return on capital depends upon the value of the Regulatory Asset Base (RAB). In making its determination for the 2004 regulatory period, the Tribunal will need to establish an opening value for the RAB at 1 July 2004. In its issues paper, the Tribunal signalled its preference to calculate this value by rolling forward the initial 1998 RAB from the current regulatory period, making allowances for

- inflation
- prudent capital expenditure
- depreciation
- asset disposals.

Stakeholder proposals

The submissions from DNSPs have adopted this roll-forward approach in calculating the opening RABs for their modelling. However, EnergyAustralia, Integral Energy and Country Energy have identified issues with the way the 1998 initial RAB was calculated, with Country Energy and Integral Energy proposing adjustments to this initial value as part of their roll-forward approach. While EnergyAustralia has identified potential adjustments, it has not included these as part of the pricing proposal contained in its submission. Table 4.3 summarises the views presented by the DNSPs in their submissions.

Table 4.3 Summary of DNSP views on RAB

DNSP	Calculation of opening RAB	Proposed inclusions in roll forward	Proposed adjustments to 1998 initial RAB	Proposed opening RAB for 2004 ¹⁶
EnergyAustralia	Supports roll forward of 1998 RAB	Proposed standard roll forward with following adjustments: <ul style="list-style-type: none"> • Holding costs and depreciation on capital overspend • Holding cost of Tax on contributed assets. 	None but identified a number of 'unrecognised' assets totalling \$421m — not proposed for inclusion. Also identified adjustment relating to unit rates of up to \$561m — not proposed for inclusion.	\$3,971m ¹⁷
Integral Energy	Has rolled 1998 RAB forward but favours DORC valuation	Standard roll forward proposed based on depreciation allowed in 1999 determination ie. seeking foregone depreciation on capital overspend.	<ul style="list-style-type: none"> • Proposing \$195m adjustment as a result of better age information and change in valuation methodology • Also highlighted that there were unrecognised assets in 1998 RAB. 	\$2,444m
Country Energy	Has rolled 1998 RAB forward but favours DORC valuation	Standard roll forward based upon actual prudent capital expenditure.	Proposing adjustments relating to: <ul style="list-style-type: none"> • Unit rates used in 1998 study - \$269m • Re-optimisation of loss minimising assets - \$11m • Unrecognised assets totalling \$229m • Treatment of rural distribution transformers - \$7m. 	\$2,848m
Australian Inland	Has rolled 1998 RAB forward	Standard roll forward based upon actual prudent capital expenditure.	None	\$66.8m

Source: DNSP submissions.

The Energy Markets Reform Forum (EMRF) has requested that the Tribunal calculate an Optimised Deprival Value¹⁸ (ODV) value for each DNSP's pre-1999 assets and in particular seek to remove stranded and redundant assets from the regulatory asset base. They note in the Section 12A report, that the Tribunal indicated that if the cost of capital should increase or other circumstances change that the Tribunal reserved the right to calculate an ODV value for each DNSP.

¹⁶ Values for Integral Energy, Country Energy and Australian Inland are based upon updated data and revised IPART model.

¹⁷ This value differs from the \$4167 million quoted in the EnergyAustralia submission (p 58) due to the exclusion of transmission assets, which are proposed to be transferred to regulation by the ACCC and re-calculation of the indexation applied during the roll forward.

¹⁸ The Optimised Deprival Value is calculated as the lesser of the DORC valuation and the economic value of the firm (net present value of future earnings).

EMRF argues that it

... considers that the “other circumstances” have been triggered in the light of the very substantial overruns in capital investment expenditures in the current regulatory period and in the large amounts sought by the DNSPs for the next regulatory period (which substantially increases the regulatory asset base and network prices), and the changes in pricing structures said by the DNSPs to a be more cost reflective approach with the move to inclining block tariffs.

Given the circumstances in which the Tribunal arrived at the regulatory asset base in 1999, the Tribunal apparently had doubts about the robustness of the figures to have led it to reiterate in several instances (both in its Report to the Premier and its 1999 Determination) that it would conduct an ODV value for each DNSP’s pre-1999 assets.

Accordingly, the EMRF reminds the Tribunal of its earlier decision and requests that the Tribunal calculates an ODV value for each DNSP’s pre-1999 assets, and in particular seek to remove stranded and redundant assets from the regulatory asset base. (EMRF submission, p 5).

Secretariat analysis

To establish an opening RAB for the 2004 regulatory period, the Tribunal will need to:

- determine a methodology for calculating the opening RAB, including whether it should calculate an ODV value for pre-1999 assets
- if it decides to apply a roll-forward methodology, form a judgement on the appropriateness of the DNSP’s proposed adjustments to the 1998 RAB.

Clauses 6.10.3(5)(ii) and 6.10.3(5)(iii) of the Code provides the principles the Tribunal must follow in establishing the RAB. Clause 6.10.3(5)(ii) requires that assets in existence on 1 July 1999 (called ‘sunk assets’ by the Code) are valued at a value determined by the Tribunal. Clause 6.10.3(5)(iii) provides guidance on any valuations or revaluations of new and existing assets.

The Code requirements give the Tribunal considerable flexibility in terms of how it might determine the initial asset value for the 2004-09 regulatory period. It neither prescribes nor precludes a roll forward approach nor does it prescribe or preclude revaluation of existing assets. Unlike the National Gas Code, the Electricity Code does not lock in the initial capital base.

In making a decision on the opening RAB for the 2004 regulatory period, the Secretariat believes the Tribunal will need to consider the implications of its decision for:

- Regulatory consistency – that is, consistency with the requirements of the Code and other regulatory decision including the 1999 determination.
- Risk for the businesses – what does the Tribunal’s decision mean for the level of uncertainty that businesses face when making investment and other business decisions?
- Static and dynamic efficiency – how does its decision affect the gap between average and marginal costs (allocative efficiency) and signals sent to businesses about their investment decisions? What incentives are there for efficiently managing investment risks such as volume uncertainty and redundancy?

- Equity between customers and the DNSPs' shareholder.

A key consideration that will affect the Tribunal's decisions with respect to the RAB is that the Tribunal considers that it has taken a financial view of the asset base. That is, the RAB is taken to represent the shareholders' financial investment in the firm. In its Section 12A report to the Premier, the Tribunal noted:

... the Tribunal concludes the following.

- the regulatory asset base represents the shareholders financial investment in the utility.¹⁹

This financial view means that in providing a return on and of the RAB, the Tribunal would be seeking to maintain the shareholder's financial investment in real terms. Under an alternate, physical asset interpretation of the RAB, the Tribunal would be seeking to maintain the service capacity of the firm. The financial view of the RAB is consistent with maintaining the physical service capacity of assets – this is handled through allowances for capital and operating expenditures and allowing the business to roll in new (prudent) capital expenditure required to meet required levels of service.

The Tribunal's view of the asset base will also have implications for how it addresses the various issues that the DNSPs have raised in submissions. Once the financial value of the asset base is struck, the RAB is effectively detached from the underlying physical assets. Changes in the replacement costs of assets, service lives and methodologies for optimisation do not affect the value of the RAB (except that it might affect the profile of depreciation over time)²⁰. Changes in these values do not require a re-valuation of the RAB.

Methodology for calculating the opening RAB for the 2004-09 regulatory period

The Tribunal's issues paper proposed a roll forward approach to the calculation of the opening RAB for the 2004-09 regulatory period.

The Tribunal's proposed roll forward approach is consistent with a financial view of the asset base. In submissions, Integral Energy and Country Energy have both indicated a preference for a DORC based valuation but have modelled their proposals on the basis of a roll forward. They argue that the DORC valuation more closely emulates valuation in true market conditions and supports the promotion of competition from alternatives such as remote and embedded generation. On the other hand, EnergyAustralia argues that the roll-forward approach reduces uncertainty for DNSPs:

This approach significantly reduces the subjectivity associated with other forms of valuation, and provides more certainty that prudent and efficient investment will earn a regulatory return over the lives of the assets.²¹

Having considered the submissions that have been made on these issues and other information before it, the Secretariat's preliminary view is it is inappropriate to move away from the roll forward methodology toward a revaluation of the asset base to calculate the opening value. Revaluations of the asset base are inconsistent with the financial view. The Secretariat invites further comment on this view to assist it in finalising its analysis.

¹⁹ IPART, *Pricing for Electricity Networks and Retail Supply*, Rev99-5.1, June 1999, p 82.

²⁰ See section 4.4 for discussion of recommended approach to incorporating revisions to effective lives of assets.

²¹ EnergyAustralia submission, p 54.

ODV re-valuation of existing assets

The Energy Markets Reform Forum (EMRF) have requested the Tribunal undertake a ODV to address issues of stranded and redundant assets. They have argued that the Tribunal signalled that it would consider an ODV if circumstances change and that they believe the significant capital overspends justify such a valuation.

Based upon the information before it, the Secretariat's preliminary view is that it is inappropriate for the Tribunal to pursue an ODV for pre-1999 assets for the following reasons:

- it would be inconsistent with the Tribunal's preferred position of a roll forward of the existing RAB
- it would be inconsistent with a financial view of the asset base
- the ODV methodology suffers from practical problems associated with the circularity between the economic value of the firm, the RAB and prices²²
- stranded assets could be handled through the application of a 'used and useful' type test such as that applied in United States regulatory practice.

On the last point, a used and useful test could provide a mechanism for pragmatically handling situations where it would not be 'fair' to ask customers to bear the cost of an unused asset or where attempts to recover the full cost of an asset may price it out of the market. While this type of test may not be fully consistent with a financial view of the asset base in its purest form, there are likely to be benefits from including such a test in terms of providing a discipline on capital expenditure. The Secretariat is currently considering how a 'used and useful' test might be incorporated into the regulatory framework for application in New South Wales. It invites further comment on this issue and also its view on ODV.

The DNSPs' proposed adjustments to the 1998 RAB

The DNSPs have proposed a number of adjustments to the 1998 RAB to correct for perceived deficiencies in the valuation conducted in 1998. The DNSPs propose that these adjustments occur before the RAB is rolled forward to establish the 2004 opening value. The 1998 valuation was conducted for Treasury on behalf of the businesses by a consultant engaged by Treasury. The 1998 valuation was the second DORC study in a short period – an earlier study was done as part of the 1995/96 industry restructure.

The adjustments proposed by the DNSPs are:

- an adjustment of the unit values used to value assets to better reflect replacement costs in 1998 than the 1995 values used in the original study (Country Energy²³)
- adjustment to reflect better asset age information and alternate methodology for estimating the age of the assets (Integral Energy)
- re-optimisation of loss minimising investments in line with Tribunal policy (Country Energy)
- inclusion of unrecognised assets:

²² The value of the RAB depends upon the economic value of the firm which are based upon the regulated prices charged by the firm which are based upon the required return on the RAB.

²³ This issue was also raised by Integral Energy and EnergyAustralia but was not included as part of their price proposal.

- assets that were not included in the original valuation such as underground connection assets (Country Energy and EnergyAustralia²⁴)
- assets that were not on the asset register of Great Southern Energy (Country Energy)
- adjustment resulting from alternative methodology for valuing rural distribution transformers (Country Energy).

The ACCC, in its decision 2002 decision on transmission revenues for SPI in Victoria, has allowed an increase in the RAB reflecting assets not included in the original valuation.

The adjustments proposed by the DNSPs are largely issues with the methodology employed by Treasury's consultants during the 1998 valuation. While the same general argument applies to claims for adjustments due to incorrect unit values and re-optimisation, the Secretariat also considers these issues separately on the basis that:

- it has doubts about the factual accuracy of claims about the incorrect unit values
- the claim about re-optimisation involves a wider policy issue relating to the treatment of loss minimising investments.

Both these issues are discussed below.

General issues with methodology

The Secretariat believes there are some difficulties in making ex-post adjustments to the RAB. Firstly, it is inconsistent with a financial view of the RAB. Secondly, it is questionable whether increases in the DORC valuation are sufficient to justify increases in the regulatory value of the firm. COAG's preferred methodology is to calculate an ODV which is calculated as the lesser of the DORC valuation and the economic value of the firm (net present value of future earnings). The discovery of assets or changes in their valuation may then affect the DORC valuation but would be unlikely to impact on the economic valuation of the firm at current prices. Thus, under an ODV valuation of the business, the adjustments proposed by the DNSPs might not actually affect valuation of the business if the economic value is less than the DORC value. While the Tribunal has not actually adopted an ODV valuation, it could be argued that the ODV method provides a guide as to whether a change in the regulatory value of assets would be justified in light of the changes in DORC value.

Thirdly, a danger with ad hoc adjustments to the RAB is potential asymmetry of information presented in submissions. DNSPs' submissions have detailed a range of inaccuracies that imply upward adjustments to the RAB. These adjustments were identified as part of the recent DORC valuation by NSW Treasury in 2002. However, the Tribunal does not know whether there would also be appropriate adjustments to the RAB that would reduce its value. The Secretariat believes that any allowance of the proposed adjustments would require a review of the 2002 DORC valuation studies to ensure that the DNSPs' proposals represent a balanced view of the potential adjustments to the RAB. The Secretariat reiterates that it believes any adjustments upward or downward would be inconsistent with the financial view of the RAB.

²⁴ EnergyAustralia raised this issue but did not propose their inclusion in their submission.

Finally, there are likely to be some adverse efficiency implications from increasing the RAB. Increasing the RAB as proposed by the DNSPs is likely to increase the gap between the economically efficient marginal cost price and the regulated average price.²⁵ As the Tribunal argued in its Section 12A report to the Premier in 1999, this divergence places a constraint on economically efficient consumption, generating 'deadweight' costs to the community. Further, the Tribunal has argued that higher valuations can retard downstream competition as downstream firms endeavour to earn sufficient revenue to pass upstream to the regulated firm in order to cover the higher asset value.

There are unlikely to be any adverse impacts in terms of dynamic efficiency (incentives for investment) from not making adjustments to the RAB. While the assets may not be formally recognised as contributing the RAB value, the business will still be required to maintain and replace the assets if required. As long as the associated maintenance and replacement expenditure is recognised in future notional revenue requirements, the business will retain the incentive to undertake these maintenance and replacement activities.

Incorrect unit values

Based upon the information it has received to date, the Secretariat's preliminary view is that adjustments should not be made to the RAB as a result of 'corrections' to the 1998 DORC valuation. The Secretariat believes that this view also applies to the claims for adjustment of the RAB to account for incorrect unit values being used in the 1998 valuation. The Secretariat also has doubts about the validity of the argument put forward by the DNSPs that the values used in 1998 were outdated.

In the calculation of a DORC asset value, unit values represent the replacement cost of an asset. The undepreciated, ORC valuation of a particular asset class is basically calculated as the number of assets multiplied by the unit rate (the per unit replacement cost) – the value which is then depreciated based upon assumed asset lives to arrive at the DORC value. The DNSPs' contend that the use of the 1995 unit values contained in the Treasury's valuation guidelines was erroneous as it did not take account of changes in these values between 1995 and 1998 when the valuation occurred.

The Secretariat believes that this contention is incorrect. While the unit rates applied in the 1998 valuation were largely the same as the 1995 values published in NSW Treasury Guidelines, these values were reviewed and adopted by the Consortium employed by the Treasury on behalf of the DNSPs. The Tribunal's own consultant also endorsed these values as being appropriate to 1998 conditions. In light of the review of unit values by both sets of consultants, the Secretariat believes that the unit costs applied in deriving the DORC valuation were appropriate representations of the unit costs in 1998.

The Secretariat invites comments on its preliminary view on unit values.

²⁵ While DNSPs do recover a portion of costs via a fixed charge (as part of a two part tariff), the majority of the largely fixed business costs are recovered by the variable component.

Reoptimisation of loss minimising assets

Country Energy have argued that optimisation of their loss minimising investments by Treasury's consultant in the original valuation was inappropriate because it is inconsistent with the Tribunal's policy on the treatment of loss minimising assets. They argue that value of loss minimising assets should be reinstated in the RAB. They estimate that this amount, net of capital contributions, should be \$10.8 million.

In its Section 12A report, the Tribunal noted:

The Tribunal believes that economic loss management investment should not be optimised out of the regulated asset base. This would mean that the Tribunal would allow the DNSPs to include a value for losses saved in the capital expenditure planning assessment for each project, and during future reviews, would look back at the actual value of losses saved. The optimisation process would take into account the loss reducing effects of each component of the network and would not optimise network components down to what was strictly necessary for the integrity of the system where the extra capacity or expenditure could be justified on the bases of saved losses.²⁶

It seems clear that the optimisation of Country Energy's loss minimising assets out of the DORC value is inconsistent with the Tribunal's proposal. However, this was a decision that was not taken by the Tribunal but by the business owners in calculating their estimate of the value of the firm prior to the 1999 determination. This is largely an issue with methodology and the Secretariat does not supporting re-opening the 1998 DORC valuations for reasons discussed above.

However, a question for the Tribunal is whether, if it were to adjust the RAB to reverse the inappropriately optimised loss making investments, would there be benefits through providing incentives to DNSPs to make loss making investments, that might offset the disadvantages of re-opening the 1998 valuation?

Based upon the information that it has received to date, the Secretariat's preliminary view is that there would not be benefits in allowing an adjustment for these loss minimising investments. The investments in question are sunk and so any allowance that would increase the ability of the DNSPs to earn a rate of return on and of these assets would not affect their utilisation. However, looking forward, these assets may need replacement and or augmentation and so what is relevant to the decisions to replace or augment is how such new investment is to be rolled into the RAB. Consistent with the Tribunal's recommendation in the Section 12A report, any prudency test applied in deciding whether to roll such investment into the RAB should take account of any potential benefits from loss minimisation.

The Secretariat invites comments on its preliminary view.

Impact on DNSP's proposed price increases

Table 4.4 illustrates the impact on the DNSPs' standardised price proposals of rolling forward the 1998 asset base with no ex-post adjustments to the 1998 RAB. For Integral Energy, if no adjustment were made to the RAB, the model estimates that Integral Energy's proposal would be a price increase of 5 per cent real, as compared to a 11.1 per cent real increase if the asset adjustment were to occur. The Secretariat estimates that these

²⁶ IPART, *Pricing for Electricity Networks and Retail Supply Volume 2*, Report Rev 99-5.2, June 1999, p 152.

adjustments add around \$195 million to the opening regulatory asset base in 2004, equivalent to around an 8 per cent increase in the RAB.

Neither Australian Inland nor EnergyAustralia have proposed any adjustments to the 1998 RAB that is rolled forward to establish the 2004 opening RAB so the Secretariat's preliminary view that there should be no ex-post adjustments to the 1998 RAB does not affect their price proposals.

As discussed in chapter 3, Country Energy (and Australian Inland) has proposed specific P-nought adjustments that are not calculated by the model. In undertaking its modelling of the impacts of the Secretariat's analysis on their price proposals, the Secretariat has assumed that these DNSPs' proposals are unchanged. The Secretariat's analysis then examines the impact that its proposed treatments have on the NPV of costs that are not recovered by the DNSPs' proposals.

For example, Country Energy has proposed adjustments which add around \$500 million to its RAB. If these adjustments were accepted by the Tribunal, its pricing proposal would mean that it would forego \$233 million (in NPV terms) in required costs over the regulatory period. The Secretariat's preliminary view is that there should be no ex-post adjustments to the 1998 RAB value which would imply a lower RAB than that proposed by Country Energy. The effect of this would be to lower the notional revenue requirements for Country Energy. In fact, the lower RAB would reduce the notional revenue requirements to such a degree that Country Energy's price proposal (13.2 per cent in 2004/05 followed by 5.7 per cent thereafter) would recover more than its costs. As shown in Table 4.4, Country Energy's price proposal (scenario A) would recover approximately \$26 million more than the notional revenue requirements (in net present value terms).

The implication of the analysis is that for Country Energy, the assumptions about the RAB and how it is established will have significant implications for pricing outcomes for the DNSP and its customers. For example, if the Tribunal were to adopt a position in line with the Secretariat's preliminary view, Country Energy would require smaller price increases than those indicated in its pricing proposal. In particular, if the annual price change from 2005/06 were kept at 5.7 per cent, the Secretariat estimates (in Scenario B) that the P-nought adjustment could be reduced to 11.9 per cent while still allowing Country Energy to recover all its notional revenue requirements.²⁷

²⁷ These notional revenue requirements would be lower than those under Country Energy's proposed position. The scenario presented is one of a number of possibilities – for example, an alternative could be a higher P-nought adjustment and lower ongoing annual price increase.

Table 4.4 Impact on proposals of Secretariat's preliminary view on RAB

	Standardised proposal		Proposal incorporating Secretariat's preliminary view	
	Proposed annual price change	NPV of costs not recovered	Proposed annual price change	NPV of costs not recovered
EnergyAustralia	CPI + 19.4% in 2004/05 then CPI + 1%	0	CPI + 19.4% in 2004/05 then CPI + 1%	0
Integral Energy	CPI + 11.1% in 2004/05 then CPI + 1%	0	CPI + 5% in 2004/05 then CPI + 1%	0
Country Energy Scenario A	CPI + 13.2% in 2004/5 then CPI + 5.7%	\$233m	As per proposal	-\$26m
Scenario B			CPI + 11.9% in 2004/05 then CPI + 5.7%	0
Australian Inland	CPI + 15.6% in 2004/5 then CPI + 6.6%	\$12m	As per proposal	\$12m

4.3 Return on Capital

The rate of return is applied to the RAB to yield a return on assets. The return on capital and return of capital (or depreciation) constitute over 70 per cent of the base revenue requirement.

In its issues paper, the Tribunal indicated it preferred to use the Weighted Average Cost of Capital to calculate the appropriate rate of return on the RAB. The Tribunal also indicated that it is inclined to use a pre-tax real (WACC) using statutory tax rates in its calculation.

DNSP proposals

Each of the DNSPs has provided comments on the structure of the WACC and the parameters used in its calculation. These are summarised in Table 4.5.

Table 4.5 DNSPs submissions on WACC structure

	Real or nominal / pre – or post tax	Other comments
EnergyAustralia	Favours the nominal framework but accepts the real framework under two conditions (see comments). Supports the Tribunal's pre-tax approach to calculating the WACC. ²⁸	IPART should provide assurances regarding its intention to apply the real WACC framework in future determinations. And, IPART should give consideration to increasing the WACC due to higher risk of the real WACC framework.
Integral Energy	Does not strongly advocate one of the approaches above another. However, Integral has more concerns about the use of the post-tax approach. ²⁹	Post-tax approach has more potential to involve the use of inappropriate assumptions. Integral does not comment if it favours the real or nominal framework.
Country Energy	Supports use of pre-tax real framework. ³⁰	Post-tax nominal framework is mechanically complex, highly information-intensive and intrusive.
Australian Inland	Supports the use of the real pre-tax framework. ³¹	No comments in current submission.

The DNSPs have also submitted the following parameters to be used in the calculation of the WACC (Table 4.6)

Table 4.6 DNSPs submissions 2003

	EA	IE	CE	AI
	%	%	%	%
Nominal risk-free rate	5.17	5.47	5.30	5.50
Real risk-free rate	3.06	3.20	3.20	3.30
Inflation	2.05	2.20	1.90	2.10
Market risk premium	6.00	6.00	6.00	6.00
Debt margin	1.48	1.45	1.52	1.50
Debt to total assets	60.00	60.00	60.00	
Dividend imputation factor (gamma)	40.00	40.00	40.00	40.00
Tax rate	30.00	30.00	30.00	30.00
Asset beta	0.475	0.425	0.475	0.480
Debt beta	0.06	0.06	0.06	0.06
Equity beta	1.09	1.05	1.09	1.10
Cost of equity (nominal post tax)	11.69	11.60	11.80	12.09
Cost of debt (nominal pre-tax)	6.65	6.75	6.80	7.00
WACC (nominal post tax)	6.79	6.93	6.90	7.07
WACC (real pre tax)	7.50	7.50	7.80	7.80

²⁸ EnergyAustralia submission, 10 April 2003.

²⁹ In its 2003 submission, Integral Energy does not comment on its position on the WACC. It refers the Tribunal to its submission on the weighted average cost of capital, 30 September 2002.

³⁰ Country Energy submission, March 2003.

³¹ Australian Inland submission, 2003.

Secretariat's analysis

The Secretariat has calculated a preliminary pre tax real WACC range using the parameters as shown in Table 4.7. It results in a range of 6.5 – 7.4 per cent, with a mid point rounded to 7 per cent. The mid-point value is lower than the 7.5 per cent allowed for in the 1999-2004 determination and reflects the generally lower risk free rate which is a key input into the pre-tax real WACC calculation as well as a higher upper bound for the debt beta, compared to those prevailing at the time of the last determination. In comparison to the 1999 determination, the Secretariat's indicative WACC calculation also adopts the following:

- A higher debt margin reflecting a more accurate assessment of the borrowing cost DNSPs, would incur in competitive markets.
- A higher lower bound and a lower upper bound for the asset beta reflecting the observation that publicly traded infrastructure businesses with similar core businesses have a lower asset beta than the range used by IPART in its 1999-2004 determination.
- A higher debt beta reflecting the uncertainties associated with the estimation of the debt beta. However, the Tribunal is currently reviewing the use of the Monkhouse formula. If it abandons this methodology in favour of the Hamada formula, the debt beta would not be required in the calculation of the equity beta.
- A lower calculated equity beta reflecting changes to the asset beta and the debt margin.

In comparison to the values submitted by the DNSPs, the broad following observations can be made:

- the estimated (nominal pre-tax) cost of debt is broadly in line with that submitted by the DNSPs
- the estimated nominal post tax cost of equity is a key area of divergence with DNSPs proposing a higher value than the indicative estimate developed by the Secretariat
- the differences in the estimated cost of equity appear to be driven by differences in assumptions related to:
 - the market risk premium – the DNSPs have assumed a market risk premium of 6 per cent which is at the upper end of the Secretariat's range for this value
 - the debt beta – the DNSPs have assumed values at the lower of the Secretariat's range (and a zero value in the case of Integral Energy)
 - the asset beta – the DNSPs, with the exception of Integral Energy, have assumed a value toward the upper end of the Secretariat's range.

The Secretariat is currently reviewing all the assumed parameters in more detail. The preliminary views presented below are not necessarily indicators of the Secretariat's or the Tribunal's final thinking. The Secretariat invites comments on its preliminary WACC estimates and the assumed parameters that underlie these estimates.

Table 4.7 Indicative parameters and WACC range

WACC Parameters	Base case 09/07/2003		
	Low %	Midpoint %	High %
Risk free rate	5.32	5.32	5.32
CPI	2.20	2.20	2.20
Real risk free rate	3.05	3.05	3.05
Market risk premium	5.0	5.5	6.0
Debt margin	1.40	1.45	1.50
Debt funding	60	60	60
Equity funding	40	40	40
Total funding (debt + equity)	100	100	100
Gamma	0.50	0.40	0.30
Asset beta	0.43	0.4550	0.48
Debt beta	0.06	0.10	0.14
Effective tax rate for CAPM	30	30	30
Effective tax rate for WACC – debt	30	30	30
Effective tax rate for WACC – equity	30	30	30
Equity beta (calculated)	0.975	0.977	0.980
Cost of equity (nominal post tax)	10.19	10.70	11.20
Cost of equity (real post tax)	7.82	8.31	8.81
Cost of debt (nominal pre tax)	6.72	6.77	6.82
Cost of debt (nominal post tax)	4.70	4.74	4.77
Cost of debt (real post tax)	2.45	2.48	2.52
WACC (nominal post tax)	6.18	6.50	6.83
Effective tax rate of grossing up	30	30	30
Market practice/forward transformation: nominal post tax → nominal pre tax → real pre tax			
WACC (pre tax nominal)	% 8.83	9.28	9.76
WACC (pre tax real)	% 6.49	6.93	7.40

Impact on DNSP's proposed price increases

Table 4.8 illustrates the impact on the standardised DNSP proposals of applying a uniform real pre-tax WACC of 7 per cent. For EnergyAustralia and Integral Energy, who proposed a WACC of 7.5 per cent, a lower WACC would lower the required P-nought adjustment in 2004/05. For EnergyAustralia the P-nought adjustment reduces from 19.4 to 16.1 per cent in 2004/05 while for Integral Energy it reduces from 11.1 per cent to 8.4 per cent.

For Country Energy and Australian Inland, who proposed a WACC of 7.8 per cent, the lower WACC means that their price proposals would recover a great amount of costs. For example, Country Energy would not be recovering costs of \$142 million instead of \$233 million by implementing a P-nought adjustment of 13.2 per cent with 5.7 per cent annual adjustment thereafter.

Table 4.8 Impact on proposals of Secretariat’s indicative WACC estimate

	Standardised proposal		Proposal incorporating Secretariat’s preliminary view	
	Proposed annual price change	NPV of costs not recovered	Proposed annual price change	NPV of costs not recovered
EnergyAustralia	CPI + 19.4% in 2004/05 then CPI + 1%	0	CPI + 16.1% in 2004/05 then CPI + 1%	0
Integral Energy	CPI + 11.1% in 2004/05 then CPI + 1%	0	CPI + 8.4% in 2004/05 then CPI + 1%	0
Country Energy	CPI + 13.2% in 2004/5 then CPI + 5.7%	\$233m	As per standardised proposal	\$142m
Australian Inland	CPI + 15.6% in 2004/5 then CPI + 6.6%	\$12m	As per standardised proposal	\$10m

4.4 Return of capital (depreciation)

The Tribunal commissioned Allen Consulting to provide advice on the appropriate treatment of depreciation for the 2004 regulatory period. In particular, Allen was asked to advise on:

- the appropriate depreciation profile – whether straight line depreciation should continue to be applied or whether an alternate depreciation profile would be more appropriate
- how changes in estimated effective lives should be dealt with in the regulatory framework.

The key findings from the Allen study are quoted below.

Forward-Looking Depreciation Allowances

The current approach – straight-line depreciation in inflation-indexed terms – should be retained, unless the distributors present a convincing case that a more accelerated return of capital is required to ensure all costs can be expected to be recovered over the economic lives of the assets.

- It is possible that such an approach is consistent with economic efficiency – which would reflect a view that congestion is typically localised and generally occurs at different parts of the network at different times – although the precise implications of economic efficiency for the determination of regulatory depreciation are unclear.
- Straight-line depreciation may be expected to generate reasonably constant prices over the long term.
- A change to the current depreciation method for existing assets (i.e. to back-end depreciation) may imply much lower prices than would have occurred under the alternative regime – and higher prices in the future.
- The application of straight-line depreciation is simple, consistent with what has been done in the past, and consistent with that applied to all other regulated energy distributors serving mature markets.

In addition, to the extent that congestion on the network is becoming more widespread, then economic efficiency would suggest that prices should be raised to signal to customers the scarcity of capacity – which should be achieved through advancing (not deferring) depreciation, if required.

In recommending that (inflation-indexed) straight-line depreciation continue to be used, we would also recommend that the application of the methodology be revised over time as more information becomes available. In particular, this would imply using updated information about the expected remaining lives of the various assets when determining the forward-looking depreciation allowances.

Regulatory Depreciation over the Previous Regulatory Period

With respect to the updating of the regulatory asset bases for regulatory depreciation over the previous regulatory period, the most important principle is consistency with the assumptions reflected in the price controls for the previous regulatory period, with the other relevant objectives being simplicity and efficiency.

There is no rationale to countenance any reopening of the effective lives or depreciation method that was used to determine regulated charges for the previous regulatory period. To do would merely provide the regulated entities with obvious gaming opportunities, with little implication for economic efficiency.³²

The basis for these recommendations is detailed in the Allen report which is available on the Tribunal's website³³. The Secretariat invites comment on the Allen recommendations and also the analysis contained in the full report.

A number of submissions have indicated that improved information has come to light that warrants changes to the asset lives used in the financial modelling and the calculation of depreciation are warranted.

4.5 Treatment of capital expenditure 'overspend'

All of the DNSPs have reported capital and/or operating expenditure that has exceeded the amounts allowed for in the current determination. The Tribunal has already indicated in the current determination that prudent capital expenditure will be rolled in to the opening Regulatory Asset Base (RAB) for the 2004 determination. However, the Tribunal's Issues Paper raised the question of whether DNSPs should be compensated for:

- foregone rate of return (interest costs) on the excess capital expenditure and
- depreciation costs on the excess capital expenditure.

The Issues Paper also questioned whether, if DNSPs were compensated for the foregone return on and of capital, should they also be compensated for excess operating expenditure incurred during the current regulatory period.

The Issues Papers presented three possible options for treating the rate of return of and on excess capital expenditure during the current regulatory period:

- roll the undepreciated excess capital expenditure plus capitalised rate of return since expenditure into the opening RAB
- roll the undepreciated capital expenditure into the opening RAB with no adjustment for foregone rate of return prior to the start of 2004 regulatory period

³² Allen Consulting, *Principles for determining regulatory depreciation allowances*, August 2003, p 2.

³³ <http://www.ipart.nsw.gov.au/papers/Allens110903.pdf>

- roll the depreciated value of the capital expenditure into the opening RAB with no adjustment for foregone rate of return or depreciation prior to the start of the 2004 regulatory period.

Stakeholder views

EnergyAustralia proposed the first approach while Integral Energy proposed the second (see Table 4.9). Country Energy and Australian Inland did not submit a position on this issue.

Table 4.9 DNSP views on treatment of excess expenditure

DNSP	Capital expenditure		Operating expenditure
	Return on capital	Return of capital	
EnergyAustralia	Seeking recovery of holding costs of \$87.8m	Undepreciated excess capital expenditure to be rolled into RAB	Not sought ³⁴
Integral Energy	Not sought	Undepreciated excess capital expenditure to be rolled into RAB (estimated increase in RAB of \$115m)	Not sought
Country Energy	No position stated	No position stated	No position stated
Australian Inland	No position stated	No position stated	No position stated

In arguing for the recovery of at least a return of capital (foregone depreciation) on excess capital expenditure, the DNSPs have argued that the Code requires the regulatory regime to provide incentives for investment in capital. For example, EnergyAustralia submits:

If the holding costs on the additional capital expenditure are not recognised in full in the regulatory framework, the net present value of the capital investment would be negative, resulting in a net loss of value of EnergyAustralia. A negative return is a disincentive to invest, which EnergyAustralia believes is not consistent with clause 6.10.2(b) of the Code, which requires that the regulatory framework seek to provide (positive) incentives for investment in capital. (EnergyAustralia submission, p 56.)

Integral Energy also point to clause 6.10.2(d) of the Code in justifying their position that they should be allowed to recover the return of capital on the excess capital expenditure. Clause 6.10.2(d) requires the regulatory regime to foster an efficient level of investment within the distribution sector.

³⁴ In a summary table in their submission, EnergyAustralia indicate they are seeking recovery of additional operating expenditure relating to regulatory and duty of care requirements. However, in verbal discussions with the Secretariat they have indicated that they were not seeking any ex-post recovery of operating costs in excess of those allowed in the current determination.

Integral Energy did not propose an ex-post recovery of a rate of return on excess capital expenditure and also excess operating costs on the basis of it weakening the incentive regime. However, Integral Energy does also argue for a recoupment of the foregone depreciation because:

- the capital expenditure was prudently incurred
- the provision of economically efficient price signals requires the value of the regulated asset base to be maintained at the appropriate level
- the 1999 Determination did not meet the features of a well-designed incentive-based regulation scheme and consequently risk allocation and reward principles were breached
- it is necessary to ensure that the business is provided with signals to invest necessary capital expenditure in similar situations in the future (and is consistent with Code requirements that the regulator fosters an environment that encourages efficient levels of investment).³⁵

Origin Energy is of the opinion that DNSPs should be allowed to recoup any under-recovered return on and return of capital on prudent capital expenditure in excess of that projected for the current regulatory period. They also argue that DNSPs should be required to repay any underspending. They also submit:

- DNSP should not be allowed to recover any overspending on operating expenditure with a view to encouraging improvements in the efficiency of their operations
- the allowed rate of return should not be reduced, even if DNSPs are allowed to recover costs associated with unexpected capital spending because this is the minimum return required by the asset owner to invest in the assets in the first place.

The Total Environment Centre's submission on behalf of the peak environment groups argues that 'DNSP's should only be able to recoup foregone interest or depreciation on capital expenditure in excess of forecasts when these costs result from demand management programs.' The Centre argues that this would act as a risk hedging safeguard and may address DNSP hesitation around demand management. They further argue that allowing the DNSPs to recoup the foregone rate of return and depreciation on network expenditure would encourage poor planning and inefficient capital expenditure.

The Australian Environment Business Network (AEBN) submits that the 'under-recovered return should not be recovered by increased prices to consumers'. It argues that the shareholder should bear this cost and not consumers.

AGL Energy Sales and Marketing (AGL ES&M) submits that compensation for the additional capital expenditure should only be considered if it can be demonstrated that the expenditure was prudent and efficient. It should be established that:

- the under-recovered return was a result of circumstances beyond the DNSP's control
- the DNSPs were significantly disadvantaged and
- the previous regulatory regime did not allow for adequate compensation for such events.

³⁵ Integral Energy submission, p 55.

Secretariat's analysis

Based upon the evidence before it to date, the Secretariat is inclined to favour the third approach raised in the issues paper (no ex-post adjustment for foregone return on and of capital). It believes the third approach is most consistent with the incentive based regulatory framework that the Tribunal has adopted. The first of these options, by allowing ex-post recovery of unexpected costs, is akin to rate of return regulation subject to a prudency test as has been applied in United States regulatory practice. Origin Energy's submission on this matter is effectively arguing for such cost-plus regulation. The second approach allows for some recovery of excess capital expenditure (depreciation) and delayed recovery of return of depreciation but weakens incentives for seeking efficiency improvements.

In terms of a consistent treatment of situations where actual expenditure is less than the allowed amount, the first two options would require DNSPs to hand back any allowed depreciation or rate of return on the difference between actual and allowed capital expenditure. This approach is inconsistent with an incentive based approach as DNSPs would see few benefits from reducing costs.

In principle, an asymmetric approach that compensated DNSPs for over-spending but allowed them to keep the benefits of underspending would be possible. However, such an approach would largely result in a 'one-way bet' for DNSPs and substantially reduce profit risk for the DNSPs. In this situation, in the absence of explicit cashflow adjustment for over-spending, the applied WACC would need to be significantly closer to the risk free rate of return than the value applied in the current determination. If the Tribunal were to allow ex-post recovery of excess capital expenditure, the WACC applied in the current regulation may have been set too high.

The Energy Markets Reform Forum (EMRF) submission argues that 'it is essential that there are incentives for DNSPs to improve the efficiency of their operations, rather than perpetuate a cost-plus culture'. They argue that DNSPs should not be allowed to transfer all their business risks to customers, except in exceptional circumstances which must be fully documented, made transparent and independently assessed. They also argue that "the regulated return on assets (in particular, the market risk premium) must be reduced if DNSPs are allowed to recover a proportion of their business risk costs (in exceptional circumstances)." (EMRF submission, p 7.)

Integral Energy's submission highlights the importance of avoiding ex-post adjustments to protect the integrity of the incentive regime:

Similarly, the incentive effects of a regime are weakened if adjustments are made ex-post outside the regulatory contract to address "unacceptable" outcomes. In well-designed regulatory regimes, the mechanisms for sharing benefits between customers and shareholder are well understood; therefore, regulated businesses are able to make informed decisions about investments and performance improvement initiatives.

Ex-post "clawbacks" that are outside the regulatory contract, either to claim back "undue rewards" or by not allowing for unanticipated cost-overruns (due to inadequate revenues being provided at the beginning of the regulatory period, or to address risks that were outside the control of the business), impair the predictability and stability of the incentive mechanism. Such ex-post adjustments encourage gaming behaviour by businesses, both during the review process, in its subsequent actions during the regulatory period. This behaviour substantially weakens the incentive and is likely to reduce net social welfare over the medium to long term.' (Integral Energy submission, pp 50-51.)

It is not clear to the Secretariat why depreciation should be treated any differently from the return on capital in terms of recouping foregone costs during the current regulatory period. Both are elements of the user cost of capital that forms a component of building block costs. Both represent a cost that could be recovered from consumers and it is not clear why depreciation is any more a priority for recovery than the rate of return. It might be the case that Integral's proposal is a compromise solution that offers some ex-post recovery of costs but retaining some incentive for achieving efficiency gains.

The Secretariat is inclined to disagree with EnergyAustralia's contention that a negative *ex-post* return is inconsistent with clause 6.10.2(b). Firstly, clause 6.10.2(b) requires that the regulatory regime:

...provides for, *on a prospective basis*, a sustainable commercial revenue stream which includes a fair and reasonable rate of return to Distribution Business Owners on efficient investment, given efficient operating and maintenance of the Distribution Network Owners' (National Electricity Code, clause 6.10.2(b)(2), emphasis added).

Clause 6.10.2(b) is very much forward looking. In making the 1999 Determination and allowing a real rate of return of 7.5 per cent on the expected capital base, including expected investment of the regulatory period, the Secretariat believes that the Tribunal has satisfied both Clause 6.10.2(b) and also 6.10.2(d). The fact that ex-post returns have turned out lower than 7.5 per cent is due to unexpected growth in demand and/or other factors that are driving greater than expected capital expenditure and is a risk the businesses have been compensated for in providing a WACC that is substantially more than the risk free rate of return.

A second related point to be made about EnergyAustralia's submission is that clause 6.10.2(b) makes no reference to positive incentives. The implication of EnergyAustralia's position is that they should not be allowed to make a negative return on investment and should be insured against this risk by a regulatory regime that guarantees them to recoup any such losses from customers at a future date. As noted above, an asymmetric treatment of over spending compared with under-spending would mean that the rate of return on assets would need to be substantially closer to the risk free rate of return than was allowed for in the current determination. EnergyAustralia do not recognise this trade-off in their submission, claiming a real pre-tax WACC of 7.5 per cent for the 2004 regulatory period.

The Secretariat recognises that its preliminary position would mean that DNSPs bear the risk that returns will be lower than expected if expenditure is higher than forecast. It also means that DNSPs benefit from higher than expected returns if expenditure is lower than forecast – that is, customers bear the risk of paying too much in the face of lower than expected expenditure. The nature of incentive regulation is such that DNSPs will face profit risk due to factors that are both within and outside of the control of the DNSP management. As long as the prospective WACC is appropriate or the cashflow modelling reflects these risks, incentives to invest should be adequate. The Secretariat notes that the preliminary WACC analysis provides for a margin above the risk free rate. The WACC compares to the rate of return provided for other utilities facing comparable risks.

Based upon the information before it to date, the Secretariat's initial view is that there should be no ex-post recovery of a rate of return or depreciation on excess capital expenditure during the current regulatory period. In terms of the opening regulatory asset base, this would mean that depreciated actual capital expenditure would be rolled in to establish the

opening balance at 1 July 2004. The Secretariat recognises that this approach creates a risk that DNSPs might realise rates of return that diverge (positively or negatively) from the allowed rate of return. The Secretariat believes that the Tribunal should ensure that the WACC for the forthcoming period is set at a level commensurate with this level of risk.

Consistent with its preliminary views on excess capital expenditure and based upon the evidence before it to date, the Secretariat's preliminary view is that the Tribunal should not allow ex-post recovery of operating expenditure in excess of that allowed for in the current determination. The Secretariat invites further comments on this issue.

Impact on DNSPs proposed price increases

Table 4.10 illustrates the impact on the DNSPs' price proposals of not allowing any ex-post recovery of the rate of return or depreciation. Since Country Energy and Australian Inland did not propose any ex-post recovery, this scenario does not impact on their price proposal (and the level of revenues they recover).

The Secretariat's preliminary view on ex-post recovery of costs has greatest implications for EnergyAustralia price proposal since it has proposed recovery of both the foregone rate of return (in the form of holding costs) and depreciation. For Integral Energy the impact is limited, largely reflecting the timing of the capital expenditure and the limited depreciation occurring since the expenditure was incurred.

Table 4.10 Impact on proposals of Secretariat's view on the treatment of excess capital expenditure

	Standardised proposal		Proposal incorporating Secretariat's preliminary view	
	Proposed annual price change	NPV of costs not recovered	Proposed annual price change	NPV of costs not recovered
EnergyAustralia	CPI + 19.4% in 2004/05 then CPI + 1%	0	CPI + 16.5% in 2004/05 then CPI + 1%	0
Integral Energy	CPI + 11.1% in 2004/05 then CPI + 1%	0	CPI + 10.2% in 2004/05 then CPI + 1%	0
Country Energy	CPI + 13.2% in 2004/5 then CPI + 5.7%	\$233m	As per standardised proposal	\$233m
Australian Inland	CPI + 15.6% in 2004/5 then CPI + 6.6%	\$12m	As per standardised proposal	\$12m

4.6 Unders and Overs Account

The current revenue cap form of regulation has required the operation of an unders and overs (U/O) account that records any over or under-recovery of the DNSP Aggregate Annual Revenue Requirement (AARR). None of the DNSPs are expecting to have a zero balance by the end of the current regulatory period on 30 June 2004. DNSPs are expecting the following balances at the end of the current regulatory period:

- Country Energy forecasts **under**-recovery of \$31 million
- Australian Inland forecasts **under**-recovery \$3 million
- EnergyAustralia forecasts **over**-recover balance of \$99 million

- Integral Energy forecasts **over-recover** balance of \$64 million.³⁶

Under the weighted average price cap form of regulation, revenue is not capped and so an U/O account arrangement will not be required for DUOS tariffs.³⁷ An issue for the Tribunal is how it should resolve the outstanding balances over the next or future regulatory periods. In making a decision on this issue, the Tribunal is aware that the final values for the outstanding balance at 30 June 2004 will not be known at the time it makes its determination. The final outcomes for 2004 will depend upon the impact of the 1 July 2003 price changes and the actual sales by DNSPs during 2003/04 at these higher prices.

The Tribunal therefore needs to address two issues:

- how to treat the expected U/O account balance in the 2004 determination
- how to treat any difference between the expected U/O account balance and the final realised value.

Stakeholder views

All DNSPs are requesting the Tribunal make arrangements for the closing balances to be resolved during the forthcoming regulatory period. The DNSPs have proposed different methods for resolving these balances, although all proposals are motivated by ameliorating price impacts on customers, to differing degrees.

The under-recovering businesses have proposed that the account balances be recovered gradually over the next regulatory period. Country Energy is proposing the introduction of a correction factor in the weighted average price cap formula. The correction factor would be a specific percentage adjustment factor calculated as the ratio of the under-recovery balance to total required revenue over the regulatory period. The factor would be adjusted following the release of audited data on the under and over recovery balance. This approach would mean the under-recovery balance is recovered during the next regulatory period. Country Energy suggests that this provides for a more stable price path than if the balance were included as part of a P-nought adjustment.

Faced with potentially substantial increases in prices due to higher operating costs, Australian Inland is proposing that its under-recovery balance be added to its RAB. This would return the under-recovery balance over the next regulatory period and beyond and have a lower impact on prices.

In terms of the over-recovering businesses, EnergyAustralia has proposed that its over-recovery balance be added to its RAB. More specifically, EnergyAustralia is proposing that its over recovery balance be deducted from the \$575 million in additional capital expenditure and \$113 million in holding costs that it is requesting the Tribunal roll into its RAB. The over-recovery balance is therefore offsetting this addition to the RAB and would be equivalent to simply deducting the balance off the RAB. In terms of price impacts, this approach would lower the proposed price path, although this impact is smaller than if it were immediately returned since the balance is being returned over a much greater time period.

³⁶ These values are different from those presented in submissions, which were estimated before the 2003/04 price changes were implemented.

³⁷ The Tribunal may adopt an unders and overs account for transmission revenue which will be treated as a pass-through amount, to account for differences in forecast and realised values each year.

On the assumption that the Tribunal applies an NPV neutral price smoothing mechanism (X-factor), Integral proposes that its over-recovery balance be deducted from its revenue requirement in 2004/05. The objective of this approach is to reduce the extent of the P_o adjustment and the price shock to customers.

Table 4.11 summarises the DNSPs' submitted positions on the treatment of the under and over account balance.

Table 4.11 Summary of DNSP submissions

DNSP	Under/over recovery amount	Proposed approach	Comment
EnergyAustralia	Over-recovery of \$99m	Incorporate into RAB	Use U/O account balance to offset proposed recovery of return of and on excess capital expenditure
Integral Energy	Over-recovery of \$64m	Deduct from revenue requirement in 2004/05 to reduce required P_o	Aiming to reduce price shocks for customers
Country Energy	Under-recovery of \$31m	Recover via correction factor in WAPC formula	Aiming to retain value of under-recovery balance
Australian Inland	Under-recovery of \$3m	Incorporate into RAB	Aiming to retain value of under-recovery balance

Origin Energy has submitted that it is 'still firmly of the opinion that the Tribunal should have treated the closing balance in the unders and overs account of the current regulatory period in the manner intended in Rule 2001/3'. It argues that the residual balance should form part of the revenue requirements for the 2004 regulatory period since it was largely current customers who contributed to the balance through network charges and therefore it should be these customers who should benefit from or bear the cost of the under or over recovery.

AGL Energy Sales and Marketing submit that the treatment of the residual under and overs account balance should not result in unreasonable price increases to customers.

The Energy Markets Reform Forum prefers that the residual balance in the unders and overs account be treated as part of the revenue requirement for the 2004 regulatory control period. It also recommends that the unders and overs account be subject to a specific ruling requiring the clearances of outstanding balances and that the Tribunal not be provided with any discretion as to its disposal. It is not clear whether this comment is referring to the proposed unders and overs account for transmission revenue or any similar arrangements the Tribunal might introduce in the future.

Secretariat analysis

In undertaking its analysis of the proposals for resolving the U/O account balance, the Secretariat has had regard to:

- Price stability – to what extent does the approach decrease/increase price shocks to customers?
- Intergenerational equity – to what extent do current customers bear the cost of or benefit from the resolution of the outstanding balance?

Over-recovering businesses

Returning the over-recovery balance will help mitigate expected price increases as the over recovery balance would be offset against required revenues. Returning the balance during the 2004-09 regulatory period would involve a larger price offset for a shorter period of time (the 2004-09 regulatory period) than incorporation in the RAB which would have a lower annual offset that persists for a longer period. The time frame for the RAB approach would depend on how the outstanding balance is incorporated in the RAB. For example, if it were pro-rated across the full asset base, then the balance would be returned over a period matching the average remaining asset life.

From an intergenerational equity perspective, returning the over-recovery in the next regulatory period would be preferred as current customers, who have paid the higher than required prices, are more likely to benefit from the lower prices.³⁸ This approach would also be consistent with the current working of the U/O account which requires adjustment of prices in the next period once certain thresholds are reached.

Fully recovering the outstanding balance during the next period has the advantage of mitigating the price shocks that customer may face as a result of proposed increases in notional revenue requirements during the next regulatory period. Integral Energy have recognised this benefit in proposing that the over-recovery balance be deducted from its notional revenue requirement in 2004/05 to limit the extent of its proposed P-nought adjustment.

EnergyAustralia's proposed treatment is based upon its proposal for the Tribunal to allow it to recover the foregone return of and on its capital expenditure in excess of that allowed for in the current determination. Its argument is presumably based upon the notion that the over-recovery balance represents pre-payment of some of the unforeseen capital costs so therefore only the net amount (the unrecovered costs) should be rolled into the asset base and recovered from current and future customers. If the Tribunal were to allow EnergyAustralia to recover these costs, this is likely to be an appropriate treatment of the over-recovery balance.³⁹ However, if the Tribunal decides not to allow ex-post recovery of these costs, the Secretariat's view is that EnergyAustralia's approach would not be appropriate.

³⁸ In the case of EnergyAustralia, because it had a substantial opening asset balance in 1999, it is likely that its customers paid more than efficient costs during the 1996-99 regulatory period. This would suggest for EnergyAustralia, at least, there is a stronger imperative for the over-recovery amount to be returned sooner rather than later.

³⁹ It also mitigates to some degree the undesirable intergenerational equity consequences of rolling these unexpected costs (generated by current customers) into the RAB and so recovering them from future customers.

On the basis of intergenerational equity and also the potential to mitigate price impacts and based upon the evidence before it to date, the Secretariat's preliminary view favours recovery of the over-recovery balance during the 2004-09 regulatory period. It invites further comment to assist it in finalising its views.

Under-recovering businesses

An under-recovery balance means that prices on average have been below the level required to recover DNSP's required revenues. As with the over recovery amount, the under recovery balance could be incorporated in required revenues during the next regulatory period or incorporated into the RAB and recovered over a longer period.

Intergenerational equity arguments for incorporation of the under recovery amount during the 2004-09 regulatory period are similar as for the over recovery amount. However, in this situation incorporation of the under recovery amount will increase prices during the 2004-09 regulatory period compared to what they would otherwise have been. The Tribunal may feel there is then a trade off between intergenerational equity and limiting price impacts on customers during the next regulatory period – particularly in the face of expected significant increases in notional revenue requirements for the coming regulatory period.

Both Country Energy and Australian Inland have highlighted that the price impacts on their customers is a particularly important influence on their decision processes. This is reflected in their proposals for price paths during the next regulatory period under which they are prepared to accept a lower rate of return on assets in order for lower price increases to customers.

In relation to potential price increases during the next regulatory period, the starting point in terms of the current price levels is also a relevant factor here. Both Country Energy and Australian Inland are starting from positions where their regulated revenues (and associated prices) are lower than the regulated revenue requirements as set out in the current determination. This starting point situation is likely to exacerbate the likely price increases during the 2004-09 regulatory period that would be required to deliver revenues in line with likely higher notional revenue requirements.

Against this background, incorporation of the under-recovery balance during the 2004-09 regulatory period would likely further add to the expected price increases for customers. For Australian Inland in particular, this is likely to be a significant issue with their expected under-recovery balance representing approximately 11 per cent of projected revenue in 2003/04. For Country Energy, as a share of current revenues, the projected under-recovery balance is not as large but is nonetheless significant. In terms of expected 2003/04 revenues, the under-recovery balance represents 6 per cent of revenue.

Australian Inland's proposal to add the under-recovery balance to the RAB reflects its concern over price stability. It also reflects the recognition that, under its proposed price path, incorporation of the under recovery balance within the building blocks would result in Australian Inland losing the benefit of the under-recovery balance. This occurs because their price path does not recover notional revenue requirements in all but the final year of the 2004-09 regulatory period. Adding the under-recovery balance to these notional revenue requirements would simply add to the revenue shortfall.

Country Energy has submitted that the under-recovery balance be incorporated in the next regulatory period via a percentage adjustment factor in the price cap formula. The required percentage adjustment to the price control would be calculated as the under recovered revenue, calculated at June 2004, divided by the total smoothed revenue requirement over the forthcoming regulatory period. Due to the timing of the availability of data necessary to calculate the required adjustment, Country Energy proposes that the factor be re-calibrated in 2005/06 to correct for audited data.

In proposing the correction factor approach, discussions with the Secretariat have revealed that Country Energy are concerned about:

- intergenerational equity – the under recovery balance should be recovered sooner rather than later
- retaining the value of the under recovery amount.

On this latter point, Country Energy are concerned that simply adding the under-recovery amount to the notional revenue requirement in the 2004-09 regulatory period would mean that they would simply lose the amount as unrecovered revenue under their proposed price path (Country Energy's proposed price path of a P-nought of 15 per cent real and followed by 7.7 per cent real increases does not recover its proposed total costs). The Secretariat believes that this would be the case should the Tribunal adopt either the Country Energy price path proposal or a straight line revenue smoothing approach.

However, it is difficult to see how Country Energy's correction factor approach addresses this problem. Under their proposal, there is a maximum total price to consumers that they believe would generate an accept price impact on customers. This represents an absolute constraint on what revenue can be recovered. Incorporation of an explicit correction factor for the under recovery balance would simply reduce the amount that can be recovered against notional revenue requirements – the composition of revenue (in terms of how it is notionally mapped against costs) would change but not the total amount collected. While Country Energy would be recouping the under-recovery amount, it would be foregoing other notional required revenue.

For over-recovering businesses, the Secretariat suggested that the outstanding under and overs account balance be returned to customers. It would therefore be consistent for the under-recovery businesses to be able to recover the under-recovery balance from customers also. In the context of increasing notional revenue requirements and likely price shocks to customers, the Secretariat believes the best way for this to occur is for the outstanding balance to be added to the RAB.

In its supplementary submission, Integral Energy highlighted its concerns that the Tribunal should ensure consistent regulatory treatment across the DNSPs. It noted:

In making its draft and final decisions on the DNSP submissions to the 2004 Electricity Network Review, Integral expects that the Tribunal will ensure consistency in its decisions across the DNSPs. (Integral Energy Supplementary submission, 14 August 2003, p 11.)

The Secretariat notes that its suggested approach involves different approaches for over and under recovering businesses and gives less weight to intergenerational equity in the case of under-recovering businesses. However, underlying these proposals is a unifying theme of ensuring outstanding balances are recognised in the regulatory framework and not explicitly or implicitly written off and also an objective of mitigating price impacts on customers. The Secretariat considers that these two factors ensure that the recommended approaches are consistent across over and under recovering firms. The Secretariat invites further comment on its proposed approach.

Forecast error

In terms of handling the forecast error associated with using the forecast closing 2004 balance, the Secretariat proposes that the difference between the forecast balance and the actual closing balance ('the forecast error') be added to the unders and overs account that the Secretariat is proposing for the recovery of transmission revenues.⁴⁰ The Secretariat believes this is a simple and practical approach that guarantees that the closing unders and overs account balance will be fully reflected in the DNSPs' revenue requirements.

Impact on DNSPs proposed price increases

Table 4.12 illustrates the impact on the DNSPs' pricing proposals of the Secretariat's preliminary view on how the closing unders and overs account should be treated. EnergyAustralia's proposal is for its over-recovery balance to be incorporated into the RAB. Incorporating the over-recovery balance during the 2004 regulatory period reduces the required P-nought adjustment by offsetting the notional revenue requirements in the 2004 regulatory period. The required P-nought adjustment falls from 19.4 per cent to 17.6 per cent in 2004.

The required P-nought adjustment for Integral Energy increases slightly reflecting the difference in timing of the incorporation of the over-recovery balance. In Integral's modelling the entire balance is deducted off the regulatory requirements in the first year, whereas the Secretariat's modelling assumes return over five years. The Secretariat has made this assumption purely for illustrative purposes, and has not yet formed a view on the appropriate timing for recovery.

Adding Country Energy's under-recovery balance is added to the RAB reduces its notional revenue requirements during the 2004 regulatory period. This in turn means that Country Energy would not be recovering costs of \$218m instead of \$233m (in NPV terms).

Australian Inland would be unaffected since its price proposal assumes that its under recovery balance is added to the RAB.

⁴⁰ The transmission pass through arrangement were discussed at the Pricing Industry Consultation Group meeting on 18 June 2003. See the minutes of the meeting available on the Tribunal's website: http://www.ipart.nsw.gov.au/papers/PICG_minutes_180603.pdf

Table 4.12 Impact on proposals of Secretariat's view on the treatment of closing unders and overs account balance

	Standardised proposal		Proposal incorporating Secretariat's preliminary view	
	Proposed annual price change	NPV of costs not recovered	Proposed annual price change	NPV of costs not recovered
EnergyAustralia	CPI + 19.4% in 2004/05 then CPI + 1%	0	CPI + 17.6% in 2004/05 then CPI + 1%	0
Integral Energy	CPI + 11.1% in 2004/05 then CPI + 1%	0	CPI + 11.2% in 2004/05 then CPI + 1%	0
Country Energy	CPI + 13.2% in 2004/5 then CPI + 5.7%	\$233m	As per standardised proposal	\$218m
Australian Inland	CPI + 15.6% in 2004/5 then CPI + 6.6%	\$12m	As per standardised proposal	\$12m

5 LIMITS ON PRICE MOVEMENTS

5.1 Objective and impact of limits on price movements

Limits on price movements provide protection to customers from rapid price increases to customers. Given the price increases proposed by the DNSPs (see chapter 3), limits on price movements may be an important element of the regulatory framework for the period commencing 1 July 2004 in terms of customer protection.

Clause 6.1.1(c) of the Code establishes the following core objectives for distribution (and transmission) pricing:

- efficiency in the use, operation and maintenance of, and investment in, the network and in the location of generation and demand
- upstream and downstream competition
- price stability
- equity.

Limits on price movements are an effective means of delivering price stability and may assist in equity considerations.

In electricity, the Tribunal currently leaves the DNSPs with discretion to set their own prices, subject to the prices complying with:

- the overall revenue cap
- the limits on price movements
- pricing principles and published pricing strategies
- information disclosure provisions.

The limits on price movements are an important element of the Tribunal's current pricing philosophy, as they are the means by which the Tribunal ensures that residential customers do not see rapid price increases.

However, limits on price movements can impact on the ability of the DNSPs to restructure or rationalise tariffs. For example, limits on price movements could:

- hinder the ability of a DNSP to rationalise tariffs – eg consolidate the number of tariffs that each business offers, particularly Country Energy, which has multiple tariffs within tariff classes
- hinder the ability of a DNSP to change the structure of tariffs – eg introduce an inclining block tariff or demand charges.

The limits on price movements should not prohibit these tariff reforms – rather they impact on the transition to these tariffs. For example, instead of introducing an inclining block tariff with the second block costing 25 per cent more than the first block, the DNSP may need to introduce a 10 per cent differential in the first year and then increase the differential further in subsequent years.

5.2 Structure and application of limits on price movements

In its notice of the economic regulatory arrangements to apply from 1 July 2004, the Tribunal established that it would apply limits on price movements to total network charges. It said that it would consider applying additional limits on price movements to transmission and distribution tariffs.

The Tribunal has noted that in general, the DNSPs do not support limits on price movements for network, distribution or transmission tariffs.

Applying limits to total network charges and not to distribution or transmission charges provides customers with overall protection against rapid price increases while still allowing the DNSPs some ability to restructure tariffs.⁴¹ Further, the Tribunal recognises that transmission charges are regulated by the ACCC and wishes to minimise further regulation of these charges, while still providing overall protection to customers.

Based on evidence before it to date, the Secretariat's preliminary view is that limits on price movements should apply to total network charges only. The Secretariat invites comment on this view.

The current limits on price movements comprise a limit on the average price movement. Under the weighted average price cap, the limit on average price movement is effectively replaced with the X-factors (see chapter 2) and is, therefore, not required.

There is currently an additional limit on the way that an individual bill for residential customers⁴² can move. The Secretariat considers that there is a strong case to limit price increases to avoid rapid price increases for residential customers, particularly those on low incomes. Based on the evidence before it to date, the Secretariat considers that limits on price movements are required for residential customers. The Secretariat invites comments on these views.

The Tribunal must then decide whether price limits for all non-residential customers are necessary and if such limits are applied how this impacts on the ability of DNSPs to undertake tariff reforms and their ability to recover their notional revenue requirements. If no price limits applied to non residential customers in the next regulatory period these customers will be afforded regulatory protection through the weighted average price cap, the transmission pass through arrangements, and the proposed pricing principles and information disclosure arrangements.⁴³

The Secretariat invites comments on these alternatives.

⁴¹ For example, a DNSP may reduce transmission tariffs and increase distribution tariffs, still complying with the limits on price movements.

⁴² Based on the same pattern and usage of electricity as the previous year.

⁴³ Refer to the Pricing Issues Consultation Group minutes and papers on the IPART website: <http://www.ipart.nsw.gov.au/elec.htm#picg>

5.3 The level of limits on price movements

The Tribunal cannot determine the level of the limits on price movements until it has formed a view on the price changes required for the next regulatory period.

The Tribunal will need to form a view on what is an appropriate level of limits on price movement for:

- residential customers
- non-residential customers (if it chooses to apply limits on price movements to non-residential customers).

In order to form this view, the Tribunal needs to establish what is a rapid price increase for each of these customer classes.

Residential customers, particularly low income customers, have limited ability to sustain rapid price increases. Households spend between 1.5 and 3.5 per cent of their income on domestic fuel and power with low income groups spending the greatest proportion of their income on power.

Table 5.1 summarises the limits on price movements for distribution, transmission and/or network tariffs across Queensland, Victoria and South Australia.

Table 5.1 Distribution, transmission and total network limits on price movements in Queensland, Victoria and South Australia

	Distribution tariffs	Transmission tariffs	Network tariffs
Queensland (Queensland Competition Authority)	<p>Prior to 1 July 2001: CPI + 2.5%, with discretion to amend⁴⁴</p> <p>From 1 July 2001: CPI +5% for contestable customers⁴⁵ CPI + 2% for non-contestable customers</p> <p>For 2001-02 only, all Ergon customers faced a CPI + 5% constraint</p>	No limits, but requirement on DNSPs to publish basis of allocations in Pricing Principle Statements	No limits
Victoria (Essential Services Commission)	<p>No limit in 2001</p> <p>From 2002 – 2005: CPI + 2%</p>	<p>No limit in 2001</p> <p>From 2002-2005: CPI + 2%, with provision to amend</p> <p>For 2003, the ESC allowed a 20% increase</p>	<p>For 2001: CPI</p> <p>From 2002: no limits</p>
South Australia (Essential Services Commission of South Australia)	Until 2005: CPI constraint	Until 2005: CPI + 3%	None apply

⁴⁴ The Minister set the limits on price movements prior to the QCA regulating from 1 July 2001.

⁴⁵ Contestable customers are those with an average consumption of more than 200MWh hours per annum.

The Secretariat invites comment on what level of price movements are appropriate for residential and non-residential customers.

5.4 Relaxing limits on price movements

It is impossible to accurately forecast all costs over the proposed five year regulatory period. As discussed in section 2.2.2, the Tribunal is considering implementing a unforeseen cost allowance mechanism. Additionally, in setting the limits on price movements, the Tribunal will need to have regard to the likely transmission charges that the DNSP will pay to transmission companies.⁴⁶ Given the uncertainty surrounding costs, there may need to be some flexibility built into the framework that allows the Tribunal some discretion to adjust limits on price movements during the regulatory period, under defined circumstances.

Based on the evidence before it to date, the Secretariat's initial view is that the Tribunal should have discretion to relax the limits on price movements in the following circumstances:

- To recover approved unforeseen cost allowances (if the Tribunal adopts a mechanism as discussed in section 2.2).
- To recover increases in transmission charges.
- To allow for specific, foreshadowed tariff restructuring or rationalisation. This could be done in conjunction with the information disclosure requirements and the statistical approach proposed by Integral Energy.⁴⁷
- To allow for congestion pricing, if deemed appropriate by the Tribunal.

The Secretariat invites comment on this approach.

The DNSPs have proposed large price increases in the first year of the regulatory period (a P0 adjustment), followed by more stable price paths. If the Tribunal were to determine that P0 adjustments were appropriate, it would need to relax the limits on price movements to facilitate that price path. In this circumstance, the Secretariat seeks comment on what is an appropriate level of limits on price movements.

Tariff reform can have significant impacts on customers, particularly if they do not have a choice in that tariff reform. An example is the introduction of inclining block tariffs or demand charges. If the customer has a choice of whether or not to go onto that tariff, then there is less need to protect those customers with limits on price movements. The Secretariat encourages optional tariffs. Based on the evidence before it to date, the Secretariat's preliminary view is that limits on price movements should not apply to optional tariff changes (ie. where the customer exercises choice), but should apply to any mandatory change of tariff, including moving customer to new or existing tariffs.

⁴⁶ Transmission charges are regulated by the ACCC. The current determination for TransGrid and EnergyAustralia, the two NSW transmission operators, will expire on 30 June 2004.

⁴⁷ Integral Energy submission, p 202.