



New South Wales

T R E A S U R Y

Weighted Average Cost of Capital

Response to IPART Draft Determination -
NSW Electricity Distribution Pricing 2004/05 to 2008/09

March 2004

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1. INTRODUCTION

This paper represents Treasury's response to IPART's NSW Electricity Distribution Pricing Draft Determination on the weighted average cost of capital (WACC).

The Australian energy industry requires investment in network assets to interlink markets and create upstream competitive tension. The growth and development of integrated energy markets is central to the COAG arrangements in relation to energy reform.

In its 2002 Review of the National Access Regime, the Productivity Commission noted:

*'Third party access and the resulting benefits to service users are only possible over the longer term if there is continuing investment in the essential infrastructure services themselves. On the other hand, while denial or monopoly pricing of access imposes costs on the community, such behaviour cannot threaten the continued availability of the services concerned. This asymmetry in potential outcomes highlights the priority that access regulation must give to ensuring that there are appropriate incentives for efficient investment.'*¹

The WACC provided by regulators is a critical parameter in terms of providing incentives for efficient infrastructure investment. Treasury considers it important that where possible, regulators adopt a consistent approach to setting WACC parameters, thereby creating a more certain investment climate required to encourage appropriate investment in infrastructure assets.

Importantly, WACC determinations should be consistent with the Productivity Commission's observation that regulators should 'err' on the side of promoting long term investment in new and existing electricity distribution assets:

*'The possible disincentives for investment in essential infrastructure services are the main concern. In essence, third party access over the longer term is only possible if there is investment to make these services available on a continuing basis. Such investment may be threatened if inappropriate provision of access, or regulated terms and conditions of access, lead to insufficient returns for facility owners.'*²

NSW Treasury supports IPART's proposed WACC framework, i.e. a WACC that is:

- presented in real pre-tax terms;
- utilises a statutory tax rate rather than an effective tax rate, and
- based on a forward transformation sequence, consistent with market practice.

However, Treasury considers that IPART's proposed 6.8% real pre-tax WACC does not reflect the commercial return required by investors to invest in energy network infrastructure.

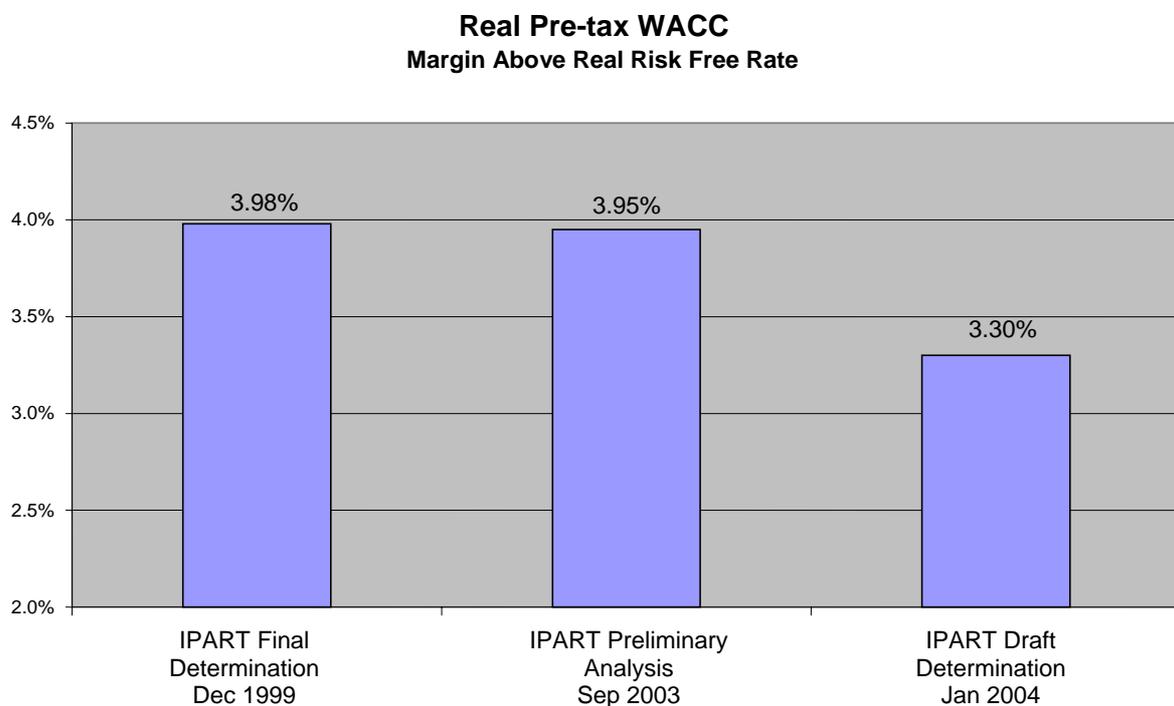
¹ Productivity Commission, Review of the National Access Regime, Inquiry Report

² Productivity Commission, Review of the National Access Regime, Position Paper

2. REGULATORY CONSISTENCY

As previously discussed, NSW Treasury believes that regulatory consistency is an important factor in determining underlying WACC parameters. The proposed move towards a single national energy regulator further emphasises the need for a consistent regulatory approach on WACC.

IPART's proposed real pre-tax WACC of 6.8%, translates to a 3.30% premium over the real risk free rate³, the lowest WACC premium ever adopted by an Australian regulator for electricity networks⁴. In comparison, IPART's 1999 Determination provided a WACC premium of 3.98% above the risk free rate and IPART's October 2003 Preliminary Analysis Paper proposed a WACC premium of 3.95%.



IPART's proposed WACC is inconsistent with that adopted by interstate regulators in recent electricity distribution reviews. In January 2004, the Essential Services Commission of South Australia (ESCOSA) released a 'Preliminary Views' paper on WACC, as part of its Electricity Distribution Price review. ESCOSA proposed a real pre-tax WACC of 7.5%, noting that:

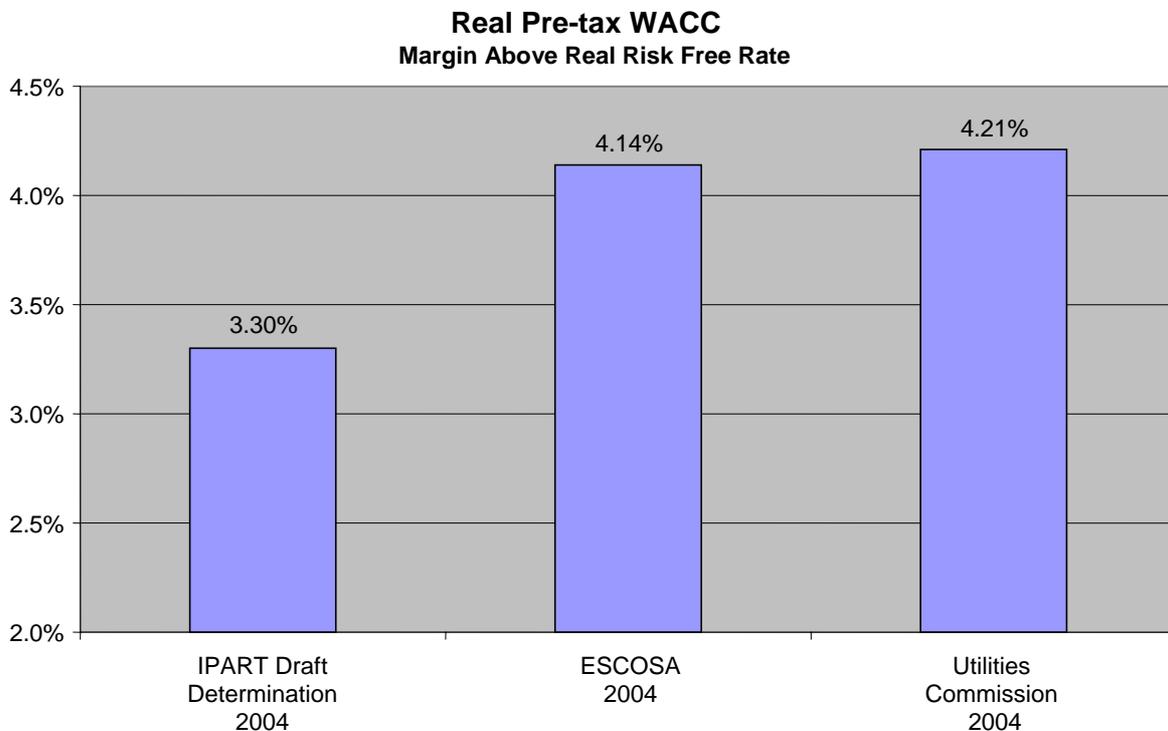
*'consistency amongst regulators may be an important factor in creating more certainty in future regulatory decisions, which should assist to encourage investment, both in the regulated industry and in upstream and downstream activities.'*⁵

³ Comparing WACC premiums removes impacts associated with interest rate fluctuations

⁴ Based on IPART's real pre-tax WACC formulation and statutory tax rate

⁵ ESCOSA, Preliminary Views – Electricity Distribution Price Review: Return on Assets, p45

In January 2004, the Utilities Commission released a draft determination for Northern Territory Power and Water, recommending a real pre-tax WACC of 7.42%. The WACC proposed by both ESCOSA and the Utilities Commission represent premiums of more than 4% above the respective underlying risk free rates.



In its 1999 Electricity Network determination, IPART stated that:

‘On balance, the Tribunal considers that a rate of return within the range 7-8 per cent (real pre tax) is appropriate for the DNSPs.’⁶

NSW Treasury does not believe that IPART has justified its decision to move away from the 7.5% real pre-tax WACC adopted in its 1999 determination, given:

- real interest rates (at the time of the Draft Determination) were at similar levels to that adopted in 1999;
- the 5.5% mid-point market risk premium adopted by IPART is lower than the 6.0% universally adopted by all other Australian regulators;
- debt margins are currently higher than that allowed in IPART’s 1999 determination;

⁶ IPART, Regulation of New South Wales Electricity Distribution Networks, Determination and Rules Under the National Electricity Code, December 1999, p47

- actual rates of return achieved by NSW distributors over the current regulatory period have been well below the 7.5% target previously determined by IPART, demonstrating that regulatory risk is higher than previously envisaged, and
- the form of regulation adopted for the 2004 Determination is a weighted average price cap, compared to a lower risk fixed revenue cap regime adopted in IPART's 1999 Determination.

In September 2003, the IPART Secretariat released a discussion paper as part of the 2004 Electricity Distribution Review⁷. The preliminary view formed by the IPART Secretariat was that a WACC of 7.0% was appropriate, based on an underlying real risk free rate of 3.05%.

Real interest rates have risen since September 2003, as reflected in the 3.5% real risk free rate adopted in IPART's Draft Determination. Assuming no changes in other parameters, the 0.45% increase in the risk free rate should have translated to a 0.45% increase in WACC (i.e. to 7.45%). However, IPART's Draft Determination proposes to reduce WACC by 0.2%, representing an effective 0.65% reduction relative to the preliminary view espoused by the IPART Secretariat last September.

This evidence does not suggest IPART has adopted a 'conservative approach' in determining WACC. In contrast, IPART's draft decision represents the lowest effective WACC ever adopted by an Australian regulator for electricity networks.

NSW Treasury believes that the underlying cost of capital for electricity networks is well above that proposed by IPART. Treasury is concerned about the resultant disincentive for appropriate investment in essential electricity infrastructure.

3. INPUT WACC PARAMETERS

IPART claims that it has adopted a 'conservative' approach in estimating WACC parameters, implying that the parameters adopted are biased towards a higher rather than lower resultant WACC. However, NSW Treasury considers that IPART has adopted an aggressive approach in estimating WACC parameters, thereby producing a downward bias in the resultant WACC.

The position adopted by IPART on a number of WACC parameters (including market risk premium, debt margin and equity beta), is extreme compared to the consensus of opinion formed by other Australian regulators. This is supported by the following statements from IPART's Draft Determination:

'the MRP used by the Tribunal is lower than that used by all other regulators' (page 218)

'the debt margins used by the Tribunal are considerably below those used by other regulators' (page 225)

'the Tribunal's asset betas are slightly lower than those used by other regulators' (page 244)

⁷ IPART, 2004 Electricity Distribution Review – Preliminary Analysis, Secretariat Discussion Paper, September 2003

'the Tribunal is the only regulator using a gamma range. All other regulators are using a gamma of 0.5' (page 234)

Therefore, IPART's own analysis demonstrates that for three of the four abovementioned parameters (MRP, debt margin and asset beta), IPART has historically adopted values below those used by other regulators. Gamma is the only parameter where IPART can claim that it has historically adopted a relative conservative estimate.

However in its Draft Determination, IPART proposes to change its position on gamma but maintain its position on MRP, debt margin and asset beta. Therefore IPART has maintained its 'aggressive' position on the three parameters that contribute to a lower WACC, but changed its position on the only parameter that previously contributed to a higher WACC. This clearly does not support IPART's claim that it has adopted conservative WACC assumptions.

IPART also suggests that it has had regard to the principles established in recent appeal decisions by the Western Australian Supreme Court⁸ and the Australian Competition Tribunal⁹:

*'In determining its approach to these functions, the Tribunal considered the Western Australian Supreme Court decision in Epic. Although the decision relates to the National Gas Code, the principles it establishes extend beyond gas and provide considerable guidance in relation to the matters the Tribunal should relevantly consider under the National Electricity Code. The Tribunal has therefore had regard to the principles in Epic and the recent decisions of the Australian Competition Tribunal.'*¹⁰

In terms of WACC, the principles established by the Supreme Court of Western Australia (Epic) and the Australian Competition Tribunal (GasNet) is that where service providers have proposed reasonable WACC parameters, the regulator should not seek to apply its own preferred parameters:

*'Contrary to the submission of the ACCC, it is not the task of the Relevant Regulator under s 8.30 and s 8.31 of the Code to determine a return which is commensurate with prevailing conditions in the market for funds and the risk involved in delivering the Reference Service. The task of the ACCC is to determine whether the proposed AA in its treatment of Rate of Return is consistent with the provisions of s 8.30 and s 8.31 and that the rate determined falls within the range of rates commensurate with the prevailing market conditions and the relevant risk.'*¹¹

While IPART is not bound under the Electricity Code to adopt the WACC parameters proposed by electricity distributors, IPART has stated that the principles established in the

⁸ Re Dr Ken Michael AM; ex parte Epic Energy (WA) Nominees Pty Ltd [2002] WASCA 231

⁹ Australian Competition Tribunal, Application by GasNet Australia (Operations) Pty Ltd ACompT 6, 23 December 2003

¹⁰ IPART Draft Determination, p9

¹¹ Australian Competition Tribunal, Application by GasNet Australia (Operations) Pty Ltd ACompT 6, 23 December 2003 (42)

above cases extend beyond gas and provide considerable guidance to the Tribunal. If this was the case, then greater onus should be on IPART to demonstrate the unreasonableness of the WACC parameters proposed by distributors, rather than IPART determining an alternative set of parameters.

In this regard, the NSW distributors have each proposed WACC parameters that fall within a reasonable range based on historical evidence, economic theory and market evidence.

3.1 Market Risk Premium

NSW Treasury accepts that measurement of the market risk premium (MRP) is subject to large standard error and a high standard deviation, however Treasury does not agree that determination of MRP is a 'contentious issue'. IPART suggests that there is no consensus on what the appropriate value of the MRP should be. Yet, all other Australian regulators adopt a MRP value of 6%. Given the wide range of approaches used to estimate the MRP and uncertainties surrounding its statistical estimation, Treasury considers that regulatory precedence is the most important factor that should be considered in determining an appropriate MRP value.

The vast majority of historical estimates suggest a MRP value of greater than 6% while forward looking estimates and supply side approaches suggest a MRP of less than 6%. However, IPART correctly notes that forward MRP estimates used by institutional investors may be 'downward biased' and also questions the usefulness of supply side approaches in providing accurate forecasts of future share returns.

IPART supports the adoption of a lower MRP by stating:

*'British regulators also use a lower MRP' and 'the mid point of the MRP range used by IPART is also very close to the world average as estimated by the London Business School.'*¹²

However in its analysis on equity betas, IPART expresses concern that:

*'the use of a domestic CAPM model is not consistent with the use of overseas beta values.'*¹³

Based on IPART's preferred domestic CAPM model, Australian MRP estimates are more relevant than overseas estimates. In this regard, the Australian historic MRP determined by the London Business School is 7.9%. However, IPART does not appear to consider this evidence, concluding that it:

*'has not found sufficient grounds for an increase in the MRP range in light of the various evidence it has reviewed.'*¹⁴

NSW Treasury considers that the universal adoption of a 6.0% MRP by all other Australian regulators is sufficient evidence for IPART to also adopt a mid-point MRP of 6.0%.

¹² IPART Draft Determination, p220

¹³ IPART Draft Determination, p244

¹⁴ IPART Draft Determination, p223

3.2 Debt Margin

NSW Treasury supports IPART's approach to benchmark the debt margin against capital markets based on an investment grade credit rating, 10 year debt maturity and 60% gearing assumptions. This is consistent with Treasury's Capital Structure policy that requires Government businesses to maintain a commercial capital structure and investment grade 'stand alone' credit rating. Standard & Poors defines 'investment grade' as BBB minus and above.¹⁵

However, Treasury believes that IPART's proposed debt margin range of 0.9% to 1.1% is inadequate and inconsistent with the analysis provided and current market conditions.

IPART's Preliminary Analysis Discussion Paper proposed a debt margin range of 1.4% to 1.5%, reflecting a:

*'more accurate assessment of the borrowing cost DNSPs (based on a AA credit rating), would incur in competitive markets.'*¹⁶

IPART's draft determination is based on a significantly lower credit rating benchmark (BBB to BBB plus), yet the proposed debt margin mid point has decreased by 45 basis points.

Page 226 of IPART's Draft Determination indicates that the Tribunal will base its decision on an investment grade credit rating range between BBB and BBB plus. However on page 229, IPART states that the proposed debt margin range of 0.9% to 1.1% reflects a BBB plus credit rating, the top end of this range. In this regard, Treasury notes that there can be a significant spread in debt premiums between BBB and BBB plus ratings.

Treasury notes the recent decision by the Australian Competition Tribunal to incorporate an allowance of 25 basis points per annum for debt raising costs.¹⁷ However, IPART has not included any additional allowance for transaction costs as:

*'it considers that it has made a sufficiently conservative allowance in its debt margin range.'*¹⁸

This conclusion is surprising given that IPART's earlier analysis acknowledges that:

*'the debt margins used by the Tribunal are considerably below those used by other regulators.'*¹⁹

NSW Treasury recognises that debt margins will change over time and that final margins will be dependent on market conditions at the time of the final determination. Treasury also

¹⁵ Standard & Poors, Corporate Rating Criteria, 2002

¹⁶ IPART, 2004 Electricity Distribution Review – Preliminary Analysis, Secretariat Discussion Paper, September 2003, p26

¹⁷ Australian Competition Tribunal, Application by GasNet Australia (Operations) Pty Ltd ACompT 6, 23 December 2003

¹⁸ IPART Draft Determination, p229

¹⁹ IPART Draft Determination, p225

acknowledges that debt margins have fallen over the past 12 months. However, based on IPART's nominated credit rating range of BBB to BBB+ and the Australian Competition Tribunal's assessment of a reasonable allowance for debt raising costs, Treasury is of the view that a debt margin of around 1.4% is appropriate, consistent with that proposed in IPART's Preliminary Analysis Discussion Paper.

3.3 Gamma

NSW Treasury acknowledges IPART's analysis demonstrating the significant uncertainty surrounding the estimate of gamma and agrees with IPART's conclusion that:

*'there is no conclusive gamma value which can be derived from the research available.'*²⁰

However despite the inconclusive nature of the available research, IPART has proposed to increase gamma to 0.5 from a mid-point of 0.4 adopted in both IPART's 1999 Determination and the Secretariat's September 2003 Preliminary Analysis discussion paper. In supporting this decision, IPART suggests that:

*'there does not seem to be any conclusive evidence that the gamma is lower than 0.5 rather than higher than 0.5' and 'the Tribunal could not find any evidence that the value of gamma should be lower than this range.'*²¹

These conclusions appear to be inconsistent with IPART's analysis. In table A7.23, three of the six gamma studies presented by IPART conclude that gamma is less than 0.5. In reference to these studies, IPART concludes that the values of gamma may lie anywhere between zero and one. IPART also refers to market evidence suggesting that gamma should be zero:

*'The Tribunal in past decisions has adopted a gamma range of 0.3-0.5 in its cost of capital calculations. By choosing this range, the Tribunal has recognised the uncertainties surrounding the true value of gamma and chooses a conservative estimate. The lower bound of the range is consistent with the view that most market based valuations assign a value of zero to gamma.'*²²

In claiming that there is no conclusive evidence that gamma is below 0.5, IPART therefore appears to heavily discount market evidence. This is surprising given that in its analysis of other WACC parameters, IPART states:

*'it is better to use capital market estimates to the extent available' and 'the Tribunal in the past indicated that it prefers the use of financial market data.'*²³

It would appear that IPART has largely overlooked Australian historical estimates and higher values used by other regulators in determining the MRP, preferring to place additional weight on market based estimates and institutional surveys. However in determining gamma, IPART

²⁰ IPART Draft Determination, p236

²¹ IPART Draft Determination, p236

²² IPART Draft Determination, p236

²³ IPART Draft Determination, p223 and p246

largely ignores market evidence suggesting that gamma should be zero, but instead aligns its position to that of other regulators.

NSW Treasury does not believe that IPART has justified its decision to increase the gamma mid-point from 0.4 to 0.5 nor has IPART demonstrated the unreasonableness of the 0.3 to 0.5 gamma range proposed by the majority of NSW distributors. However, Treasury acknowledges that the proposed gamma of 0.5 is consistent with that adopted by the majority of Australian regulators.

3.4 Equity Beta

IPART has proposed a mid-point equity beta value of 0.94 reflecting a mid-point asset beta of 0.4 and debt beta of 0.03. The mid-point asset and equity betas have been reduced from that used in IPART's 1999 determination and *'are slightly lower than those used by other regulators.'*²⁴

As noted by IPART, there is only a limited number of utility companies traded on the Australian Stock Exchange and these companies are not always directly comparable to regulated electricity distribution companies. Furthermore, available market estimates of beta display extremely high standard errors and are highly volatile from one period to the next.

As a result, other Australian regulators have observed 'market evidence' of decreasing betas, but elected to maintain an equity beta of 1.0. For example, ESCOSA recently noted that:

*'other regulators have expressed concern about the degree of statistical imprecision with the available beta estimates for the comparable Australian listed entities, and have responded to this by placing weight on their own previous regulatory decisions and on the decisions of other regulators.'*²⁵

Given the limited availability and underlying volatility of Australian market evidence, NSW Treasury supports this approach.

IPART's Draft Determination makes reference to the relative risk of electricity networks compared to the overall market:

*'In the past, the equity betas assumed by Australian regulators for electricity distribution networks have been close to the market beta of 1. This implies that the risk associated with investing in the regulatory asset base of a DNSP is no more or less than the risk of investing in the overall market.'*²⁶

This observation ignores the impact of assumed capital structure on equity betas. As IPART indicated earlier in its report, the degree to which a firm is geared affects the level of financial risk that is borne by shareholders of the company. This same concept affects the equity beta of a company.

²⁴ IPART Draft Determination, p244

²⁵ ESCOSA, Electricity Distribution Price Review: Return on Assets, Preliminary Views, p54

²⁶ IPART Draft Determination, p250

Consequently, betas in different companies can only be compared after adjusting for differences in gearing levels, i.e. by de-levering the equity beta to an asset beta. The market average equity beta of 1.0 is based on market average gearing levels of around 35%. In comparison, the derived equity beta of around 1.0 for NSW distributors is based on assumed gearing levels of 60%. If the respective equity betas are de-levered to remove the impact of assumed capital structure, then the resultant asset beta for NSW distributors is 0.4, well below the 'market average' asset beta of around 0.66.

Alternatively, if the 'market average' gearing level of 35% is assumed for NSW distributors (in conjunction with IPART's assumed asset beta of 0.4 and debt beta of 0.03), the resultant equity beta for NSW distributors is around 0.6, well below the market average of 1.0.

3.5 Regulatory Risk

The form of regulation to be applied in the 2004 Determination is a weighted average price cap, compared to a fixed revenue regime adopted in the 1999 Determination. IPART argued in its 1999 Determination that regulatory risk under a price cap regime is higher than under a fixed revenue cap:

*'The building block approach applied by the Tribunal in this determination in determining the base revenue requirements for NSW DNSPs is similar to the rate of return regulatory regime. Arguably, the asset beta applicable to an electricity network business should not be as high as that borne by the utilities operating under a 'high powered' incentive regime, particularly when the regulatory approach is moving toward a fixed revenue cap.'*²⁷

In 1999, IPART also referred to a study from the World Bank policy research working paper that concluded that firms regulated under the rate of return regulation have lower asset betas than comparable firms operating under a price cap mechanism. IPART tabled results from the study showing an average asset beta of 0.57 for international electricity utilities operating under a price cap compared to an average beta of 0.35 for comparable firms operating under a fixed revenue cap.

Surprisingly, IPART makes little mention of the relative risks under price versus revenue caps in its 2004 draft determination. Rather, IPART concludes that:

*'Regulators are taking a conservative approach when estimating the WACC parameters. As such, there is already an implicit allowance for regulatory risk included in the cost of capital.'*²⁸

NSW Treasury believes that no evidence has been presented in IPART's Draft Determination to support this statement, especially given that IPART's proposed WACC premium (i.e. above the risk free rate) is the lowest ever determined by an Australian regulator for electricity networks. IPART proposes to reduce WACC by 0.7% relative to that adopted in its 1999 Determination, despite previously arguing that regulatory risk is higher under IPART's proposed price cap methodology.

²⁷ IPART 1999 Network Determination, December 1999, p39

²⁸ IPART Draft Determination, p247

3.6 Debt Beta

NSW Treasury believes that IPART should adopt a debt beta of zero, consistent with common market practice and recent decisions made by the ACCC. Assuming a zero debt beta, Treasury believes that an asset beta of 0.4 is appropriate for NSW distributors, with a resultant equity beta of approximately 1.0.

If the debt beta is used consistently in the de- and re-levering process, debt beta assumptions should not impact on the final equity beta adopted. Adoption of a higher debt beta should be reflected in a higher asset beta, rather than a lower equity beta:

Gearing	60%	60%	60%	60%
Debt Beta	0.0	0.03	0.06	0.09
Asset Beta	0.40	0.42	0.44	0.46
Equity Beta	1.0	1.0	1.0	1.0

3.7 Other WACC Parameters

NSW Treasury endorses IPART's methodology for determining the risk free rate and inflation and supports the use of a benchmark 60% debt gearing ratio.

4. CONCLUSION

The changes to WACC parameters suggested in this paper would lead to a WACC of at least 0.7% higher than IPART's proposed mid-point of 6.8%. The resultant WACC of around 7.5% is consistent with that submitted by NSW distributors and recent WACC determinations by other Australian regulators.

IPART has indicated that the principles established by recent decisions of the Australian Competition Tribunal provide '*considerable guidance to the matters the Tribunal should relevantly consider.*'²⁹ In terms of WACC, the Australian Competition Tribunal has recently indicated that where service providers have proposed reasonable WACC parameters, the regulator should not seek to apply its own preferred parameters.

In this regard, IPART has not demonstrated that the WACC parameters proposed by NSW distributors are unreasonable, based on historical evidence, economic theory and market evidence. Nor has IPART demonstrated that its proposed WACC of 6.8% is consistent with the Productivity Commission's findings that regulators should 'err' on the side of promoting long term investment in new and existing electricity distribution assets.

²⁹ IPART Draft Determination, p9