

**2006-2010 ESCoV**  
**ELECTRICITY DISTRIBUTION PRICE REVIEW**  
**OF**  
**THE ELECTRICITY UTILITIES REVENUE**

**Response to the Draft Determination**

by

**The Energy Users Coalition of Victoria (EUCV)**

**August 2005**

Assistance in preparing this submission by the Energy Users Coalition of Victoria NEM Advocacy Panel was provided by Headberry Partners Pty Ltd and Bob Lim & Co Pty Ltd.

Preparation of this report has been partly funded by

**The National Electricity Market Advocacy Panel**

The support of the Advocacy Panel is gratefully acknowledged by the EUCV and the authors.

The content and conclusions reached are entirely the work of the Energy Users Coalition of Victoria and its consultants.

## **CONTENTS**

	<b>Page</b>
<b>Executive summary</b>	<b>3</b>
<b>1. Preface</b>	<b>6</b>
<b>2. Overview</b>	<b>10</b>
<b>3. Forecasting</b>	<b>14</b>
<b>4. Revenue</b>	<b>18</b>
<b>5. Operating expenditure</b>	<b>27</b>
<b>6. Capital expenditure</b>	<b>34</b>
<b>7. Inputs for the return on assets</b>	<b>38</b>
<b>8. Applying the WACC to the RAB and capex</b>	<b>49</b>
<b>9. ESCoV Conservatism</b>	<b>65</b>
<b>10. Service Standards and incentives</b>	<b>69</b>
<b>11. Demand Management</b>	<b>75</b>
<b>Appendix 1</b>	<b>78</b>
<b>Attachment</b>	<b>79</b>

**Observations In Relation to ESCoSA's Draft Decision On Market Risk Premium And Equity Beta Applied to ETSA by Headberry Partners P/L and Bob Lim & Co P/L for The Electricity Consumers Coalition of South Australia March 2005**

## EXECUTIVE SUMMARY

The Energy Users coalition of Victoria (EUCV), representing a number of the larger users of electricity in Victoria, has many concerns with the draft decision handed down by the Essential Services Commission of Victoria (ESCoV) in its electricity distribution price review for 2006 to 2010.

The most serious concern is that the ESCoV has largely ignored that regulatory errors were committed in the previous reviews and is seeking to compound these errors into the current review.

Over the past nine years, the distribution businesses (DB's) have been able to consistently achieve revenues in excess of the benchmark revenues set, even allowing for inflation and consumption variations from forecasts. In the eight years to 2003, revenues in excess of benchmark revenues exceed \$600 million, and have increased further in both 2004 and 2005. These excess revenue outcomes have been derived from two main sources: greater than expected growth in forecast consumption and "tariff rebalancing". However, in ESCoV's draft decision it has failed to adequately deal with these factors that have been responsible in the past for the excessive revenues earned over benchmark revenues.

The DB growth forecasts suggested for 2006-2010 are far too conservative and even the forecasts used by the ESCoV in its draft determination are inconsistent with official State Government forecasts of Gross State Product. In addition, ESCoV is not proposing new constraints to minimize or prevent "tariff rebalancing" by the DB's. In this regard, the ESCoV is reminded of the requirement, under the National Electricity Rules, that network tariffs must be cost reflective and that they must be assessed by the ESCoV as such.

The DBs have been permitted to over recover revenue in the past eight years. Whilst noting that this is a result in part of incorrect forecasting, the ESCoV also notes that it derives from tariff manipulation. Notwithstanding the sources of this over recovery the ESCoV neither makes any attempt to recover these overpayments extracted from consumers in the past nor attempts to prevent the same activity occurring in the future.

The EUCV is concerned that the ESCoV is proposing to provide the DBs with allowed opex of some \$30 million per annum over what is assessed by EUCV to be reasonable. This reflects the adoption of the single year 2004 actual opex as the base rather than using an average for the past four years. Benchmarking by the EUCV supports using the four year average as the base rather than the 2004 actual opex which the DBs have apparently caused to be inflated.

The EUCV stated in its response to the Position Paper its views on the step changes to opex, and the additional commentary by the ESCoV in the draft decision have not changed the views of EUCV. There is a real concern that the lack of consistency between the claims of the different DBs for opex step changes implies these are random excuses to justify step changes. If the claims were based in fact, all of the DBs would have used the same excuses for the claims and there would be a degree of consistency in the amounts claimed for each excuse. In the absence of this consistency, the EUCV remains skeptical at the justification for any step changes in opex.

The ESCoV is also proposing to provide DB's with an allowed capex of some \$60 million per annum more than they actually spent in the past five years. Benchmarking by EUCV implies that the proposed capex is reasonable providing there is a reduction in the opex to the average of the past five years. The ESCoV must review the opex and capex allowances in totality rather than separately, as there is a significant degree of correlation (with an increase in one leading to a decrease in the other) between capex and opex needs.

The development of the WACC by the ESCoV clearly shows that there is a great deal of error in assessing the values for each of the key inputs resulting in excessive subjectivity. In the "Great WACC Debate of 1998" the regulators were convinced that single values for ERP and equity beta were applicable. Recent analysis shows that this assumption is incorrect, leading to the need to benchmark the outcomes of the WACC development. Work by EUCV indicates that the outcome of the WACC development by ESCoV is not in keeping with competitive market outcomes.

The ESCoV is required by its Act and by the National Electricity Rules to take heed of recent decisions of other regulators. With regard to equity beta, the ESCoV has failed to do so, despite its own analysis indicating that these other recent decisions may be conservatively high.

The ESCoV has received the results of a number of independent studies indicating that the commonly held values for equity risk premium and equity beta are too high, yet these studies are effectively discounted.

The EUCV notes that regulators are being convinced by the DBs that to encourage new investment, the WACC for all assets needs to be high. The EUCV examines this assertion in detail, and finds that there are sound reasons why the regulators should use different WACCs for existing assets and capex, with a lower value of WACC for existing assets, and perhaps a higher WACC for capex which could continue for a fixed period of time.

The EUCV is concerned that the conservatism the ESCoV applies to each input to the development of the price cap has a compounding effect. The EUCV is of

the view that this compounding of conservatism leads to consumers paying a premium (estimated as high as 30%) for the regulated tariffs.

The principle of an incentive scheme to encourage improved service standards is supported. The EUCV provides an analysis of the basics underpinning an incentive program and identifies that the approach proposed by the ESCoV does not comply with best practice. In particular the standards proposed do not imply sufficient challenge to warrant payment of any bonus for improvement, nor does it require the DB to focus its attention to areas most in need of service improvement.

The EUCV sees that funding the DBs for demand side responsiveness (DSR) has the potential to increase costs to consumers but deliver little benefit to the networks or assist in avoiding costs which consumers would otherwise bear. On this basis the EUCV cannot support providing additional distribution revenue to the DBs for investigating demand side activities, although the EUCV does consider that a separate forum which would include regulator, DBs, consumers, generators and generator developers, to discuss this important issue should be convened. Out of the forum there may be a decision to provide funds for the DBs to investigate their ability to provide cost effective DSR.

Overall, the EUCV is of the view that the ESCoV has not provided a review with appropriate outcome which balances the competing needs of consumers and the DBs as is required by the National Electricity Rules. Further the EUCV is of the view that the ESCoV has continued the practice of its fore-runner (the ORG) in providing too much conservatism in its decision, all of which favors the network owners.

## 1. PREFACE

### The EUCV interest in the EPDR review

This submission has been prepared by the Energy Users Coalition of Victoria. This organization represents the larger users of electricity in the state. The group includes such companies as BlueScope Steel, Holden, Ford, Toyota, OneSteel, Air International and Unidrive. This submission is also intended to represent the interests of suppliers to these companies as well.

The companies in the group (and their suppliers) have identified that they have an interest in the ESCoV review as the **cost** of the distribution networks services comprises the largest cost element in their electricity bills.

Electricity is now the main source of energy required by each EUCV member in order to maintain their operations. A failure of supply of electricity effectively shuts down each business now operating in Victoria, and EUCV members are no different. Thus the **reliable supply** of electricity is an essential element of each member's business.

With the introduction of highly sensitive equipment required to maintain operations at the highest level of productivity, the **quality** of electricity supplies is becoming increasingly important. The variation of voltage by even small amounts now has the ability to shut down critical elements of many production processes. Thus EUCV members have become increasingly more dependent on the quality of electricity supplies.

Each of the businesses represented by EUCV has invested considerable capital in establishing their operations and in order that they can recover the capital costs invested, long-term **availability** of electricity supplies is required. If reliable supplies of electricity are not available in the future the investments will have little value.

It is therefore essential that ESCoV addresses the issues which impact on the cost, reliability, quality and the long term availability of their electricity supplies.

### Core issues for EUCV relating to the review

The following is a statement prepared for and circulated to EUCV members in response to the many newspaper articles implying that the electricity DBs were being denied appropriate funds by the ESCoV. It was headed that "the sky has not fallen" on the DBs.

"The electricity distribution businesses are crying "foul" as a result of the recent draft determination of electricity distribution prices. They claim

there is not enough capital expenditure permitted in the draft determination to ensure the long term sustainability of the Victorian electricity networks heading into the future. And that the cut back in the opex will result in reduced quality and reliability. In short, the sky will fall as a result of the savage cuts the regulator has made.

A careful review of the draft determination shows that the regulator has decided on a return on assets effectively higher than that recently awarded by it to the Victorian water businesses. It is also effectively higher than what the South Australian and Queensland regulators awarded to the electricity distribution businesses in those states. Hardly a savage cut.

The electricity distribution businesses have done very well over the past five years. They have earned nearly \$100 million p.a. over the past 5 years in excess of regulated revenues. The regulator has not asked for any of this unexpected and excessive over payment by consumers to be returned, and it is proposing to allow the same price controls which led to this over payment to continue, meaning the businesses can use this freedom to continue to over-recover revenue! Hardly a savage cut.

Over the past five years the distribution businesses spent \$395million pa on capital works. With this expenditure the businesses highlight that they improved reliability and quality. The businesses were permitted to spend more than \$530million pa but obviously decided this was too much. So they pocketed the value of the unspent portion, and the regulator accepted this was fair. The regulator is now allowing the businesses to spend \$450million pa which is a significant increase compared to what the businesses previously deemed necessary to improve the system. Hardly a savage cut.

Over the past five years the distribution businesses were allowed to spend \$425 million pa on operating the networks. They spent \$350 million pa, pocketing the left-over \$75m each year and the regulator accepts this. The regulator assessed this underspend is from “efficiency improvements” and has decided this saving must be shared by giving bonus payments to the businesses in the next regulatory period. The regulator is adjusting the new operating expense allowances to be what were actually used to maintain the networks plus extra for step changes. Hardly a savage cut.

The businesses forecast that growth in electricity usage will be less than 1.3%, yet the actual growth in usage over the past five years was 2.23%. The regulator has based its forecast on a value which is in keeping with the Victorian government forecasts for State growth. The regulator’s forecast certainly has more credibility than the businesses forecast which, if correct, would mean that Victoria is headed for a recession!

So where are the “savage cuts” to reasonable financial allowances that the draft determination is supposed to have made?

In equivalent dollar terms, the Victorian electricity distribution businesses are getting more money than what they actually used over the past five years to improve reliability and quality of electricity supply.

- They get a higher equivalent return on assets than their SA and Queensland counterparts, and the Victorian water businesses
- They get to keep all of the money they didn't spend over the past five years
- They are allowed more capital expenditure than they used over the past five years
- They are allowed more operating expenditure than they used over the past five years
- The forecast growth rates are in keeping with Government forecasts of State growth
- They will still be able to adjust tariffs (called “rebalancing”) as they did over the past five years and so still able to get more revenue than is intended.

From consumers' point of view, the draft determination is anachronistic. It provides excessive rewards for strategic bottleneck monopoly infrastructure. It will have detrimental impacts on downstream investments and on consumer interests. It goes against the objectives of national competition policy, which are intended to encourage upstream and downstream investments and employment, and not to reward monopolies and so create a nation of rentiers.”

### **Longer Term Trends Also Produce Poor Outcomes for Consumers**

It is useful to take a longer term view of the impact of the regulatory oversight on consumers by examining the past **nine years** (covering the period of deregulation in Victoria). Arising from regulatory decisions have been the following outcomes:

- Consumers have been overcharged nearly \$750m in excess of revenues set under regulated tariffs, and yet the regulator has chosen not to rectify this overcharging, or claw back any of these over payments
- Despite earning excess revenues, the businesses have consistently under funded the networks (both in opex and capex), but the penalty for any future failure of network services will fall

predominantly on consumers, as the businesses will suffer only minor reductions in revenue for failure to supply. The loss of electricity supplies will create major problems for consumers.

- Consumers have consistently been paying more for opex than that expended by the businesses, to the value of nearly \$500m but rather than this amount being returned to consumers for opex that should have been spent in the earlier regulatory period, the regulator is proposing to allow this levy to remain with consumers
- Consumers have been paying a regulated return on \$750m of unspent capital. The cumulative effect of this is that consumers have been levied over \$250m for paying a return on money never spent, and to add insult to injury, the regulator is not proposing that the businesses return this unearned benefit they have received.
- Against this backdrop, at best the consumers have received a marginal improvement in some performance standards, although even this is in considerable doubt as consumers have been dissatisfied with the quality and reliability of electricity supplies in many parts of the State.<sup>1</sup>

---

<sup>1</sup> In addition to submissions from EUCV, see also the responses to the Issues Paper and Position Paper from Lavers Hill and District, South Gippsland Shire, Melville, Glenaire, Corkin, Vella, Mulder, Johanna Seaside Cottages, McGown, Kapinta, Valentine, Dairy Processing Power, Uncle Toby's, Brons, Vililich, WHYLD and CUAC.

## 2. OVERVIEW

There has certainly been a strong aggregate performance record by the electricity distribution businesses in Victoria over the past decade, and the draft decision points out this in relation to the core business of distributing electricity.

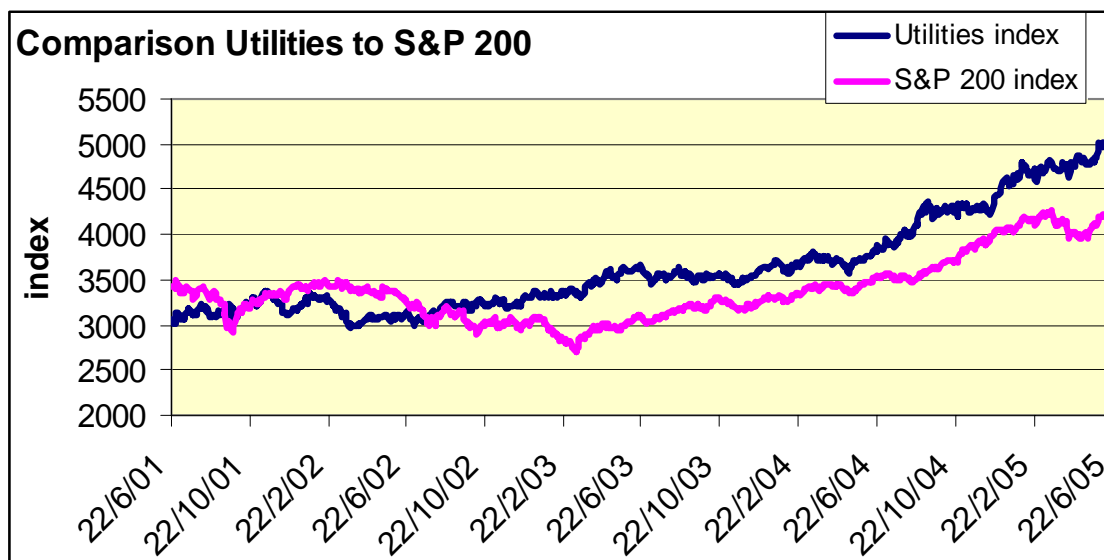
There is no doubt that the electricity distribution businesses have been able to accommodate an increase in demand and total usage over the past years, and at the same time improve (at least in some areas) the reliability and quality of supply.

Equally it must be pointed out that the regulatory environment they have experienced has been one of extreme “light-handedness” which has allowed them the ability to:-

- over-achieve on regulated revenue,
- underspend on allowed opex and
- underspend on allowed capex.

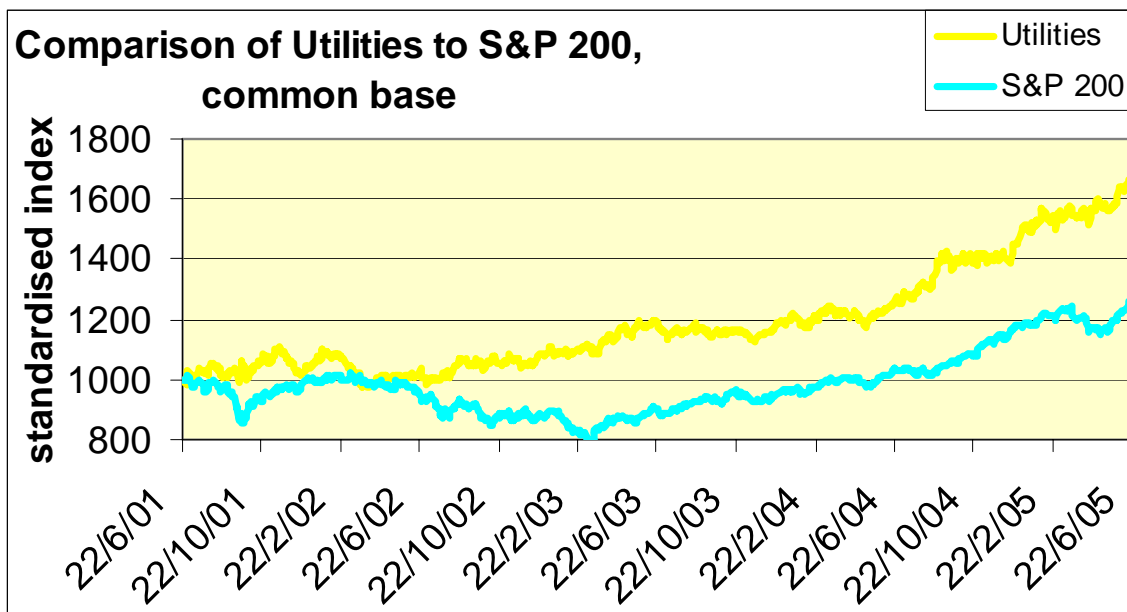
### The main aspect of out performance has been in profitability

As a result, the profitability of the five businesses has been extraordinary, especially when compared to the rewards achieved by businesses in higher risk markets and with lesser guarantees of revenue. This can be seen by the increase in value attributed to the Utilities index compared to the S&P 200, which is used as a market marker.



Source: CommSec

Whilst it is clear that the Utilities index has outperformed the S&P 200 index, the comparison is to a degree quite misleading as the two indices do not have a common starting point. Converting this graph to a common base shows that with the exception of about 1% of the time, over the past five years the Utilities index has regularly outperformed the S&P 200.



Source: CommSec, Headberry and Lim

This “common base” chart shows that the Utilities index has outperformed the S&P 200 during the past five years (by as much as 40% in 2003) and is currently ahead by some 30%. There is little doubt that Utilities have been a leading choice of investors over the past five years!

Thus the electricity (and gas) distribution businesses demonstrated that they are great investments on equity markets. That there has been a demand for Utilities stock is reflective of the security of the investment class (consistently referred to as “defensive stocks”), an ability to over recover revenues by tariff adjustments, underspending on opex and capex, and the high returns they generate on their assets compared to the average businesses in the economy.

This sentiment is supported by the observations of Mr Martin Duncan, (JP Morgan equity strategist) who comments that investment in Australian gas pipelines is

“... an annuity income stream that is reliable and defensive and has some natural growth built into it as the demand for gas increases. ... The most compelling argument for packaging defensive assets such as pipelines into

investment trusts [is] not short-term jitters about global economic growth ... but a broader demographic shift. .... [with] baby boomer [investors] ... looking to ... opportunities with a safe steady investment stream.”<sup>2</sup>

In the same article Mr Hugh Giddy (portfolio manager with Perennial Value Management) comments

“[Gas pipelines] have a steady cash flow ... are low growth but they have high dividend yields – which is why they are considered defensive ...”<sup>3</sup>

As there is clearly a demand for such stocks in a portfolio of investments there is little reason for Australian regulators to continue to provide such regulated businesses with the opportunities to make such outrageous profits, (particularly when coupled with high returns on assets in order to “encourage investment”), especially when it is so obvious that they so easily outperforming the market as a whole.

### **Is the DB service performance as good as the ESCoV avers?**

As indicated in the preface, there are many consumers who have been less than impressed with the DBs performance.

- In some areas of the state, reliability and quality of supply have actually fallen whilst the businesses have made super profits.
- There are many business consumers who are paying high prices for electricity distribution supply<sup>4</sup>, thereby being even more disadvantaged relative to international and inter state competition and endangering their competitiveness, whilst the local DBs are able to earn excessive revenues above regulated levels.

Despite these failings for many consumers, the underspend in opex and capex has been translated by the regulator into an “efficiency carryover” into the new regulatory period valued at over \$60m. This sits uneasily for those consumers who received lesser performance from their DB (possibly due to the underspend), and who are expected to pay a contribution to the DB for its supposed improvement in efficiency as measured by its underspending in opex and capex. This means that these consumers face a double jeopardy situation and the issue should be properly addressed by the ESCoV.

It is noted that the ESCoV is intending to

---

<sup>2</sup> See Australian Financial Review “Big utilities stepping on the gas” by James Hall 13 July 2005

<sup>3</sup> Ibid 13 July 2005

<sup>4</sup> See submissions from Geelong, Bendigo, Uncle Toby’s, Dairies, Bruck, etc

“secure and enhance this recent performance record into the future”<sup>5</sup>

by monitoring and augmenting the incentive framework applying to the businesses.

Consumers expect more than this and would require the ESCoV to increase the accountability of the DB's and to look carefully at future opex and capex requirements. It is agreed that there must be sufficient cash available from tariffs to ensure that the DBs do provide an electricity network which is reliable now and into the future. The ESCoV must take equal care to ensure that the DBs are not excessively rewarded into the future as they have been in the past, with a continuation of the historic over-recovery of revenues and the persistent underspending on opex and capex.

### **The 2011 review**

The ESCoV advises that it is considering a new indexed approach to the 2011 review by using the concept of “Total Factor Productivity” (TFP) and that during the new period (2006-2010) it will examine this approach in more detail. The EUCV supports any approach that reduces the amount of time dedicated to setting new revenue requirements and commits to being involved in this new approach.

Equally, the EUCV recommends extreme caution as the preliminary analysis of the TFP approach assumes that the expenditure used as the base, is the optimum required to just provide the funds necessary to maintain the networks rather than provide excess funds for the businesses to take as profits. There is considerable concern that the DB's, aware that the new approach will set the new “base costs” for the TFP, will adjust their expenditure accordingly in the new period so as to establish a higher than optimum base cost to carry forward into the new price setting approach. It takes little imagination to consider the DBs will take a longer term view for future excess profits over a short term loss by excessive spending of opex and capex if such an approach locks in surplus funds effectively forever.

**EUCV warns the ESCoV that it must not allow this situation to occur as it will substantially disadvantage the longer term viability of the manufacturing sector in Victoria, already under intense competition from low-cost manufacturers overseas.**

---

<sup>5</sup> Draft Decision page 2

### 3. FORECASTING

Much of the basis for the claims by the DBs for increased allowances for opex and capex are based on their forecasts, which are dependent on the DBs own growth forecasts (both in demand and volume usage). The ESCoV must treat these forecasts cautiously as the DBs have not demonstrated a sound track record in forecasting. Whilst we acknowledge that forecasting is not an exact science, we note the DB's uncanny ability to make forecasts that actually advantages their interests in a perverse way.

For example, at the last review (in 2000) the DBs provided the forecasts for capex and opex needed for the year 2000, as these estimates were to be used in the setting of the allowances in 2001. In aggregate, the DBs forecast an expected capex spend of some \$530m in 2000 and of \$630m the following year. Bearing in mind that these estimates were prepared in early 2000 it would be expected that the forecasts would be reasonably good estimates. In fact the actual capex spend for 2000 in aggregate was just over \$400m in each year. That is, in some 18 months the expected capex was overestimated by some \$250m, **an error of over 30%**. This is a remarkable error, given that there was such a short interval between estimate and actual spend.

Similarly with opex. In early 2000 the DBs forecast an opex requirement of nearly \$500m for 2000 and rising to nearly \$550m in 2001. The actual opex spend in 2000 was about \$370m falling to some \$330m in 2001. This means that in 18 months the expected opex was overestimated by over \$300m, **an error of over 40%** in the very short interval between estimate and actual spend.

In the 2000 review the DBs in aggregate forecast<sup>6</sup> that there would be an increase in demand and volume over the period of 2001 to 2005 as follows:-

- Consumption 1.87% pa
- Peak demand 3.23% pa
- Customer numbers 1.21% pa

In reality the actual amounts<sup>7</sup> recorded in aggregate for the first three years of the period (2001-2003) were:-

- Consumption 2.25% pa
- Peak demand -0.84% pa
- Customer numbers 1.52% pa

---

<sup>6</sup> See ORG Final Decision 2000, Table 3.1, calculated weighted average

<sup>7</sup> See ESC Issues Paper Table 7.2, calculated weighted average

The **error factors ranged from 20% for consumption to 125% for demand.** This is a particularly poor forecasting record when considering the forecast period was over a short three year time frame.

The impact of a 20% error in the volume forecast is effectively a 20% increase in the revenue earned, which equates to more than \$200m pa additional revenue for no sound business reason. This forecasting factor alone would be responsible for the revenue overrun actually observed over the past eight years.

It is not surprising that **all of the forecasting errors resulted in a significant benefit to the DBs.** The underestimate for consumption would have allowed the DBs to garner significant increased revenue as the resulting tariffs would end up as being too high and the higher than resultant growth in numbers and peak demand provided a strong argument for the higher than required capex. As noted above, the businesses significantly underspend their allowed capex. These errors also had an impact on the X-factors set in the final decision by ORG.

Thus the actual experience involving the DBs ability to forecast their own opex, capex, and growth shows that there must be considerable doubt and credibility cast on the robustness of their forecasts, both from the stand point of the high error levels identified, and that the errors all acted to increase the revenue to the DBs, at the expense of consumers..

The fact that the DBs (and the ORG) got the forward estimates so grossly wrong and as a result contributed to the excessive payments that had to be made by consumers is of great concern. That the ESCoV now states that they will not “claw back” any of the results of the earlier mistakes of the ORG and the errors of the DBs, means that there is a strong perception that the regulator is biased against the needs and rights of consumers and will consistently err in favour of the DBs. It must be expected that the DBs’ will always err in their forecasts to favour their own interests. The regulator’s job is to balance the interests of the DBs’ and consumers, and not to show any bias.

### **The ESCoV decision on forecasts**

In its draft decision the ESCoV implies that the forecasts made by the DBs would effectively be equivalent to forecasting a major slow down in the Victorian economy – perhaps even to the extent of forecasting a recession in the State. As no other reputable forecasting body or even commentator expects that Victoria will have such a massive slow down in its economy, then there is no doubt that the DBs’ forecasting is, again, likely to be in error and by a huge margin.

Forecasting consultants have a desire to be seen as conservative as businesses which use such services prefer that this be the case when the forecasts are used to provide a business case for investment or predicting profitability to their

shareholders. On this basis the NIEIR forecasts should be seen as conservative, and so their base case range forecast is likely to understate the true position of the state growth.

The State government has forecast a growth in the State<sup>8</sup> of between 3.2% and 3.5% over the coming years and this is the relevant benchmark for the regulator to use. The implications for any error by the state forecasters are significantly greater than for the DBs and so there should be a greater reliance on such forecasts than those developed by a party which is incentivised to err in its own favour.

The EUCV considers that the ESCoV should use the official State Treasury forecasts for Victorian growth as the most appropriate to use for the setting of tariffs by the DBs. If this is not the case, it is incumbent upon ESCoV to justify the use of non-official state forecasts and to explain where and why the official forecasters are incorrect.

In its draft decision, the ESCoV is permitting an overall compound growth in

- customer numbers<sup>9</sup> of 2.0% (c/f actual 01-03 1.52%)
- peak demand<sup>10</sup> of 4.18% (c/f actual 01-03 -0.84%)
- and consumption<sup>11</sup> of 2.64%. (c/f actual 01-03 2.25%)

That there is a difference between growth numbers in demand (mainly weather driven) and customer numbers (mainly residential housing growth) from the GSP growth forecast of 3.3% is to be expected, although the expectation of both the NIEIR and MMA reports on expected growth for residential consumers to minimize their usage of electricity as a result of pricing factors is an assumption yet to be proven, especially with the high growth of electric driven appliances and the reducing capital costs of electricity consuming appliances, making these more available to a larger range of consumers.

However, for the ESCoV to accept that there is to be such a large variation in the growth in consumption by nonresidential consumers from the GSP is quite concerning, as the expectation is that of all the aspects of state growth the consumption by nonresidential consumers of electricity would reasonably be coincident with GSP.

A review of the equivalent reports provided by MMA to IPART and QCA shows that there is a higher rate of correlation between GSP and non residential electricity usage than the 0.65 factor suggested by MMA for Victoria, with

---

<sup>8</sup> ESC DD page 131

<sup>9</sup> Weighted average of all DBs from ESC DD table 4.1

<sup>10</sup> Weighted average of all DBs from ESC DD table 4.3

<sup>11</sup> Weighted average of all DBs from ESC DD table 4.2

correlations for NSW being  $>0.8$  and for Queensland being greater than unity. This implies that either Victoria has a totally different nonresidential usage pattern of electricity to these other states (which is unlikely and not proven), or the correlation for Victoria is higher than that suggested by MMA. Intuitively an increase in output of the same products would have a closer correlation to unity for electricity consumption. Further, the large variation of the fixed element in the MMA equations used to replicate electricity growth in the three states, throws significant doubt as to whether the correlations have validity over a wide range of inputs.

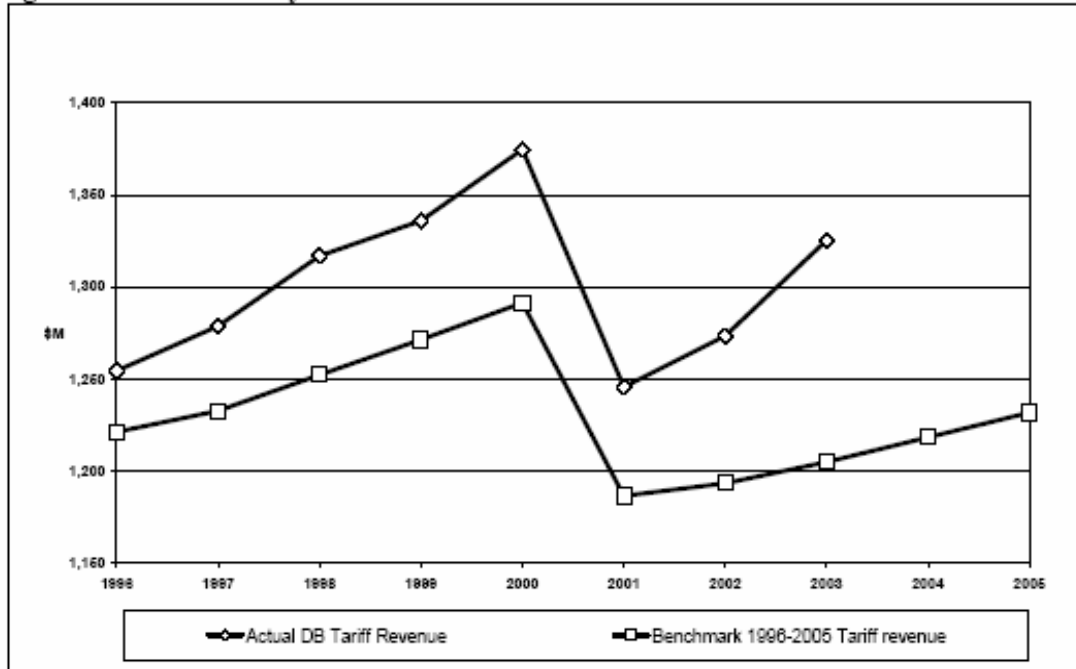
The growth assumed and included in the draft decision by the ESCoV in consumption is some 25% below the forecast GSP of 3.3% whereas the expectation would be that electricity consumption would be of a similar order to GSP.

**The EUCV considers that the ESCoV will be in error if it does not use the State Treasury's official forecast for GSP. If the ESCoV persists with using a more conservative view of Victorian growth in consumption over the next five years, then it must recognize that it has taken this more conservative input to the tariff development and that this will in all likelihood result in higher prices to consumers by as much as 25% with a similar favorable increase to the DBs approved revenue. The EUCV reiterates that the ESCoV must clearly state its reasons if it is not to adopt the official State GSP forecast.**

## 4. REVENUE

Over the past nine years, the DBs have been able to consistently exceed the benchmark revenue set by the regulators (Government in 1995 and ORG in 2000) and this is shown in the following chart (figure 1.5 in the ESCoV Position Paper) extracted from the ESCoV Position Paper<sup>12</sup>

**Figure 1.5: Industry tariff revenue — actual and benchmarks**



Source: ESCoV Position Paper

The ESCoV points out in the Position Paper that this was a result of the

“...actual consumption [being] greater than forecast and, as a result, and in conjunction with tariff restructuring, [there was] significantly higher tariff revenue than the benchmark tariff revenue.”<sup>13</sup>

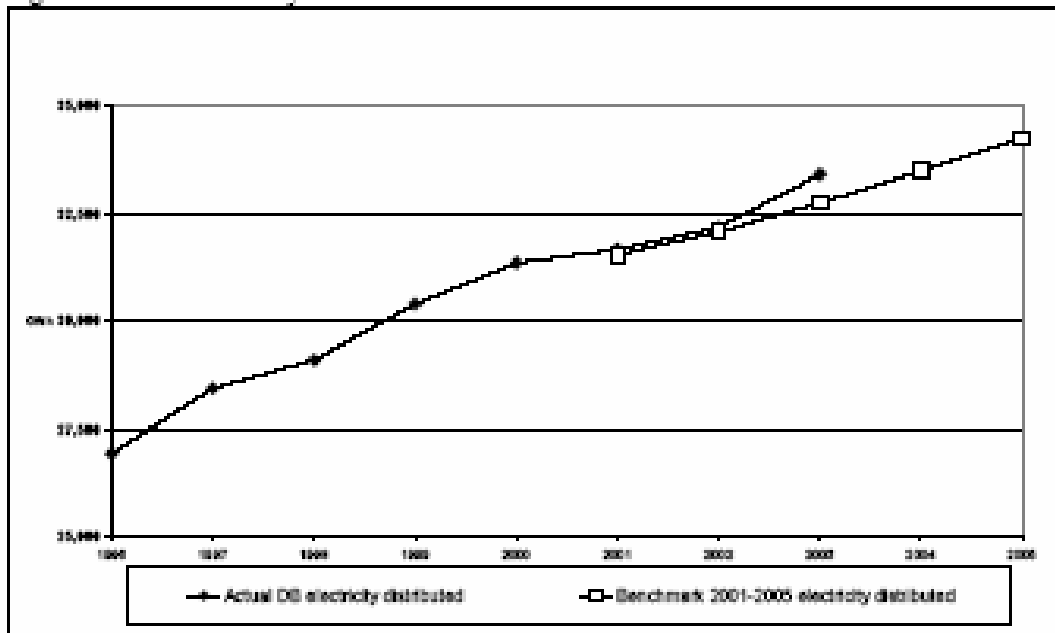
The following chart<sup>14</sup> (figure 1.4 in the ESCoV Position Paper) shows that forecasting errors would appear to be the lesser element of the cause of the revenue over recovery, particularly in the early years where forecasts and actual tend to track quite closely. The trend of benchmark divergence from actual matches an increasing and very large divergence apparent from the revenue benchmark.

<sup>12</sup> ESC Position Paper page 17

<sup>13</sup> ibid page 15

<sup>14</sup> ibid page 17

Figure 1.4: Industry GWh distributed — actual and benchmarks



Source: ESCOV Position Paper

Whilst the impact of this tariff rebalancing on revenue has not been quantified by the ESCoV as a separate activity from the additional revenue flowing from the forecasting errors, it is quite apparent that the tariff rebalancing element of the over recovery is the larger element as the variation between forecast and actual consumption in the early years is essentially the revenue differential as consumption forecasts at this time are quite close. From this, it could be assumed that the over recovery from tariff rebalancing could exceed \$50m pa, with the balance of the over recovery coming from forecasting divergence. On this basis about half of the over recovery of over \$600m for the five years might well be attributed to tariff rebalancing.

Benchmark revenue is identified as being the appropriate revenue for the activities involved in providing the service and for providing an adequate return on funds for the assets involved in providing the service. Thus in principle the regulator is expected to ensure that the regulated businesses only receive the benchmark revenue and if the benchmark is exceeded then the reasons are identified and actions put in place to ensure that there is no repeat of unjustified windfall revenue to swell the profits of the regulated businesses.

Regulation is expected to provide a discipline on a monopoly service provider on its undeniable ability to extract monopoly rents, and to provide competitive market pressures. If the benchmark revenue is exceeded then this shows that the regulator has put in place insufficient constraints to ensure the required

outcome and so therefore has permitted the regulated businesses a better return than what would be achieved in a competitive environment.

It is thus of concern that the ESCoV goes on to state that:-

“Of interest is that the distributors have estimated tariff revenue in 2004 and 2005 to remain constant at 2003 levels despite the growth in tariff revenue that has occurred in the immediately preceding period.”<sup>15</sup>

That the ESCoV makes such a 'muted' observation that the constraints put in place by the ORG in 2000 have been shown to allow the regulated businesses to continue to earn excess revenue above benchmark of over \$150m pa for the last two years of the current regulatory period is of considerable concern.

**Through utilizing poor constraints, forecasting and benchmarking in 2000 the regulated businesses have been permitted to exceed their benchmark revenue throughout the current regulatory period by over 10% purely by doing absolutely nothing than having successfully gamed the regulator in 2000.**

This excessive revenue above benchmark revenue is attributed by the ESCoV to be derived from two main sources.

**1. Low forecast growth.**

Some of the excess revenue has been attributed to a greater than expected growth in consumption. In a price cap access arrangement, forecasting of consumption is a critical element for setting tariffs. Under-estimating the forecast consumption results in higher tariffs at the start of the regulatory period, and the growth above the forecast delivers an enhanced revenue without any other action required by the DB's.

**2. Tariff rebalancing<sup>16</sup>.**

---

<sup>15</sup> Ibid page 15

<sup>16</sup> Rebalancing is the approach used by the DBs to change the tariffs they charge for various services. As the regulator has accepted that the tariffs might not be cost reflective, it is accepted that tariffs can be rebalanced, but to ensure against excess revenue taking there are limits placed on the extent each tariff can be varied each year. Overall a "basket of tariffs" was used by the ORG to limit the amount of overall movement away from the revenue set. If the tariffs are cost reflective and kept that way, the ORG would have expected that the revenue achieved by the businesses will replicate the forecast revenue set allowing for revenue increases resulting from increases in growth above the forecasts. Thus if the business operates in a cost reflective way and volume/demand forecasting is accurate, the revenue should have closely followed the forecasts set in 2000. The revenue earned by the businesses has grossly exceeded (by over 10%) the revenue forecast in the review by ORG in 2000.

The balance of the excess revenue is attributed by the ESCoV to result from “tariff rebalancing” or as EUCV put it in its response to the Position Paper to “tariff manipulation”.

The DBs have however found a way to maximize revenue within the rules set by the ORG. This is to reduce the tariffs where there is a lower than expected growth (and therefore revenue) and to increase the tariffs where there is higher than expected growth. Overall the basket of tariffs remains within the bounds set by the regulator for assessing changes, but allows a greater revenue to be levied from consumers by the DBs – and all within the rules. Alternatively the businesses have eliminated tariffs where there is low recovery and replaced them with tariffs with higher recovery, although to do so required the formal agreement of the ESCoV.

This approach by the DBs has nothing to do with efficiency or clever management – it is using the tariffs to recover more revenue than would be achieved by accurate cost reflective pricing. The actual revenue (which is the money earned from the tariffs) is shown in the above graph 1.5 developed by the ESCoV in its position paper. The over-recovery of revenue exceeds \$600m in the 8 years to 2003 and the ESCoV implies by its comment above that it looks like increasing further in years 2004 and 2005.

The approach to increase tariffs where the growth is higher and to decrease the tariffs where the growth is lower is counter to cost reflectivity and inconsistent with the provisions in the National Electricity Rules.

As discussed in the following subsection, the Tariff Order (sections 5.3 to 5.5) effectively expects that the revenue allowed each of the DBs in each year of the ensuing regulatory period, when adjusted for inflation, transmission charges and variations in actual consumption from forecast, replicate the revenue permitted each year by the regulator

The basis of the TO requires that the ESCoV assess the actual revenue achieved and to ensure that when the adjustments are made to the allowed revenue for consumption, transmission charges and inflation, the revenue earned and the allowed revenue are the same.

**The ESCoV has made no attempt to demonstrate this essential consistency, and by failing to do so has permitted the DBs to retain unearned revenue by the manipulation of individual tariffs. The ESCoV must state its reasons for failing to act in this regard.**

## **WHAT IS BEING DONE ABOUT THIS OVER RECOVERY?**

Having identified there is a problem is the first step, but the current review must include steps to prevent the DBs from repeating this excessive over recovery of revenue in the next regulatory period. Intellectual enlightenment is not a substitute for taking action to prevent consumer interests from being disadvantaged again.

### **Forecasting**

The fact that the ESCoV has identified that the businesses have carefully used the regulatory processes and rebalancing to generate and revenue which grossly exceeds benchmark so successfully leads consumers to demand that the regulator provides closer analysis to forecasting, and to impose closer controls on the constraints to prevent the businesses from using tariff rebalancing. This is required to prevent greater financial contributions from consumers than the ESCoV sees as appropriate for the service provided.

In this regard it is pleasing to see that in the draft decision the ESCoV has not accepted the consumption and other forecasts provided by the businesses. It has instead secured input from a number of sources and has assessed that the forecasts by the businesses are seen as being excessively low.

The EUCV views on the growth forecasts used by the ESCoV are included in an earlier section headed "Forecasting". The EUCV is of the view that even the forecasts used by the ESCoV in its draft decision are far too conservative.

### **Cost reflectivity**

In its draft decision the ESCoV has advised that the DBs are to develop a set of tariffs which comply with the following principles:-

The pricing principles for distribution network tariffs will consist of the following three principles:

- Tariffs for each customer should generate revenue in excess of the avoidable cost to service the customer;
- Tariffs for each customer should generate revenue less than the cost of providing the service on a stand-alone basis to the customer; and

- Tariffs for each customer should signal the impact of additional (peak) usage on future investment costs.<sup>17</sup>

A review of the Victorian Electricity Industry Act (2000) and the associated Tariff Order gives little direction to the regulator as to how tariffs should be developed other than to ensure there are limits, but the National Electricity Rules do provide better constraints:-

**“Cost reflective pricing**

*Network* prices should in principle be cost reflective. This is to facilitate the competitive *market*, by providing equitable access to the *network* and ensuring that appropriate investment in the *network* takes place in the longer term.

It is intended that all *Network Users* should be charged on a consistent basis, in accordance with their use of *network* assets and taking into account the impact of *network constraints*”.<sup>18</sup>

The clear import of the Rules (formerly the Code) is that the network owners **are** required to price the tariffs in a cost reflective way and the Rules includes a number of examples as to how it sees this being done.

However, if the regulator never verifies that the network owner has indeed set its tariffs so they are near cost reflective, then the network owner is at liberty to set the tariffs in any fashion it wishes with impunity. In fact the only control on the way the tariffs are set is that if the network owner gets them wrong, it can suffer a loss of revenue if the basis of individual demand forecasts is incorrect. This very pressure is an incentive to the network owner to bias the tariffs to ensure that if there is an error, that it works in favour of the business. The most obvious outcome of such bias is that the network owner will set tariffs to give an increase in revenue if there is an error.

This outcome has been so obviously demonstrated by the Victorian DBs in the current period when even in the first year (2001) when consumption forecasts were reasonably correct, the DBs were able to secure over \$50m in additional revenue above the benchmark revenue identified by the ORG as being appropriate. Revenue above benchmark in later years (2002 and 2003) has increase in size dramatically through the combined impacts of increased consumption above forecast and the tariff rebalancing.

---

<sup>17</sup> ESC draft decision page 381 and 382

<sup>18</sup> National Electricity Rules (formerly Code) **Schedule 6.7 - Principles for Network Pricing**  
Schedule point 1

The EUCV in its response to the Position Paper advocated that tariffs should be verified to be as close to cost reflective as possible, eliminating over recovery of revenue due to tariff manipulation. The ESCoV states in response that:-

“The principle of ‘cost reflectivity’ for assets which have a significant sunk cost component does not lead to any additional restrictions on prices other than those which are already incorporated in the Commission’s pricing principles. The cost of fixed assets can be efficiently allocated between customers in any number of ways. The restrictions on this allocation (and the recognition of the benefits to individual customers from sharing these assets rather than constructing stand-alone facilities), are already reflected in the Commission’s pricing principles.”<sup>19</sup>

If the ESCoV statement is to have validity, then one of two conclusions only can be drawn.

1. The ESCoV is apparently content for the DBs to continue to over recover revenue by tariff manipulation. That is, if the DBs can financially engineer the outcomes of the regulatory review then this should be allowed to continue at will, despite the requirement of the ESCoV to establish an outcome which meets the needs of consumers as well as the regulated businesses, or
2. The ESCoV believes that cost reflectivity can only be achieved by assessing the stand alone value of a supply to a consumer. This is patently absurd. Cost reflectivity is about allocating the actual costs identified by the regulator on an equitable basis to all consumers so that the business receives its benchmark revenue and consumers gain the benefit of aggregated usage and sharing the value of diverse and dispersed usage.

**In order to ensure that cost reflectivity is used as the basis for developing tariffs, the ESCoV has a responsibility to ensure that the DBs do follow the principles of cost reflectivity and to remove the current discretion available to them to manipulate tariffs to enhance revenue.**

---

<sup>19</sup> ESC draft decision page 382

In fact the Tariff Order (TO) under which the ESCoV is to set distribution revenue clearly implies that the principles of cost reflectivity should apply to the allocation of tariffs, and that the sum of all tariffs multiplied by the usage made in each tariff results in the DB receiving the forecast revenue from the most recent review, adjusted only by the change in actual consumption recorded in each year.

Clauses 5.3.1 and 5.3.2 of the TO requires that the actual “weighted average of distribution charge (WAC)” (the quotient of allowed revenue and actual consumption) does not exceed the “maximum average charge” (MAC) calculated in clauses 5.3.3 and 5.3.4 where the core relationship is to adjust MAC for the previous year allowing for changes in inflation and consumption. The MAC for any year is fundamentally developed from the revenue permitted by the regulator in the first year of the regulatory period.

Thus whilst adjustments for inflation, transmission charges and consumption are accommodated by the TO, the expectation is that the forecast revenue in the most recent regulatory review is essentially maintained.

When the various formulae are broken down to their constituent elements, it is quite clear that the revenue permitted from each tariff class should bear some relationship to the cost of providing the services under each tariff. It is therefore incumbent on the DBs to demonstrate that the individual tariffs approximate cost reflectivity.

## **Rebalancing**

The ability by the DBs to increase revenue by rebalancing appears not to be directly addressed in the draft decision. There is discussion as to why the current controls should be retained and the limits of varying tariffs retained at current levels, but the ability by the DBs to maximize revenue within these controls is not addressed.

The ESCoV has stated quite clearly at public meetings that it will not use “clawback provisions” to prevent the DBs from over recovery of revenue or underspend on opex or capex. It seems that there is no desire by the ESCoV or any other process instituted to limit the over recovery of revenue by this means.

The ESCoV notes in the draft decision:-

“The Commission’s analysis shows that within the overall average tariff re-balancing constraint, distributors have been able to significantly vary tariff components resulting in higher than forecast tariff revenues over the 2001-05 period (in addition to the impact of growth exceeding forecast).

The Commission is concerned that the distributors may be able to re-structure tariffs to maximize revenue rather than increase efficiency in price signals. Retaining the re-balancing constraint and applying transitional measures in the 2006 tariff approval process to link the 2006 tariff approvals to the existing 2005 tariffs limits the ability to do this where it is not also improving efficient pricing signals.”<sup>20</sup>

The ESCoV also notes that embedded networks have the potential to impose greater costs on the DBs. It is because of this the ESCoV has decided that the current practice available to the DBs to manipulate tariffs to maximize revenue should be maintained. That they might well over recover perhaps \$300m or more (equivalent to some \$170 per household in Victoria) under the current regulatory controls does not seem, very surprisingly, to concern the ESCoV at all.

**The ESCoV, even recognizing that DBs do manipulate tariffs to maximize revenue, has elected to maintain the existing controls which will therefore allow this practice to proceed.**

To put this decision into context, because the ESCoV is concerned that the DBS might be negatively impacted by embedded networks, consumers are expected to allow the DBs to over recover some \$60m pa in unearned revenue.

**The EUCV fails to appreciate the logic or the principle under-pinning the ESCoV decision. The ESCoV must put into practice the controls implicit in the Tariff Order to ensure that the DBs do not manipulate tariffs to increase their revenue. It must also, on an annual basis require the DBs to demonstrate that there is consistency between the allowed revenue and the actual revenue when adjustments are made for inflation, consumption and transmission charges.**

---

<sup>20</sup> ESC draft decision page 392

## 5. OPERATING EXPENDITURE (OPEX)

### General observations

The operating expenditure requirement of an electricity distribution services is the supply of funds it requires to operate the network in order to provide the service in the immediate term and to keep the assets in good condition to minimize failure and outages both in the near term and the medium term. It includes both the indirect costs and direct costs associated with these needs.

Whilst opex does keep the assets in good working order and so ensures that the assets will continue to be available for the use intended, it can also be to provide a regime which will ensure the assets operate for their rated operating life, and if properly approached can activity extend the operating life of the assets beyond their rated life. It is expected that opex will include the supply of funds to carry out such tasks as condition monitoring to assess the requirements needed to extend the life of the assets.

**The ESCoV should ensure that the DBs have in place appropriate condition monitoring practices for the assets and that there are sound and well developed asset management programs to maximize the useful lives of the asset elements.**

### The inter-relationship between capex and opex

Although capex and opex are usually independently assessed there is a strong inter-relationship between the two issues. In fact, the benefit of increased capex for most aspects should result in decreasing opex. In the previous review by ORG, the DBs were granted a massive increase in capex, and a modest change to opex.

The EUCV is of the view that the reason for an upward spiral of opex levels in many decisions of regulators results from the misguided but widely promulgated view by electricity transport businesses that *opex rises as a consequence of increasing RAB*. This is totally incorrect. Based on the experience of EUCV companies, there are three reasons why the RAB increases over time:-

1. By replacement of existing depreciated assets with replacement assets (commonly referred to as refurbishment)
2. By replacement of existing assets with larger assets to reflect an increase in demand (commonly referred to as augmentation assets)
3. By extending the reach of the existing assets (commonly referred to as expansion assets)

When examining the opex implications of each of these reasons for the asset base to increase in size, the justification of increased opex can be put into proper context.

(i) Opex from refurbishment

There is no doubt that refurbishment increases the value of the asset base. Replacement of a depreciated asset with new assets will axiomatically result in an asset base increase.

However, the business case for justification of refurbishment is usually presented as a *reduction* in opex. In competitive enterprise such a business case is made on the basis that recovery of the capital will result from the saving in opex, often with a payback duration measured in months, and commonly within two years. If this business case cannot be made the continuing opex related to keeping the asset in working order is tolerated.

Thus, capex related to refurbishment should result in a significant reduction of opex.

(ii) Opex from augmentation

There is no doubt that the replacement of a capital item with a larger unit to accommodate an increase in output will increase the asset base. The replaced item will either be relocated to another point in the business replacing another similar item, held in stock for future use, be sold, or scrapped.

When examining the opex implications of an augmentation, the new item will almost invariably be newer than the replaced item if the asset base is to increase. The issue then is: does the opex requirement for an item increased in size (eg a transformer increased from 10 MVA to one of 25 MVA, or a power line increased in diameter for higher current carrying capacity) require a proportionate increase in opex related to the value of the larger item? The answer to this question is in most cases “only marginally at most”.

It costs the same to monitor a small transformer as it does a larger one, it may take a little longer to replace the oil, but a larger diameter cable or aerial requires the same amount of attendance as a smaller diameter cable or aerial. Newer equipment should require less maintenance than older plant.

In sum total, opex from augmentation should result in a modest reduction as a result of an augmentation of assets.

(iii) Opex from expansion

Expansion of the network results from increasing the reach of the network. This could come from increasing the number of equipment items at an existing facility or from providing a service to a new area not previously serviced. Expansion increases the asset base.

Opex from expansion will increase with the asset base, although not necessarily proportionately. There are two fundamental expansion options – embedded in the existing network and external to the existing network.

Embedded expansion, whilst requiring additional attendance, allows the opex increase to be marginal. An example of this is where a third transformer is added to an existing facility. In this case the time for attendance is a marginal increase on the cost to service the existing two plant items. Another example is where a new power line is erected adjacent to an existing power line, or even off the existing towers. In this case the opex cost should be measured as a marginal increase in cost and not a proportionate increase.

External expansion is where the new items are remote to the existing network and the opex costs will be proportionate to the increase in asset base.

(iv) The opex implications from this analysis

It is the mix of capex (refurbishment, augmentation, embedded expansion and external expansion) that will determine the extent of opex reduction or small opex increase. The greater the refurbishment the greater the opex reduction should be as a proportion of the RAB.

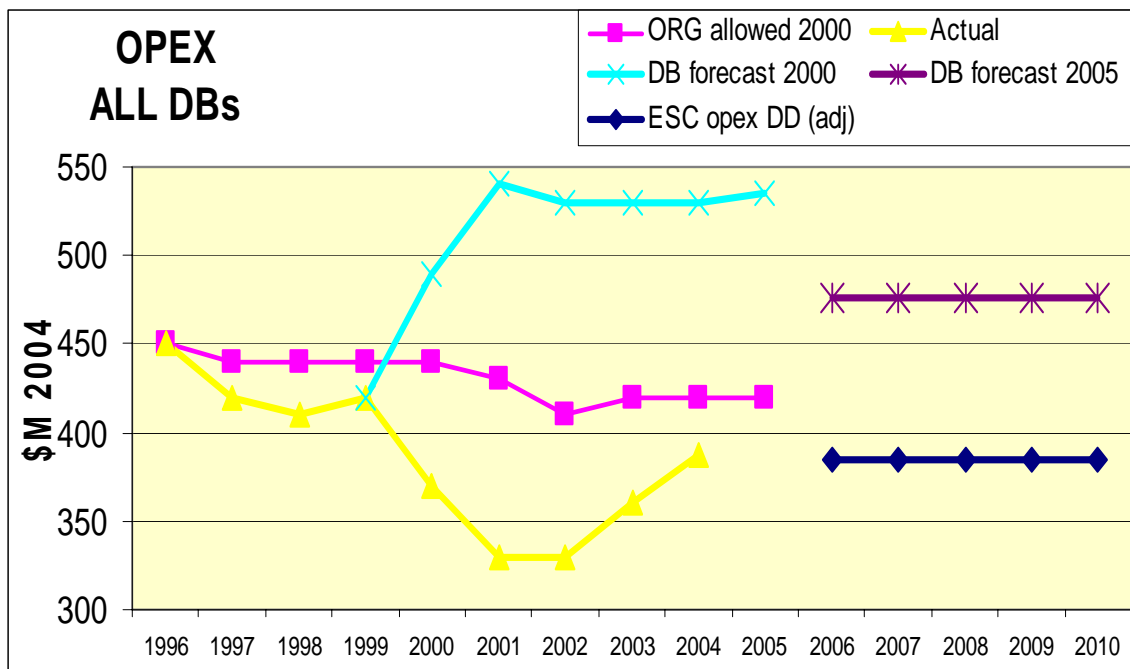
**Setting the opex allowance**

The ESCoV advised the DBs that it intended to use the actual operating expenditure incurred in 2004 as the base for its opex assessment for the 2006-10 period, allowing for legitimate step changes identified to have occurred since the last review. This approach then requires the DBs to follow their continuing practices without any attempt to modify opex practices for the year used as a base.

What we have seen is that in 1999 (the equivalent year to 2004 for the last review) opex rose from previous years towards the key year where it peaked and

then fell dramatically. This is shown on the following graph<sup>21</sup>. This raises the concern that DBs being aware that 1999 was the benchmark year, and deferred work from earlier years of 1997 and 1998 into 1999, and brought forward work from 2000 into 1999, causing an unnatural peak opex in 1999.

In the current period we see that opex has fallen well below the 1999 level, but is now rising and is peaking in the benchmark year, following the same pattern as for the last review. It could be assumed as in 1999 work has been deferred from 2001, 2002 and 2003 and moved into 2004 year. As 2005 year is still to be completed, until next year we will not see whether work from 2005 has been brought forward, but history would lead us to an obvious conclusion.



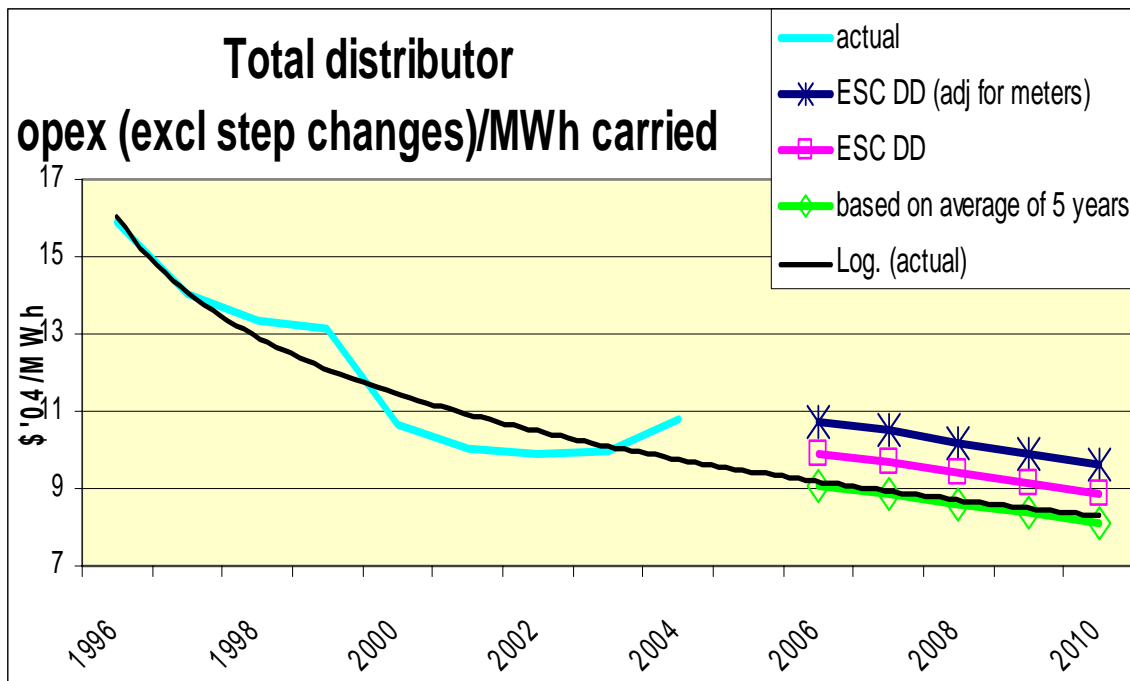
Source: Data from ESCoV and ORG, development by Headberry and Lim

As well as showing the “regulatory gaming” practice used by the DBs in the last review and again for this review, it shows clearly that by using the 2004 actual opex as the base for forward projections, the DBs have been able to get the ESCoV to provide a higher base point than is historically required. A simple average of opex for the past five years (years 2000 to 2004) shows that the opex needed by the businesses is \$355m pa including metering whereas the ESCoV have assessed this same amount at some \$30m pa higher, based on using the 2004 actual opex as the base.

<sup>21</sup> This chart is based on data in the draft decision, issues and position papers. It reflects consistent prices including a metering allowance (historical metering not rollout of IM) for the forecasts. The forward ESC adjusted price excludes the impact of step changes, but does include for historic metering

Thus it is quite clear that the DBs have successfully convinced the ESCoV that they should receive \$30m pa more for opex than they actually used in the past five years.

To assess this premise the following benchmarking graph was developed using consumption<sup>22</sup> (in MWh) as a control as this is a fundamental characteristic (along with peak demand and number of connections) of a network and is the most common element of tariffs.



Source: Data from ESCoV and ORG, development by Headberry and Lim

This shows the cost to consumers for opex related to their consumption. As expected the cost per unit decreases over time as the network becomes better utilized and the trend line added shows that the cost per unit is asymptoting as would also be expected. However what the graph shows is that if the average opex for the past five years is used the outcome sits exactly on the extrapolated trend line providing consistency.

**Thus by benchmarking the opex required (excluding step changes) shows that the ESCoV must use the average of the last five years opex rather than a single year opex. If this is not done then the ESCoV is giving the DBs additional unearned income of some \$30m pa. This approximates to a 10% premium on opex being granted to the DBs.**

<sup>22</sup> The consumption used for this graph is actual consumption to 2004 and then using the consumption forecast in the ESC draft decision pages 142 to 144.

The EUCV has already made its views quite clear about the step changes proposed by the DBs in its response to the Position Paper. The EUCV has not identified any additional explanation provided in the ESC draft decision to change its views that it detailed at length in its earlier response.

However, subject to the ESCoV using the average actual opex over the past 4-5 years, the trend analysis carried out above would support that the proposed step changes calculated by the ESCoV to increase opex above the base would appear to be acceptable. Equally, if the ESCoV persists in using an inflated opex base then adding the step changes, the trend analysis shows clearly that the ESCoV will have provided an opex allowance well in excess of that required by the DBs to manage the network.

As noted above there is a corollary between capex and opex. The ESCoV draft decision is proposing a modest average increase of some 17% to the capex actually used by the DBs over the past five years. The implication is capex rise is that opex levels would therefore be the same as over the past period (as recommended by EUCV above) or even show a slight corresponding decrease.

This corollary review between capex and opex supports the EUCV view that the average opex over the past 4-5 years should be used as the basis rather than a one year opex.

**Benchmarking opex against trends and against capex trends, leads to the conclusion that the average opex over the past 4-5 years is the most appropriate benchmark rather than using 2004 actual opex exclusively.**

### **Future trends in opex**

The ESCoV has forecast that it wishes to move to the Total Factor Productivity (TFP) approach at the next review. The purpose for this is to simplify the review process and utilize factors for setting future opex allowances, rather than examining the issues directly.

While this approach may have some merit, it must be accepted that an essential element of such an approach is that the starting value must be exact. If it is not then the error introduced at the start is compounded into all future allowances. While the DBs would be pleased if the start point is too high, consumers equally do not want to be giving away money for nothing.

With the DBs aware the ESCoV was to use the 2004 actual as the base for the future opex allowance (and particularly knowing that the ESCoV wishes to move towards the TFP approach, the DBs have inflated the actual 2004 opex by deferring work from 2001, 2002 and 2003 into the 2004 year (as happened in

1999) and could well have brought forward work from 2005 into 2004. This would replicate what was observed in 1999 and 2000 when there was seen a massive fall in opex in 2000.

It is unwise to use only one year for developing a five year allowance but to use one year as the basis for an opex allowance effectively forever runs counter to all sensible probability processes. It was because of the impact of probability issues and forecasting that EUCV strongly recommends that ESC use the five year average of opex as the basis for the review and to use these five year figures plus the actual opex needs over the next five years as a moderator.

This is suggested as there is a real concern that the DBs knowing that the next five year actual opex amounts could form the basis of the TFP forecast may well elect to deliberately overspend in opex during the next regulatory period in order to enjoy an overstated opex allowance effectively into the indeterminate future.

Consumers have been significantly over charged for the electricity distribution service for the past 10 years, paying unnecessarily high tariffs and seeing the businesses massively underspend in opex and capex. As a result consumers are very sensitive to the blandishments of the DBs when they see the DBs make massive profits at the expense of consumers.

**The introduction of the TFP approach which removes much of the indepth analysis of the opex and capex trends from scrutiny, needs to be carefully structured and not be exposed to the DBs exercising regulatory gaming to further enhance their cash flow and profits.**

## **6. CAPITAL EXPENDITURE (CAPEX)**

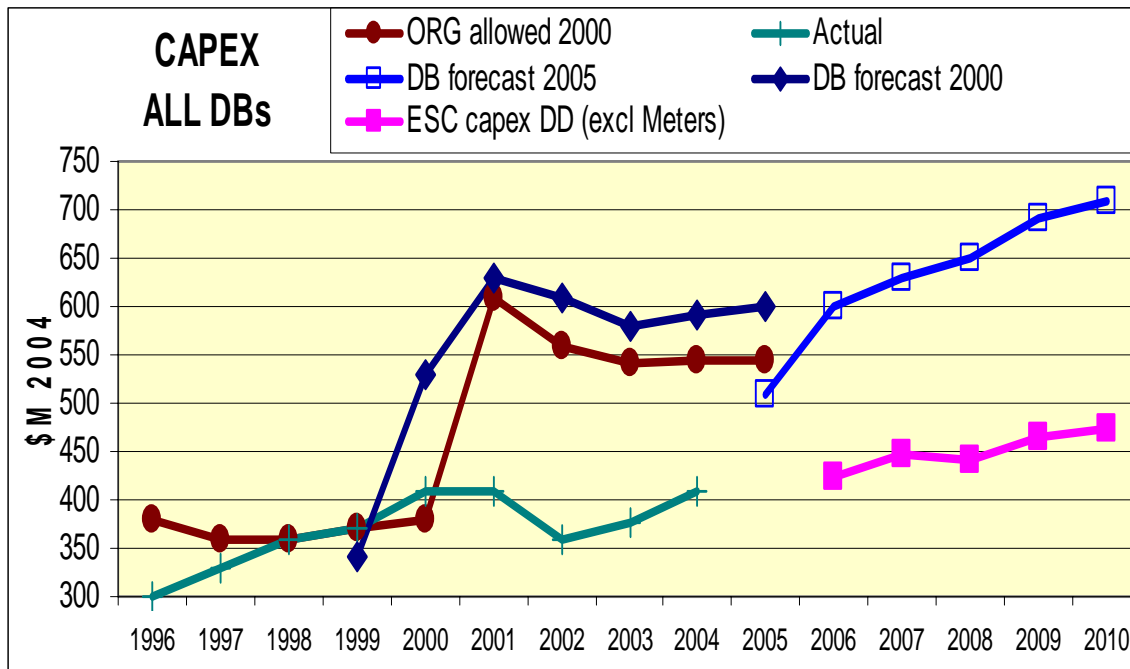
### **General observations and inter-relationship between opex and capex**

In the section of the submission dealing with opex, there is discussion about the inter-relationship between opex and capex. Essentially for a mature network, an increase in capex should result in a decrease in opex. As the ESCoV draft decision provides for an increase in average opex over the past 4-5 years, then the corollary is that the capex allowance should be lower than that actually used in the previous years. In fact the ESC is proposing a modest average increase to the capex actually required by the DBs of some 17%. The implication of a capex rise is that opex levels would therefore be the same as over the past period (as recommended by EUCV in the section on opex) or show a slight corresponding decrease.

The EUCV has made a number of observations regarding the application of capex in its previous submissions and does not intend to reiterate these.

### **Setting the capex allowance**

In the current period we see that actual capex has been gently rising since 1996, with a marked fall in 2002 and 2003, with 2004 rising to the same level as in 2000. As can be clearly seen capex is now rising and is peaking in the benchmark year. At the last review the DBs sought a massive 80% increase in capex, much of it being awarded by the ORG. In actuality the DBs did not use this allowance and effectively maintained the 1999 rate for the following five years, resulting in a significant cash benefit to the DBs. The DBs have forecast an increase of nearly 30% in capex for 2005 compared to 2004, mirroring the unfulfilled increase they forecast would occur in the equivalent review year of 2000. As 2005 year is still to be completed, until next year we will not be able to assess whether the capex forecast for 2005 will be fulfilled but history would lead to the conclusion that capex for 2005 will be at a similar rate for 2004 despite the forecast.



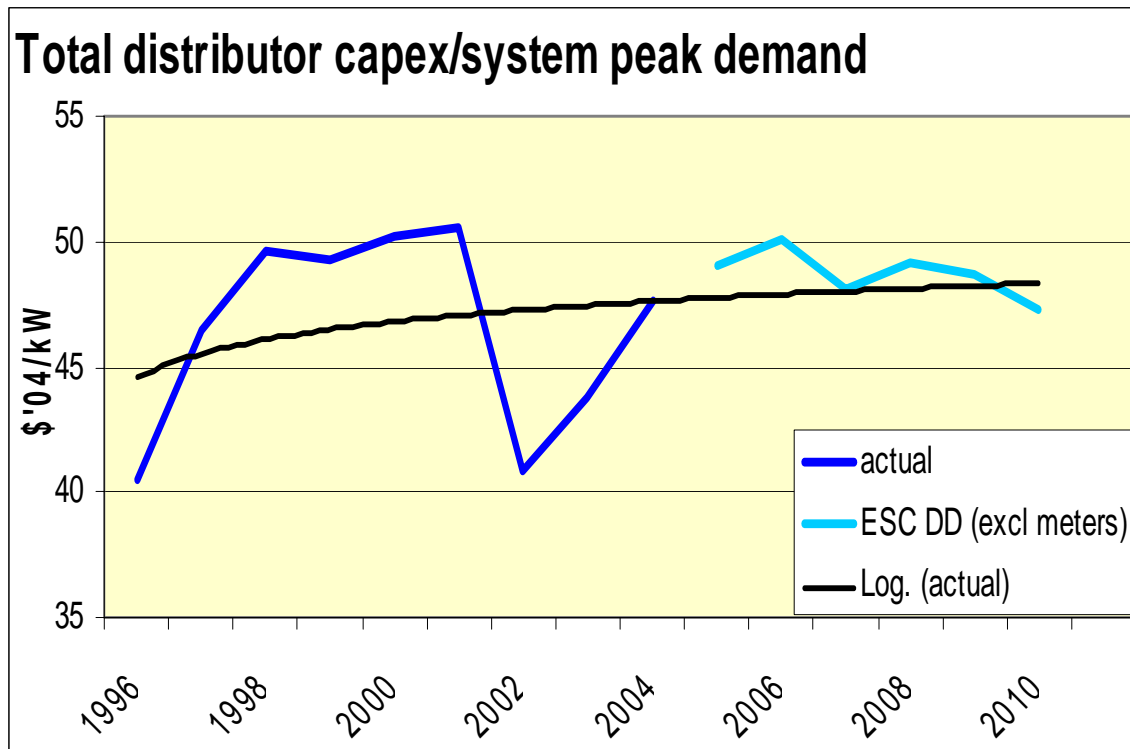
Source: Data from ESCoV and ORG, development by Headberry and Lim

As well as showing the “regulatory gaming” practice used by the DBs in the last review and again for this review, it shows clearly that by using the 2004 actual capex as the base for forward projections, the DBs may well have been able to get the ESCoV to provide a higher base point than is historically required. Certainly the DBs in their forecast for capex would appear to have requested a carry forward of capex allowances granted in the current period into the next period thereby earning a return on capex not actually invested.

Reviewing the capex included in the draft decision the ESCoV would appear to have followed the trend implicit from the actual capex invested in the 2002, 2003 and 2004 years. However, there is no explanation as to why there is a need for capex to increase in such a fashion, when it would appear from past practices that capex at the recent historical rate of about \$380-390m pa has been adequate to improve service levels and retain the average age of the network. Thus by agreeing to an increase to some \$450m pa (say a 15% increase) there is no apparent quantifiable outcome on the other side of the regulatory bargain.

**It is quite clear that the DBs have successfully convinced the ESCoV that they should receive \$60m pa more for capex than they actually used in the past five years.**

To assess this premise the following benchmarking graph was developed using peak demand<sup>23</sup> (in kW) as a control as this is a fundamental characteristic (along with consumption and number of connections) of a network and is a common element of tariffs for large consumers. The data has been collated from information provided in the draft decision, the issue paper, the position paper and the MMA consultant's report on consumption and demand.



Source: Data from ESCoV and ORG, development by Headberry and Lim

This shows the cost to consumers for capex related to their peak demand. As expected the cost per unit varies over time, with some significant swings. The trend line added shows that the cost per unit is “asymptoting” as would be expected. What the graph does also show is that the capex allowance proposed by the ESCoV for the next five years sits well with the trend line, except that in the early years the allowance is higher than would be expected but falling over time.

**Thus by using this approach to benchmarking of the capex allowed, it shows that the capex allowed is probably appropriate for the growth in peak demand.**

<sup>23</sup> The peak demand used for this graph is actual peak demand, using a historic trend of 2% compound growth in system peak demand averaged over 1999 to 2004 and extrapolated to 1996, and using the MMA forecast of 3.1% compound growth in demand for 2005-2010

The EUCV has already made its views quite clear about the capex allowances sought by the DBs in its response to the Position Paper. The EUCV has not identified any additional explanation provided in the ESC draft decision to change its views that it detailed at some length in its earlier response.

As noted above there is a corollary between capex and opex. The ESCoV draft decision is proposing a modest average increase of some 17% to the capex actually used by the DBs over the past five years. The implication of this capex rise is that opex levels would therefore be the same as over the past period (as recommended by EUCV above) or even show a slight corresponding decrease.

Thus subject to the ESCoV using the average actual opex over the past 4-5 years, the capex trend analysis carried out above would support the view that the proposed increases in capex assessed by the ESCoV would appear to be acceptable. Equally if the ESCoV persists in using an inflated opex base (then adding the step changes) the trend analysis shows clearly that the ESCoV will have provided a capex allowance which does not match the opex/capex balance discussed at length in the section above relating to opex.

If the opex allowance is not reduced as suggested by EUCV then EUCV sees that the capex allowance will be in excess of that required by the DBs to manage the network.

## 7. INPUTS FOR THE RETURN ON ASSETS

The ESCoV has assessed the WACC for the DBs based on the following key variables, about which it devotes considerable discussion.

- MRP has been retained at 6% following the trend of other regulators.
- Equity beta has been retained at 1.0 but this is despite the trend of other regulators to recently reduce this input to 0.9
- Debt margin will be 130 basis points, reduced from the debt margin used in the last electricity review, and impacted by recent and new information, but the ESCoV did not benchmark this input with those from other regulators, although it is noted that it matches the ESCoSA decision but is 21 basis points higher than used by the QCA.
- Equity raising costs have been sunk in the acquisition phase and included in the RAB
- Debt raising costs will follow the “regulatory norm” of an allowance of 12.5 basis points, following the trend of other regulators
- Equity beta should be common for all the DBs regardless of a perception of “rural” risk, following the trend of other regulators
- “Taxation “franking” credits will remain at 50% consistent with other regulatory decisions.

The EUCV does not consider that there is sufficient argument presented for the ESCoV to vary the values of these inputs except in the case of the MRP and equity beta.

The EUCV refers the ESCoV to the paper<sup>24</sup> (attached to this submission) which was submitted to ESCoSA as part of its review of ETSA Utilities (The ECCSA report). This work specifically addresses the input values for ERP and equity beta. It provides further support for the views espoused by EUCV in this submission.

---

<sup>24</sup> Observations In Relation to ESCoSA's Draft Decision On Market Risk Premium And Equity Beta Applied to ETSA by Headberry Partners P/L and Bob Lim & Co P/L for The Electricity Consumers Coalition of South Australia March 2005

## Equity Risk Premium (ERP)

The ECCSA report (section 3.2) makes the point that the work by Ofgem in the UK clearly indicates that its assessment of the market risk premium is lower than 6% used by Australian regulators, and that it lies in the range 3-4%. Australian regulators have averred that the work by Ofgem is not applicable to the Australian environment as the market conditions are different, with the UK more attuned to Europe and the US equity markets, whereas Australia is remote from all of these markets and has its own but higher ERP. Ofgem makes the point that companies are exposed to the global markets and therefore there is little likelihood of ERP variation between nations.

Even if there is variation it is appropriate to examine the extent of such variation. In 2003 officers of the RBA<sup>25</sup> attempted to identify why there is a variation between the share prices of the same company and listed in different countries – dual listed companies (DLCs). There is a later report by ABN Amro<sup>26</sup> which also attempts to explain why there is this divergence. That there has been an attempt to identify why there is a divergence tends to fly in the face of the Australian regulators accepting blindly that there will inevitably be a difference.

Whilst the reports do identify that there are differences between share prices in the different countries, the magnitude of these share price differences in the dual listed companies does not equate to the premium in ERP between the two countries (UK and Australia) that regulators have effectively implied, and the difference in the “risk free rate” examined in the ECCSA report section 2.2 and attached to this submission might well provide an answer for the bulk of any variation.

The difference of share price of the same companies between the two countries tends to show that the Australian prices are higher, albeit only marginally.

“The average premium for the locally listed BHP scrip over its British counterpart over the past three years has been 4.9% according to ABN Amro, with Rio [Tinto] experiencing a premium of 3.2% over the past three years and Brambles a premium of 9%”<sup>27</sup>.

The article goes on to opine that the differences might be caused by the

---

<sup>25</sup> “The characteristics and trading behaviour of dual-listed companies” by Jaideep Bedi, Anthony Richards and Paul Tennant Research discussion paper 2003-06 published June 2003 by the International Department Reserve Bank of Australia

<sup>26</sup> Referred to in an article “Different countries, same company: explaining the price divergence in dual-listed companies” by Stephen Bartholomeusz The Age 29 June 2005

<sup>27</sup> *ibid*

“... broader outlook for the individual economies and currencies, and including issues like the weight of money flowing from our mandated superannuation system, our franking system ...”<sup>28</sup>

That these reports were based on the assumption that the DLCs would have the same price in different markets is a view that is counter to the regulatory assumption that there is inevitably a difference. The reports further identify that the measured differences between the two markets is not sufficient to support the premium that the regulators in Australia are applying, particularly when the difference in the risk free rate is identified.

**Thus the work by Ofgem in the UK (and referred to in the appended ECCSA report) should be considered much more closely than awarding it the casual dismissal afforded to its assessment of ERP by Australian regulators.**

The ESCoV states in its Draft Decision that it recognizes that ERP is not a fixed amount and that it varies over time. Further it comments that depending on the method used to calculate it, differing estimates result. Because of these shortcomings the ESCoV avers that it is necessary to infer a degree of estimation and averaging. As a result it has tended to exclude the higher ERP figures of many years ago and move to an ERP which is more in keeping with more recent estimates of its value.

In 2002 the ORG received independent advice<sup>29</sup> that the ERP should be reduced from the level of 6% to a lower figure between 3 and 4%. Despite this in its final decision on gas distribution, the ORG stated:-

“It remains of the view that it should place weight on the estimate of the expected equity premium that is provided by the long-term average of the historical excess returns to equity, but that it is appropriate to take account of other information on the premium to refine this estimate.”<sup>30</sup>

In this way accepting that it might have set a figure that was too high in the current climate, the ORG left open an ability for it to receive additional information which might influence its later decisions in regard to what an appropriate value of ERP should be.

In the submissions received for the 2005 electricity distribution review the ESCoV received two more independent assessments of the value of ERP which again

---

<sup>28</sup> *ibid*

<sup>29</sup> From Mercer Consulting (suggesting a figure of 3-4% and from RR Officer stating that the ERP from 1970 to 2001 to current was 3.37%

<sup>30</sup> ORG FD on gas distribution October 2002, page 302

recommended that the value of 6% commonly used by regulators for ERP is too high.

Capital Research (an organization associated with Prof RR Officer, developer of the CAPM) opines that the ERP should be some 4.5% stating that recent values of ERP should be used in preference to long term averages. Another independent assessment of ERP was made by SACES which demonstrated that the ERP should be between 4.5 and 5%. The ESCoV has rationalized this to recommend a level of between 5.1% and 5.6%.

The ESCoV then states that:-

“One implication of the new material presented is that the Commission’s previous view about the equity premium of 6 per cent may not be inconsistent with a more sophisticated interpretation of the long term historical evidence. The material confirms that the Commission’s previous view may overstate the estimate that would be obtained from placing greater weight on the more recent market evidence.”<sup>31</sup>

Bearing this recent advice that recent independent studies imply that the ERP at 6% is currently overstated, the ESCoV falls back on the fact that no other regulator has moved from the level of 6% and therefore the ESCoV feels that regulatory precedent overcomes recent independent advice, relying on the view that:-

“... an appropriate value for the equity premium [of 6%], particularly in light of its concern to create a stable, predictable and replicable regulatory regime to the extent possible, and in light of the long term consequences of its decisions.”<sup>32</sup>

This resort to follow the earlier decisions of other regulators (justifiable to an extent) despite hard evidence to the contrary delivers a self perpetuating result and the cycle cannot be broken until another regulator accepts the market evidence and elects to move in a direction which most regulators see has justification but none is prepared to be the first to move.

The ESCoV refers to the need for a stable, predictable and replicable regulatory regime. However to provide a stable regime with regard to ERP is not possible. In fact the analysis carried by all independent bodies have identified that the ERP is volatile, both in the long term and in the shorter term. Therefore for a regulator to consider that a stable long term average should be used consistently is essentially flawed.

---

<sup>31</sup> ESCoV draft decision page 304

<sup>32</sup> Ibid ESCoV draft decision page 306

In its submission the EUCV recognizes this issue and addresses the fact that if the ERP is currently really below the benchmark of 6%, then it can just as easily exceed the 6% benchmark in the future as by using long term averages there must inevitably result at some point in the future in the regulated businesses being awarded an ERP which is too low for them to access adequate funds needed for the networks.

Whilst this issue was raised by the EUCV, the ESCoV has elected not to even respond to the EUCV view or consider such an issue at this stage, leaving the clear implication that this will become a problem for a future regulator. **This is totally unacceptable from a consumer viewpoint, as it will be the consumers that will bear the brunt of network service deficiencies if the regulator does not provide sufficient revenue to source funds for essential works.**

There is little doubt that the current value for ERP is less than 6%, yet the ESCoV has elected to maintain the value of 6% regardless of the future implications for the DBs and for consumers. Even a reduction of 0.5% (using the higher level from the adjusted SACES analysis would bring a relief to consumers and would allow the regulator of the future some flexibility to increase the ERP when current market conditions would suggest that an increase is necessary to allow the regulated enterprise to access funds for needed capex in the future.

The actions of the ESCoV can only lead consumers to the view that the ESCoV believes the recent hype and publicity<sup>33</sup> that unreasonably high levels of ERP (and therefore WACC) are needed to encourage the regulated businesses to invest in the networks. This point is addressed later in this submission.

## **Equity Beta**

There is not extensive guidance provided to the regulator with regard to setting the value for the return on regulated assets. The Tariff Order is silent on this issue, although the Essential Services Commission Act and the National Electricity Rules give more guidance

The Essential Services Commission ACT 2001 - SECT 33.3 requires the ESCoV

(3) In making a determination under this section, the Commission must have regard to-

---

<sup>33</sup> A classic example of this hype was the decision of Prime Investments to refuse to carry out necessary augmentation at Dalrymple Bay Coal Terminal unless the QCA granted them and increase in equity beta leading to an increased WACC. This resulted in the Federal Government commissioning a report into infrastructure needed for export of Australia's goods.

- (a) the particular circumstances of the regulated industry and the prescribed goods and services for which the determination is being made;
- (b) the costs of making, producing or supplying the goods or services;
- (c) the cost of complying with relevant health, safety, environmental and social legislation applying to the regulated industry;
- (d) the return on assets in the regulated industry;
- (e) any relevant interstate and international benchmarks for prices, costs and return on assets in comparable industries;
- (f) the financial implications of the determination for the regulated industry and regulated entities;
- (g) any factors specified in the relevant legislation;
- (h) any other factors that the Commission considers relevant.

The National Electricity Rules section 6.10.3(e)(6) requires that the regulator must

“...provide reasonable certainty and consistency over time of the outcomes of regulatory processes having regard for:

- (i) the need to balance the interests of *Distribution Network Users* and *Distribution Network Service Providers*;
- (ii) the capital intensive nature of the *distribution* sector, the relatively long lives of *distribution* assets, and the variable and frequent *augmentation* of *distribution networks*;
- (iii) the need to minimise the economic cost of regulatory actions and uncertainty; and
- (iv) relevant previous regulatory decisions made by authorized persons including:
  - (A) the initial revenue setting and asset valuation decisions made by a government at a time at which that government was a *Distribution Network Service Providers* in the context of industry reform pursuant to the Competition Principles Agreement;
  - (B) decisions made by *Jurisdictional Regulators* and any regulatory intentions previously expressed; and
  - (C) decisions made by ministers under jurisdictional legislation.<sup>34</sup>

The applicable elements of the Act and the Rules have been highlighted.

---

<sup>34</sup> National Electricity Rules (formerly Code) clause 6.10.3 (e) (6)

The National Rules and the ESC Act are consistent in that the regulator must have regard for the decisions of other regulators and that any outcome must reflect the decisions of other regulators (clauses in NER (iv)(B) and ESC Act 3(e) above).

In recent decisions relating to electricity distribution assets carried out over the past 12 months by QCA, IPART and ESCoSA, all have decided that the equity beta for electricity distribution should be 0.9.

The ESCoV itself in its recent water review<sup>35</sup> has stated that

“The Commission has adopted a proxy of the equity beta of 0.75, based upon benchmark gearing of 60 per cent debt to regulatory assets. The Commission’s decision is consistent with:

- recent regulatory decisions in the water sector (0.81)
- empirical evidence from the Australian energy sector (0.70)”<sup>36</sup>

In setting the water businesses equity beta at 0.75, the ESCoV opined, but without any justification that

“The results of the review of selected regulatory decisions highlights the general view of regulators that the systematic risk faced by water businesses is less than energy businesses. The Allen Consulting Group also formed a similar view in respect of the Gladstone Area Water Board (GAWB): “GAWB will be subject to less systematic risk than say, electricity distribution network service providers, since compared with electricity, water demand is less correlated with domestic economic growth”<sup>37</sup>

This statement is purely based on a subjective or intuitive view and there is no quantitative support provided for any such view. However by using an equity beta of unity for the electricity DBs the implicit conclusion is that electricity distribution is seen by the ESCoV to be a third more risky than water distribution, ostensibly because water demand is less correlated to domestic economic growth. In fact it could just as easily stated that as electricity demand is seen to be **more correlated** to economic growth, it is therefore more predictable.

Regardless of this qualitative debate, to increase the equity beta by a third (ie from 0.75 to 1.0 as the ESCoV has done) in spite of the quantitative and empirical analysis provided by the ESCoV in its “water decision” that shows the

---

<sup>35</sup> Water price review, volume 1, Metropolitan and regional businesses’ water plans, draft decision 2005-06 to 2007-08, March 2005

<sup>36</sup> Ibid page 91

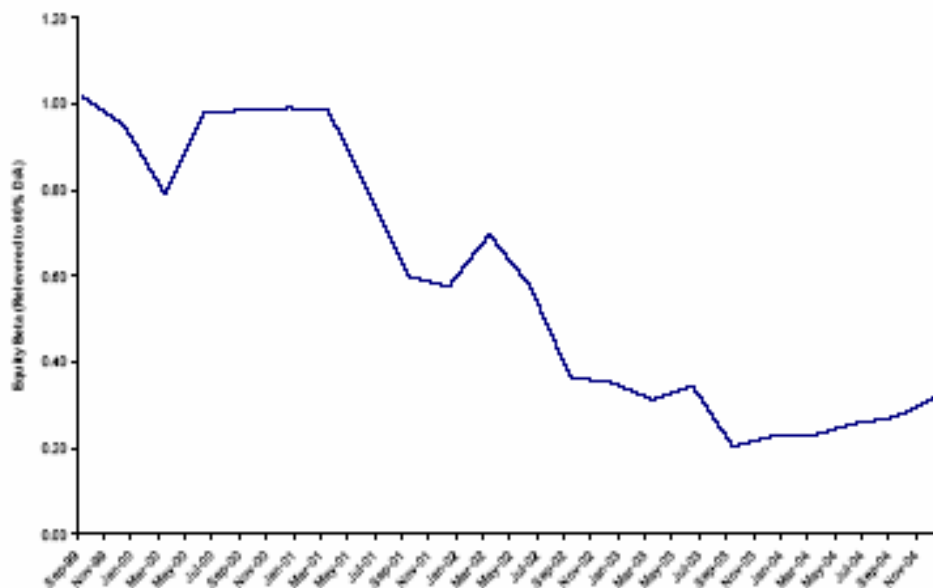
<sup>37</sup> Ibid pages 90 and 91

equity beta for energy distribution businesses is closer to 0.7, (even when allowing for the technology bubble) clearly shows that the ESCoV is incorrect in its decision to award an equity beta of 1.0 in its draft decision.

In light of the comparative work by ESCoV in its water decision that the equity beta for energy is 0.7, it should be noted that the ESCoSA had originally determined in its Final Decision that the equity beta should be 0.8, but revised this to 0.9 on an appeal by ETSA Utilities. In its decision, ESCoSA considered that the equity beta of 0.8 was in fact justified by its analysis and the only reason ESCoSA gives for moving to 0.9 on appeal is that 0.9 is consistent with other recent regulatory decisions. This was the only reason ESCoSA gives for substantiating the change – ESCoSA did not accept any other reason put forward by ETSA Utilities than the one relating to regulatory precedent.

On the basis of the ESCoSA decision, supported by the decisions of QCA and IPART, the ESCoV should be guided by regulatory precedent and follow these other decisions. The discussion provided by the ESCoV in its draft decision implies that the equity beta should be lower than unity. The ESCoV provides the following chart which clearly shows (as with ERP) that there is significant volatility in the market which strengthens the view that regulators should be using recent data as the basis for setting equity beta.

Figure 9.1: Average Equity Beta for Comparable Australian Entities



Source: ESCoV draft decision, figure 9.1, page 297

Indeed the ESCoV points out that the group of companies comprising the equity beta calculated in figure 9.1 includes the companies AGLE, Envestra, the

Australian Pipeline Trust, AlintaGas and GasNet – all of which have their energy transport assets regulated, and had the notional equity beta of 1.0 used in setting their regulated revenue. Thus the equity market itself has recognized that an equity beta of 1.0 is too high and so implies an equity beta much lower, recognizing that the stability and certainty of the cash flow from such regulated entities warrants a lower equity beta.

The further discussion by ESCoV in the draft decision refers to the difficulty in assessing equity beta in light of such issues as the “tech boom and bust” which are regular events in the equity markets. Yet in Australia the “tech boom” has been in part replaced by a recent “mini minerals boom”, indicating that to assess the impact of the “tech boom” in isolation is flawed. Despite this variation figure 9.2 in the draft decision looking at the equity beta in electricity distribution in the US, clearly shows that the equity beta averages some 0.6-0.7 prior to the “tech boom” and since that boom busted, it has averaged closer to 0.2. All of this data from comparative sources clearly indicates that an equity beta should be less than unity.

The ESC Act requires the ESCoV to use comparative benchmark data from local and international sources for like industries. Further the ESC Act requires the ESCoV to take guidance from other jurisdictional regulators. By not doing so, the ESCoV has reverted to using an equity beta which is clearly higher than international benchmarks and other Australian regulators are using at this time.

**The ESCoV is required by its Act to set an equity beta which replicates the local market of like industries, international benchmarks for like industries and the recent decisions of other Australian regulators when setting equity beta. By using an equity beta of 1.0, the ESCoV is failing to comply with the ESC Act and the National Electricity Rules**

The EUCV is of the view that the ESCoV must use an equity beta of no more than 0.9 (to comply with regulatory precedent as has done the ESCoSA after assessing the appeal by ETSA Utilities) and probably no more than 0.7-0.8 when assessing the local and international benchmarks (as did ESCoSA when setting an equity beta of 0.8 in its Final Decision).

### **The ETSA Utilities Appeal**

It is important to note that under the appeal by ETSA Utilities, the SA Treasurer (in his role as the relevant Minister under the ESCoSA Act) advised the ESCoSA that the equity beta of 0.8 should be retained, and the SA Treasurer based this observation on work by Dr Martin Lally. In the Treasurers report it points out that the work by Officer and Gray referred to in the ESCoV draft decision is flawed, and when appropriate adjustments are made (as defined by Lally) then the outcome is an equity beta for electricity distribution between 0.75 and 0.82.

“The Government considers that the equity beta of 0.8 adopted by ESCOSA in the Final Determination is within the expected range, given current market estimates of betas and after appropriate consideration of the effect of the Final Determination in mitigating almost all of the systematic risk faced by ETSA Utilities.

To assist ESCOSA in considering the Review Application from ETSA Utilities, this submission includes an independent expert’s review of the appropriate equity beta, authored by Associate Professor Dr Martin Lally<sup>38</sup>.

Dr Lally has used a detailed analysis to calculate an appropriate asset beta for ETSA Utilities, before using the agreed gearing formula to calculate an equity beta of 0.75. It is noted that Dr Lally’s approach provides a more reliable result as it draws upon a larger data set than that relied upon by Professors Gray and Officer, which compares a total of four Australian firms.

In addition, Dr Lally has reviewed the analysis of Professors Gray and Officer and has concluded that, after the removal of the flawed Blume adjustment (that has been uniformly rejected in other Australian regulatory decisions), their own data points to an equity beta of 0.82.<sup>39</sup>

In his paper Dr Lally concludes

“This paper has examined the appropriate equity beta for ETSA, at a leverage of 0.60. In view of the limited number of comparable Australian firms, US data is drawn upon, spanning fifteen years and involving nine sets of estimates with a median number of companies per set of 80. This yields an estimated asset beta of 0.3. In conjunction with the agreed gearing formula, and ETSA’s leverage of 0.60, the resulting equity beta is .75. This is broadly compatible with ESCOSA’s estimate of 0.8, and considerably less than ETSA’s estimate of at least 1.

This paper has also examined the analysis of Gray and Officer, which invokes data from four Australian firms, and subjects the data and beta estimates to a number of adjustments. Leaving aside the insufficient number of firms examined here, it is argued that some of the these adjustments are inappropriate, and the result is to alter Gray and Officer’s estimate from at least 1 to less than .82. Again, this is comparable with ESCOSA’s estimate of 0.8.

---

<sup>38</sup> The Equity Beta for ETSA Utilities, Martin Lally, May 6, 2005

<sup>39</sup> Submission of the Treasurer of South Australia, Review of the Essential Services Commission of SA, Electricity Distribution Price Determination, undated but published in May 2005, page 17

The paper has also examined the Analysis of NERA, to the extent that it deals with issues other than the judgements of regulators. Five of their arguments are considered here. Of these, one is more comprehensively addressed by Gray and Officer, two are argued to be invalid,, one irrelevant, and the remaining point to have been applied at the wrong level.”<sup>40</sup>

**Based on the review of the data provided both before and after the ESCoSA decision, there is little doubt that the equity beta for an electricity distribution business should be no more than 0.8. The ESCoV will be penalizing consumers if it awards an equity beta greater than this amount.**

---

<sup>40</sup> The Equity Beta for ETSA Utilities, Martin Lally, May 6, 2005, page17

## 8. APPLYING THE WACC TO THE RAB AND CAPEX

### General comments

The ESCoV is required under its Act to assess

“...the financial implications of the determination for the regulated industry and regulated entities;”<sup>41</sup>

and under the National Electricity Rules, the regulator is to assess

“...the need to balance the interests of *Distribution Network Users* and *Distribution Network Service Providers*;”<sup>42</sup>

The impact of these requirements is that the regulator must develop the financial indicators that result from the regulatory decision and to ensure that these are in keeping with those prevalent in the wider commercial world of industry. There is no other way that the regulator can ensure that the regulatory decision does provide sufficient funds for the regulated business to achieve the goals required, or if the decision grants too high a reward.

The only way that the regulators can be sure that their decision is an equitable balance between the interest of the business and the interests of users (as required by the NER) is to assess the financial indicators arising from the development of the WACC and to compare these to the financial indicators extant in the competitive market.

In its determinations the ACCC has consistently developed the financial indicators arising from its decisions. For example the following chart is a table from the recent ACCC draft decision on TransGrid<sup>43</sup>

---

<sup>41</sup> ESC Act section 33.3(f)

<sup>42</sup> NER section 6.10.3(e)(6)(i)

<sup>43</sup> ACCC Draft Decision, NSW and ACT Transmission Network Revenue Caps – TransGrid 2004/05-2008/09 Date: 28 April 2004 page 148

**Table 4.1 Financial Indicators**

	2004/05	2005/06	2006/07	2007/08	2008/09
EBIT to Revenues (%)	72.69	73.77	74.81	75.80	77.06
EBITD to Revenues (%)	84.36	86.48	88.42	89.08	90.85
EBIT to Funds Employed (%)	10.76	11.10	11.18	10.99	11.01
EBIT to regulated assets (%)	10.76	11.10	11.18	10.99	11.01
Pre-tax interest cover (times)	2.65	2.74	2.76	2.71	2.71
Funds Flow Net Interest Cover (times)	3.08	3.21	3.26	3.18	3.20
S&P Rating <small>Attract average business profile</small>	BBB	BBB	A	BBB	BBB
S&P Rating <small>Excellent business profile</small>	A	A	AA	A	A
Funds Flow Net Debt Pay Back (years)	7.12	6.70	6.56	6.78	6.73
S&P Rating <small>Attract average business profile</small>	BB	BBB	BBB	BBB	BBB
S&P Rating <small>Excellent business profile</small>	A	A	A	A	A
Internal Financing Ratio (%)	124.20	91.63	71.98	82.69	91.01
S&P Rating <small>Attract average business profile</small>	AAA	A	BBB	BBB	A
S&P Rating <small>Excellent business profile</small>	AAA	AA	A	AA	AA
Gearing	0.6	0.6	0.6	0.6	0.6
Payout Ratio	14.50	14.50	14.50	14.50	14.50

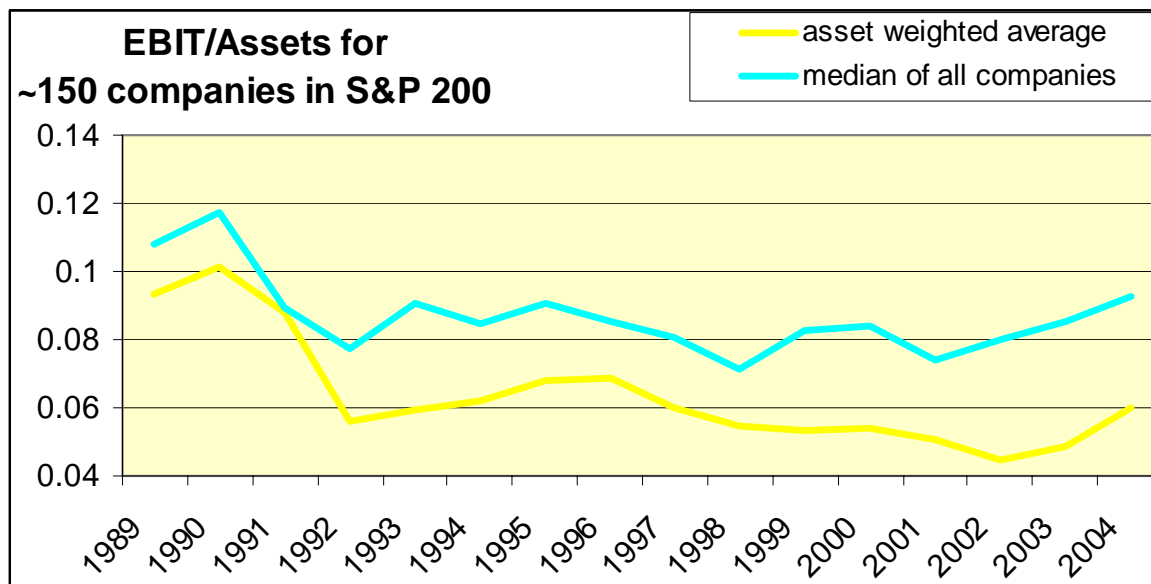
What is entirely absent but is required as part of the NER is to ensure that these are in keeping with the same indicators in the competitive market place, and therefore can be seen to be a balance between the competing interests of the network owner and the consumer.

Benchmarking work done in this respect has been by Headberry and Lim<sup>44</sup> which shows that the financial indicators calculated from regulatory decisions significantly exceed those extant in the competitive market. In that paper, Headberry and Lim stated that, based on data received from IBISWorld:-

This analysis [of the largest 300+ companies by sales in Australia over the period 1989 to 2002] shows that 10 year government bonds were a better investment over the past decade than investing in businesses and that “real” pre tax returns earned in the competitive market in the period 1989-2000 averaged perhaps 4%, (which should be compared to the “real” pre tax WACC’s awarded by regulators of 6-8%).”<sup>45</sup>

They identified that the nominal EBIT/assets for the sample of companies investigated varied between 4% and 9% with a median of the weighted average of 6%.

IBISWorld were contacted again and were requested to provide yearly EBIT and total assets used for companies included in the S&P200. They noted that the S&P 200 is a recent index and they provided data on some 150+ companies<sup>46</sup> which are currently included in the S&P200; the data ranges from 1989 to 2004. Those companies very recently listed but now included in the S&P 200 index have been excluded from the sample.



Source: data from IBISWorld, development by Headberry and Lim

<sup>44</sup> Headberry and Lim “Further capital markets evidence in relation to the market risk premium and equity beta values used by regulators for regulated businesses in the national electricity market” December 2003

<sup>45</sup> Ibid page 18

<sup>46</sup> The names of these companies is attached as appendix 1

The chart shows the asset weighted average of all EBIT/assets for each year and the duration average of these 6.5%. The asset weighted average is the truest indicator of the returns earned against assets as it sums all the earnings achieved against the value of all the assets used in achieving those earnings. Not unsurprisingly, the result from this analysis is still consistent with the Headberry and Lim work even though a different subset of companies has been used.

To assess the variation of individual company returns in the sample, the median of all EBIT/assets each year is also provided and this has a duration median for all EBIT/assets of 8.5%. The duration median standard deviation against the median is 0.078. This implies there is a high degree of variability between companies in each year and between years. This is expected, and as the weighted average is lower than the median, this would lead to the conclusion that companies with a smaller asset base have a higher EBIT/assets.

This analysis clearly shows that a regulator awarding a WACC which provides an EBIT/assets of over 11% as did the ACCC for TransGrid in its 2004 decision, clearly places the regulated return in the upper range of all businesses operating in the competitive market.

**This result is clearly at odds with the expectation that companies with a predictable and an assured cash flow would have lower earnings compared to those without such benefits.**

No regulator has attempted to prove or disprove that the calculated WACC does provide appropriate evidence that their calculation is correct and leads to financial outcomes consistent with the competitive market.

With the acknowledged variability of the inputs used in the development of the WACC, the lack of any benchmarking is more obviously a matter of concern with the outcomes clearly in dispute because regulators themselves are uncertain as to whether the inputs used in the CAPM formula are indeed correct.

- There is clearly a difference of view between ESCoSA, QCA, and IPART on one hand and ESCoV as to what is the correct value for equity beta,
- There is clearly a difference between Australian regulators and UK regulators as to what is the correct value for ERP. Even the ESCoV has stated a concern that the value they use is overstated.
- There is variation between each regulator and the basis for selecting the “risk free rate” with ESCoSA using a five year average, and the ESCoV using a 20 day average. Until recently the ACCC used the five year bond rate and the other regulators used the 10 year bond rate.

- There is variation between the regulators as to what constitutes a reasonable debt margin<sup>47</sup> and what should be the premium added for debt raising costs.

Against this background, debate about the value for the various inputs to the CAPM, there can be no certainty that the outcome is indeed correct and replicates the competitive market.

**The differences between regulators as to what constitutes the correct inputs can only be resolved when the outcome is benchmarked against the financial indicators arising from the calculation and those observed in the marketplace. The ESCoV has not carried out any such comparisons and therefore it has not complied with the requirements of the ESC Act or the NER.**

**If such benchmarking shows that the returns awarded provide an EBIT/assets which is above the norm for competitive enterprises, the ESCoV must adjust the inputs to the CAPM to reflect the reality that the variable inputs are incorrect.**

## **What WACC is required to ensure investment continues?**

It must be remembered that there are two certainties with relation to the setting of the WACC.

1. The regulated businesses will seek to maximize the return allowed, as they have an obligation to do so in the interests of their shareholders.
2. Regulators are convinced that in order to ensure that the network owners invest in the networks, the WACC must be high.

Neither of these certainties are directed to be in the interests of consumers.

There has been much made recently of the need to increase investment in infrastructure in Australia. The appointment of a group by the Prime Minister to examine the extent of bottlenecks in Australian infrastructure is a case in point.

The most high profile case recently was the decision of the Queensland Competition Authority (QCA) to suggest a WACC for the Dalrymple Bay Coal Terminal (DBCT) in its draft decision, which Prime Investments (owner of DBCT) declared was insufficient to justify the investment to augment the terminal to accommodate the increased export of coal from DBCT. After much pressure

---

<sup>47</sup> The ESCoV discusses at some length whether the CBA Spectrum service is correct or whether the different amounts arising from the Bloomberg service might be more appropriate

(regularly reported in the press), the QCA final decision increased the WACC to a level assessed by Prime Investments to be sufficient to justify the investment of the augmentation.

What this example does is to highlight a number of key aspects relating to investment in infrastructure.

1. The investor purchased the assets from the Queensland government, accepting that the assets would be subject to regulatory oversight and a return on assets (calculated as a weighted cost of capital – WACC – developed using the Capital Asset Pricing Model – CAPM) set by an independent regulator.
2. The regulator assessed a WACC which was probably appropriate for the operation of the terminal without augmentation. This WACC was stated in the draft decision by the QCA.
3. The terminal owner assessed the earnings stream which would result from the augmentation to underpin the decision to increase capacity at the terminal. Along with this earnings stream the owner would have assessed the likelihood of whether this earnings stream would be maintained for long enough to repay any debt with interest and to provide an adequate return on the equity required.
4. There would appear to be some uncertainty that the regulator would include in its future value of the terminal the new capex, and that it would automatically be included in the future regulated asset base (RAB). This creates some concern with the owner that its forecast revenue from the augmentation was at risk<sup>48</sup>.
5. The terminal owner has a monopoly position with regard to exporting. The terminal is a strategic bottleneck in Australia's infrastructure. There is no alternative export facility for use by the coal mines using DBCT. There is no ability to compel Prime Investments to augment the terminal, and as the terminal is owned by Prime, no one else can use the terminal as the basis to augment the export capability.
6. Exports of coal were being delayed due to insufficient capacity, and there is an expectation that the current level of demand will continue for some time, creating a view there is a bottleneck at DBCT,
7. Thus Prime can and has used its monopoly power to drive the QCA to increase the WACC suggested in the draft decision in its final decision. This in fact occurred with Prime receiving increased revenue which applies to all of its assets.

---

<sup>48</sup> The regulator is to use the depreciated optimized replacement cost (DORC) as the basis of the future regulatory asset base (RAB). If the increased capacity is not used at some point in the future, the regulator should optimize the RAB to reflect the actual cost to provide the reduced capacity. Thus there is some doubt that the investment made now will be included in the future RAB, and so receive a return on the capital actually sunk.

The decision of QCA to increase the WACC to encourage the required investment reflects the current demand for use of the asset. As a result, the earnings for the entire facility (existing and potential investments) increased in order to provide an incentive for the additional investment.

This raises the important questions, as to whether

- the entire facility should receive an increase in earnings to provide for the risk that the augmentation might not have secure earnings into the future and
- should there be an additional allowance given only to augmentation assets to provide certainty of an earnings stream, without increasing the return on existing assets providing a secure earnings stream.

### **Is investing in a regulated environment different from other investments?**

Buying in the stock market (particularly the accumulation index which is the basis of setting the MRP and provides guidance to an appropriate value for equity beta) provides a diversification of risk. Diversification of risk is reduced when the regulator sets the parameters for a single focus business such as the energy transport businesses. It is on the basis of a regulated business has only a single focus that the regulated businesses consider that this lack of diversification introduces an increase in the risk profile. If the risk profile is increased then the equity beta should be higher.

Examples of where such a single focus has acted to the detriment of a monopoly business is where an investment has been made and the sunk assets established, yet the fundamentals of the investment have not been realized resulting in a major underperforming investment. Where such an investment has been made in a monopoly asset which is then regulated, the regulation prevents an over recovery to balance investments made which under recovers.

The fallacy of this argument lies with what happens in a competitive environment. It is accepted that businesses operating in a competitive environment due make investments which with the passage of time prove to be major errors. A high profile example of one such is the BHP hot briquetted iron plant in the Pilbara. BHP has made other investments which have offset this loss making venture and regulated businesses are of the misguided view that such other investments are achieving unopposed super profits. What they fail to identify is that as soon as a competitor is thought to achieve super profits, then competitors immediately enter the same market and reduce profits to a more modest level. Very few, if any, businesses are permitted to operate in an environment where super profits can be made without competition starting immediately to reduce such super profits.

In the case of regulated businesses, they are regulated because there is no competitive pressure possible. It is absurd to consider that an electricity distribution business will see a competitor's poles and wires being erected. This simply does not happen as these are being erected in the main on public land, and effectively the public has given a right of access to just the one business, and will not allow a right of access to a second business. To do so is wasteful in the extreme. Regulation is an approach to replicate the competitive pressures which reduce profits to a level which is equivalent to the profits which would come under true competition.

Thus on this basis there is an argument that capex invested by a regulated business might receive a premium on new investment for a period until the equivalent pressure to when a competitor enters the market and so reduces any super profits to the normal profitability seen in competitive markets.

### **What are the reasons behind the decision to invest?**

There are a number of basic assessments undertaken to ensure that investments are undertaken wisely, whether in a business itself (eg as a shareholder) or to increase the performance of the business (eg capital investment to impact earnings). At the most fundamental level, the decision to invest must be made based on the potential of the investment to deliver an earnings stream which is sufficient to provide for the structuring of the investment capital (ie sufficient to ensure that the debt used as part of the capital can not only be repaid, but also repay the interest over the life of the debt) and to provide a return of the equity injected into the investment.

To ensure that the debt element of the investment is protected the lender will review the earnings stream to ensure there is sufficient cash income to service the debt requirements, and to ensure that the likelihood of the earnings stream will cover the debt servicing requirements, the lender will normally require the earnings stream to be a multiple of the debt covering requirements. Depending on the assessed risk of the investment the lender may require the earnings stream to exceed the debt coverage requirements by a factor of two or even greater. But regardless of the multiple of debt coverage, the lender uses the earnings stream as the primary measure of the ability of the borrower to manage the debt provided.

Equally, the equity provider (investor) will assess the adequacy of the future earnings stream relative to the amount of equity required. The investor will assess both the historic earnings (as a guide to the certainty of recovery of the investment) and of the fundamentals underpinning the earnings stream in the future after the additional investment is made. Thus it is the earnings stream,

again, which is the primary measure as to the adequacy to provide both return of the equity, and the return on the equity.

Whilst there are many other issues which will be addressed before making an investment decision, it is the level of certainty of achievement of the target earnings, related to the risk of losing the invested funds, which ultimately drives the investment decision. To assess the likelihood of delivering the earnings, a range of scenarios with likely earnings for each will be developed and for each scenario, the present value of the earnings that will flow from each scenario will be assessed. This combined with a testing of possible variables that might affect the outcomes of each scenario (ie sensitivity testing) will provide a sound basis on which to assess the likely earnings from the investment and the risk assessment of not achieving the minimum earnings required to support the investment.

There are two basic investment decisions made by an investor.

**1. The decision to invest in an enterprise (ie become a shareholder).**

This decision is driven by the earnings arising from the dividend provided by the enterprise on each share, and the expectation of the market (based on the anticipated future earnings of the enterprise) as to what is an appropriate value for a share when traded on the open market. It is the sum of these two earnings (the dividend and the capital growth) which is measured by the accumulation index.

“One of the handiest tools for investors to use when assessing the value of stocks is the price-earnings ratio. It is easy to calculate and most useful for comparing stocks in the same sector – but it doesn’t tell you everything about a stock’s valuation....[However when compared to the P/E ratio of other stocks, a lower P/E ratio] tells you that investors place a lower value on [the] earnings than for other stocks. ... [The] use of “prospective” P/E ratios ... [is] based on a consensus ... of a company’s future earnings<sup>49</sup>.”

Thus even the selection of stocks for investment purposes is driven by the expectation of earnings, and the likelihood that these earnings will be achieved.

**2. The decision to invest capital to increase an earnings stream.**

This decision is made to invest in an actual product rather than in an enterprise. This investment is usually referred to as capital expenditure (capex) in a new product or to maintain or improve an existing product.

---

<sup>49</sup> From “Market Basics” by Chris Wright, AFR 25 May 2005

The performance of the investment is usually measured by assessing the present value of an earnings stream resulting from the specific investment for a specific outcome.

This is done usually by assessing the internal rate of return (IRR on the earnings stream) or by measuring the time to recover the capital invested from the earnings stream over time (the simple or discounted payback period). Both the IRR and payback approaches are made on the earnings stream after the deduction of interest and debt repayments.

Thus the investment decision whether to invest in an enterprise or to invest in new works is underpinned by the earnings stream. The most powerful of the measures used in the assessment of an investment is the “earnings before interest and tax” (EBIT) as related to the value of the assets employed to deliver the earnings stream. Closely accompanying the earnings forecast is the certainty of this forecast being realized. At the very base level the ability of the business to deliver the earnings forecast over a significant period of time is a key element of the assessment of the potential outcome of the investment decision.

As there is a risk in assessing future earnings streams (either due to poor forecasting or exogenous issues) the hurdle rate for an investment in a new product (ie the capex investment) is commonly set higher than the average of the enterprise returns to accommodate the potential for under-recovery in the future earnings stream. Thus an enterprise that has a high risk profile will tend to have a higher EBIT/assets for its base business activity and have a higher than average hurdle rate for new capital investment. An enterprise with a secure and stable history of earnings over time and operating in a lower risk business will tend to have a lower historical EBIT/assets and use a lower hurdle rate for the investment decision to reflect the certainty of the earnings stream.

In the market place businesses are graded into a range of categories which reflect the environment they operate in, and from this the lenders will have a different view between the approach they have to lending to the different categories and to the different businesses within each category. An example of this is the way ratings companies (eg Standard and Poors) will rate market sectors and businesses based on their performance and the risk profile of their activities. Fundamentally, such ratings are based on the earnings related to assets employed and the likelihood each sector (or business) has in achieving the earnings expected – a risk assessment.

### **Investment in an enterprise**

Investment in an enterprise is usually assessed by the individual performance of the enterprise against its peers in the same sector (ie comparing one business

with another facing the same or similar risks) and in assessing the performance of a sector against the market as a whole (ie comparing one sector against the performance of the market – using sector indices as the gauge).

Thus an investor in the market will assess the likely exogenous issues which will cause one sector to outperform another. For example in a rising interest rate or inflation period, investment in the defensive stock sector (eg utilities, banks, etc) will be sought after in preference to stock sectors in more highly geared industries (eg tech businesses). As a result there is demonstrated volatility and variability in growth between different sectors over time.

Once a sector is selected as being potentially more likely to show growth than another, an investor will seek to invest in an enterprise which either is stable in its performance or in one which is underperforming but exhibiting the “right” fundamentals for managing its activities. It is this decision which (hopefully) leads to an outperformance in investment in the market.

Regardless of the reasons for selection of a particular sector, or a specific enterprise within a sector, it is the earnings (by dividend and capital growth) which are measured, and the result is measured against earnings achieved for the investment (assets) used.

The sum of the returns (earnings) from investment in the market (ie dividend and growth) is measured by the accumulation index and it is the accumulation index which is used by economists as the basis for the CAPM which is used to model the stock market and provide a basis for identifying the factors which impact on investment in stocks. The CAPM uses the accumulation index to calculate what the market premium an investor actually achieves by investing in the stock market. By making adjustments to reflect the volatility of returns and risk profiles of different market sectors (by the use of adjustments called equity betas), an average market risk premium can be identified. Out of the CAPM comes the “weighted average cost of capital” (WACC) which is a measure of the cost of capital which an enterprise might incur as part of its activities.

As it is “earnings” that drive the expectations of market investors and therefore the resultant dividend value and market growth, the measure EBIT/investment is the fundamental measure of performance of earnings from an investment<sup>50</sup>.

---

<sup>50</sup> An allied term EBITDA is also used frequently, but as this includes non cash items (depreciation and amortization) it has its limits as a tool, partly because the assessments of amortization and depreciation can be manipulated. EBIT fails to capture capital expenditure but as the WACC used for regulated businesses also excludes capex, depreciation and amortization, and the opex allowed by the regulator is expected to be adequate and used entirely, EBIT/assets becomes a useful comparator to WACC

As an enterprise sources its capital needs from a variety of sources (deferred payment to vendors, borrowings from lenders, retained earnings and equity injection), a weighted average cost of capital can be calculated for any enterprise and for convenience sake this paper uses the term internal WACC for this actual but calculated figure<sup>51</sup>. The internal WACC will vary over times as debts are retired and new debts taken, with the duration of delayed payments, with the issuing of new shares or a buyback of shares. The internal WACC for an enterprise is continually changing, and is heavily affected by external pressures such as interest rate movements and inflation

A measure of performance of the efficacy of the enterprise's treasury is that the internal WACC is kept as low as possible, and therefore the level of internal WACC operated by an enterprise will be minimized wherever possible. As the pre tax internal WACC includes for the cost of debt, an internal assessment must be made to ensure that the internal WACC\*assets is equal to or less than the EBIT. If the EBIT is lower than the internal WACC\*funds employed (assets) then the enterprise is under performing. If the EBIT is higher than internal WACC\*funds employed, then the enterprise is out performing and has additional revenue which may be retained or returned to shareholders. When shareholders (investors) see funds being retained due to out performance then this translates into a higher value being placed on each share of the enterprise. In market terms the higher value replicates the equity premium relative to the share.

Thus at a fundamental level the “market generated WACC” derived from the CAPM has a relationship to the EBIT/funds employed (or assets) generated by an enterprise or market sector.

## Investment by an enterprise

The investment decision for new capex is based on one or a number of different and some times competing criteria.

- There must be a revenue stream to support the decision. As noted this will be based on an IRR<sup>52</sup> (usually exceeding 12-15%), or a pay back period which may be over 3-6 years.
- The capex will improve the quality of the product and assist in creating new sales or preventing the loss of existing sales.

---

<sup>51</sup> Internal WACC can be calculated so that it does reflect a value put on returns to shareholders through the dividend, and on retained profits to be used by the business for future needs. Thus internal WACC can be estimated in such a way that it can be compared with the CAPM WACC

<sup>52</sup> IRR – internal rate of return. This places a value on the cash flow resulting from an investment. It is a measure of the discount that effectively arises from the cash flow resulting from implementing an investment. The higher the IRR, the better the return from the investment.

- The capex will generate a new product. A new product which has some risk attached to it would require a higher IRR or shorter payback.
- The capex will generate new sales or prevent loss of existing sales.
- The capex will eliminate the risk of failure of plant and this must equal or exceed the expected loss of production for the period of failure.
- The capex will be strategic to achieve a higher market share and/or eliminate competition.

The decision to invest capital to create a return for an enterprise is based on the internal WACC, usually enhanced by a premium to ensure that over a number of investment decisions there will be sufficient earnings to continue the stable operation of the enterprise and accommodate sub optimal returns from one or more of the investment decisions.

If there is a higher risk associated with the investment (eg potential for not achieving the expected earnings from the investment), then a higher return will be sought. An example would be the Dalrymple Bay Coal Terminal where the increased capacity currently being demanded by coal exporters might not be sustained into the future, when for example the strong demand from the Chinese market is reversed.

Thus the return on existing assets (ie the internal WACC) is often lower than the hurdle rate for new investments as there is some risk associated with forecasting the actual cash flow into the future and the level of sustainability. Where the decision to invest has some risk associated with it there is a valid argument for the hurdle rate for the capital investment decision to include a premium to reflect the increased risk.

## **The implications of using WACC for investment decisions**

To relate “market generated WACC” as the basis for capex decisions is totally incorrect and inappropriate as CAPM is a tool for assessing the returns an investor in shares might obtain from the average of the share market (ie investing in the share index). The CAPM gives the base line for measuring performance in share investment.

The WACC as awarded to a regulated business to calculate the cash flow from the asset base should be lower than the WACC related to capex to which there is some element of risk. The WACC awarded should replicate the internal WACC which is a calculated figure for an enterprise. As regulated businesses have security in their cash flow it is expected that the internal WACC of such a business would be lower than the internal WACC for a business operating in a competitive environment.

In the case of electricity networks where the regulator does not optimize the network to recognize that an earlier investment made may be oversized or even redundant there is little reason for there to be a risk premium placed on the investment hurdle rate. If an investment is going to be optimized at the next reset, then there is an argument for increasing the hurdle rate for the new investment. If at the reset the full capex is included in the RAB, then the average WACC for the business should apply to the new investment from that time on as there is no longer a risk element involved.

### **An approach recognizing the benefit of a “split” WACC**

If we accept that the WACC for capex should be higher, then we need to ensure that the WACC of the base business should reflect the returns that an average business (with a guaranteed income) should receive as a return.

To do this requires the regulator to carry out market assessments to see what financial indicators are appropriate for a continuing business operating in the competitive market place. These can be obtained from a number of sources such as IBISWorld or other similar group examining market performance of individual businesses or groups of businesses.

The regulator can calculate these same financial indicators from the revenue stream awarded to the regulated business (eg as ACCC did for TG) and benchmark them with the outcome of market realities.

Thus having developed a “basic WACC” for application to the existing assets, the regulator can develop a “capex WACC” for application to the forecast capex until the reward for the investment has been achieved and the capex is rolled into the asset base.

This approach gives the basis for having two WACC figures, one higher for capex and applying for a known period, and one lower application to the historic asset base. Such an approach replicates the approach used by all enterprises in a competitive environment.

### **Is there a difference between a “capex WACC” for a revenue cap compared to a price cap?**

The electricity market has two types of revenue delivery – a revenue cap for transmission and a price cap for distribution. In both approaches, capex for replacement and refurbishment is essentially protected (ie is automatically accepted as legitimate expenditure by the regulator), whereas capex for

augmentation is a risk under a price cap regime if the sales forecasts are not achieved (equally if the sales forecasts are underestimated, then there is potential for a windfall).

- In a revenue cap arrangement where a return on the investment is guaranteed during the life of the review period and there is little or no chance for the capex not to be rolled into the RAB at the next reset, the risk of not maintaining future returns is minimal.
- In a price cap arrangement where there is some risk that the forecast sales volume might not be met during the review period, capex investment is protected providing the business does not exceed the amount of capex included in the review. If the capex is dependent on exceeding the sales forecast, there is a risk to the business, but this only applies to the capex involved in generating the additional revenue.

## Conclusions

The regulator has two fundamental concerns when setting the WACC for a regulated business.

- The first is to minimize the ability of a monopoly enterprise from garnering monopoly rents, and
- the second is to ensure that the WACC is high enough to encourage the future necessary investment.

### Minimizing monopoly rents

The WACC used by a regulator as a return on assets should reflect the internal WACC of the “average enterprise”, adjusted for the gearing. It should not exceed the “average internal WACC” which would apply across a range of businesses (eg as calculated across the ASX 200 companies), for to do so will permit a greater recovery of cash for the regulated business than applies to the “average” business.

### Incentivising investment

Just as the “average enterprise” will set its internal hurdle rate for new investment at a higher level than its average internal WACC then there is a sound case for a regulator to permit a regulated business a higher WACC for capex *where that capex may be at risk until the regulator has rolled the amount into the RAB*. Once there is certainty that the investment will be accepted into the RAB (and therefore no longer at risk) then the WACC for the main assets can apply.

There are a number of benefits which flow from a decision to have a separate (higher) WACC for capex.

1. The ESCoV has identified that the Victorian DBs have underspend considerably on the capex allowed at the time of the last review. If the ORG had identified that a higher WACC would apply to capex before it was rolled into the RAB then there is a positive incentive for the business to carryout its capex program in the time frame recognized as being appropriate. If the higher WACC terminates at a point in time identified by the regulator (eg at the next review, five years after the allowance was accepted into the revenue stream, etc) then the regulated business is incentivised to meet the capex program intended.
2. Such an approach provides an incentive on the business to establish a capex program that is realistic and not front-end loaded as seen in most regulatory applications.
3. As TransGrid found to its cost in the recent review of its revenue by the ACCC, the ACCC discounted the value of the third feeder to the Sydney market (the Haymarket augmentation). This shows that there is additional risk for capex as distinct from a return on existing assets, and TransGrid could aver that such a risk should provide an increased return

Allocating different WACCs for existing assets and capex does in fact recognize the reality of operating in a competitive environment, and the way a business operates in it.

But it should equally be noted that there is little value in awarding a premium to the regulated WACC for all capital (existing and potential) investments where there is every expectation that the investment will be accepted and therefore having no risk of the investment being included in the regulated asset base.

## 9. ESCoV CONSERVATISM

### The results of “gaming” the last review

Despite the ESCoV clearly identifying that the DBs have:-

- Over recovered on the revenue for years 2001/2005 through a combination of tariff manipulation and poor forecasting in 2000,
- Underspend excessively the allowance granted for opex for years 2001/2005
- Underspend excessively the allowance granted for capex for years 2001/2005

the ESCoV has advised that these funds will remain with the DBs as it is of the view that these are a legitimate outcome of the regulatory process. Further the ESCoV has also stated that they will not clawback any excess funds which the DBs may have accrued over and above a reasonable and actual expenditure.

The only penalty on the DBs is that the underspend in opex is to be used to justify a lower forward looking opex. **The cost to consumers of this decision was about \$100m pa for each of the past five years.**

There has been no penalty on the capex underspend. **The cost to consumers of this decision was about \$50m pa for each of the past five years.**

There is no penalty on the revenue over recovery (even though it clearly displays a lack of cost reflectivity), with the ESC deciding that rather than reducing controls as they had hoped to do, they will retain the controls that permitted the over recovery of revenue. **The cost to consumers of this decision was over \$100m pa for each of the past five years.**

The ESCoV has decided not to penalize the DBs for the excessive charging of consumers for these amounts as they believe in regulatory certainty and consistency. It avers that to clawback any of these funds will reduce regulatory certainty and increase risks for the regulated businesses.

The ESCoV believes strongly in conservatism in favour of the regulated entities as the potential of not following this path is financial failure of the regulated business.

## The compounding effect of conservatism

Consumers have seen the outcome of the conservative approach taken by the ESCoV predecessor (the ORG) such that the DBs have been able to maximize profitability at the considerable expense of consumers. The ESCoV states:-

*“The Office also considers there are a number of areas in [the 2001-05 Final] Determination where the Office has adopted a conservative approach, which would be expected to benefit the distributors on average, including adopting a conservative approach to many of the elements in the expenditure benchmarks ... (ORG 2000a, p. 137”<sup>53</sup>*

The outcome of this conservative approach is that there has been a compounding effect. For example, to award a conservatively set level of market risk premium, compounded by a conservatively set equity beta, and then applied to a conservative allowance for capex, provides the DBs with a tripling impact of enhanced profitability for the DBs by this compounding of conservatism. Ultimately it is the consumers who are levied a premium by this conservative approach.

Equally when conservative amounts are awarded for individual opex components, and these are added together, the end amount includes a much higher value of conservatism than would normally apply if an allowance for some diversity was included in the assessed amount<sup>54</sup>.

It is this consistent and compounding conservatism that has led to DBs being permitted to accrue increased and unearned income, and to consistently underspend on capex and opex yet still improve in some measures of service performance. Unless the ESCoV recognizes this essential element which arises from consistent conservatism in favour of the regulated businesses, then consumers shall consistently see the DBs continue to achieve excessive profits.

As noted in the foregoing sections, the ESCoV has included a conservatism in the inputs to the Draft Decision following areas:-

1. State budget forecasts for growth are seen as consistent with the NIEIR high and Econtech growth forecasts of about 3.3%, yet the draft decision uses a much lower growth forecast in consumption growth of electricity of some 25% below GSP. As most of the distribution revenue is derived from consumption (kWh) and electricity consumption is expected to track the GSP, the implication of this lower consumption growth rate is that when it

---

<sup>53</sup> Draft Decision page 3

<sup>54</sup> One of the authors of this response spent over 10 years in estimating for a company operating in a competitive market. If he had followed the approach used by the ORG in compounding conservatism, the company would have never won any new work.

is applied into developing tariffs, the resulting tariffs will be overstated by some 25% and so **allow the DBs to garner an increased revenue.**

**Based on the revenue identified in the draft decision this bias is assessed at between \$125m pa to \$250m pa.**

2. ESCoV has decided that tariff rebalancing controls will remain as they are despite the ESCoV noting that EUCV has legitimate concerns about this practice to manipulate tariffs. It, however, believes that it is inappropriate to more closely constrain the DBs due to the complexity and costs involved, combined with the *potential* for embedded networks to impact negatively on DB revenue.

The impact of this concern for the DBs, based on their excessive revenue recovery in the current regulatory period, could well result in consumers paying up to \$60m pa in additional revenue premiums **because the ESCoV will not increase the controls to stop the DBs from manipulating tariffs.**

The ESCoV has made no attempt to demonstrate the essential consistency requirements of the Tariff Order to ensure that actual revenue matches forecast revenue when adjusted for inflation, consumption and transmission charges, and by not doing so has permitted the DBs to retain unearned revenue by the manipulation of individual tariffs.

**Based on the performance of the DBs in the current period, this bias can be valued at over \$50m pa**

3. The allowance for opex is overstated by some \$30m pa as the ESCoV is using a single year opex to set the future opex allowances. If the average of the past five years is used, the start opex would be some \$30m pa lower than the current allowance being used by the ESCoV. By allowing the DBs to carry out regulatory gaming by not identifying and responding to this practice, **this ESCoV bias could allow the DBs to have additional but unearned revenue of some \$30m pa**
4. The data available clearly shows that recent estimates of equity risk premium and equity beta are well below the estimates of these figures used by ESCoV of 6% for ERP and 1.0 for equity beta. There is a strong argument that ERP should be less than 5% and the equity beta should be less than 0.8. The impact of using the higher CAPM inputs rather than ERP of 5% and equity beta of 0.8 **penalizes consumers by some overstating the return on assets by some 50 basis points, so this**

**bias by the ESCoV has the effect of increasing DBs revenue by \$30m pa**

5. The ESCoV has not made any attempt to recover the so-called “incentive” reward for the DBs not spending opex and capex approved in the 2000 review by ORG, yet subsequently paid for by consumers. In this review the ESCoV is not proposing to put in place any controls to prevent a similar unearned reward applying to the DBs in the coming review. **Based on the amount of “saved” income which the DBs earned in the current period, this bias is estimated at over \$100m pa.**

**Thus in total the ESCoV is prepared to allow the DBs additional revenue of some \$360m pa on a total revenue of about \$1150m pa.**

**The compounding effect of summing all of the stated biases that the ESCoV has included in the draft decision, is equivalent to an added risk premium for “not getting it right”, of over 30%.**

The ESCoV should calculate all of the stated biases in its decision so that the regulator and consumers can see the premium applied by the regulator for the aggregate value of all conservative assumptions. This should then be assessed for reasonableness and adjusted accordingly if identified as being too high.

## 10. SERVICE STANDARDS AND INCENTIVES

In the draft decision the ESCoV has stated that

“The distributors will continue to report against the following average reliability measures, by network type: annual duration of unplanned interruptions (unplanned SAIDI), annual frequency of unplanned interruptions (unplanned SAIFI), annual duration of planned interruptions (planned SAIDI), annual frequency of planned interruptions (planned SAIFI) and frequency of momentary interruptions (MAIFI). MAIFI will continue to be defined as an interruption of duration less than one minute.”

“The distributors will also report the annual duration of interruptions (planned and unplanned) experienced by the 15 per cent of customers in their area experiencing the longest time off supply in that year.”

“Additionally, the distributors will provide a breakdown of the causes of unplanned interruptions on an annual basis into [certain] categories.”

“The distributors will continue to report quality of supply against [certain] measures.”

“Distributors will continue to report, on an annual basis, low reliability feeders for which the average minutes off supply (for planned and unplanned interruptions) is above a threshold. The thresholds for reporting these feeders during the 2006-10 regulatory period are as set out ...”.

“Additionally, the distributors will report, on an annual basis, low reliability feeders for which the frequency of momentary interruptions is above a threshold and zone substations and feeders which are not compliant with the standards as set out in the *Electricity Distribution Code*. The thresholds for reporting low reliability feeders with respect to MAIFI are as set out ...”<sup>55</sup>

To achieve the target outcomes the ESCoV has included an incentive regime which will reward enhanced performance and penalize substandard performance. The following assessments are derived from pages 73 – 81 of the draft decision.

Some of the requirements of the ESCoV put DB revenue at risk, and some require the DB to provide information in a particular format so the ESCoV can

---

<sup>55</sup> ESCoV draft decision, extracts from pages 34 to 38

assess whether the DB performance is improving. The following summarizes the service incentive program proposed by the ESCoV

#### Revenue at risk

Under the S-factor scheme a distributor's allowed revenue (through average prices for all customers) is increased (or decreased) based on its performance relative to performance targets.

Under the GSL payments scheme, payments are made to customers where the performance received by those customers is below a specific threshold.

#### DUoS penalty/bonus

The price control formula for the 2006-10 regulatory period will include a service adjustment or S-factor term ( $St$ ), which is calculated in accordance with [a] formula [which measures variation from the targets for Unplanned interruption frequency, Unplanned minutes off supply, Momentary interruption frequency and Call centre performance.

#### GSL payments

As a minimum, the distributors will be required to make a Guaranteed Service Level (GSL) payment where... a [small] customer is interrupted for a long period, ... is interrupted frequently, ...the DB is late for appointments, ....does not connect when agreed [or] ... fails to repair a street light [in good time].

#### Reporting requirements for long term availability

On an annual basis, the Commission will include a "health card" on each distributor in the Comparative Performance Report.

Distributors will continue to report, on an annual basis, low reliability feeders for which the average minutes off supply (for planned and unplanned interruptions) is above a threshold.

Additionally, the distributors will report, on an annual basis, low reliability feeders for which the frequency of momentary interruptions is above a threshold and zone substations and feeders which are not compliant with the standards as set out in the *Electricity Distribution Code*.

Identification of the need to address shortcomings in the networks is seen as an essential feature for bringing the reliability and quality of supply to an acceptable minimum for all consumers.

The EUCV supports the attention being required to be addressed to poor performance on certain feeders but we query whether just reporting is sufficient incentive for the DBs to take action to bring the performance up to minimum acceptable levels. The EUCV would like to see the incentive scheme incorporate some penalty/bonus in relation to these poorly performing feeders.

## **Assessment of the requirements**

There is no doubt that the current service performance measures are woefully inadequate and the EUCV made this point in its submissions to the ESC issues and position papers. On this basis the proposed enhancements are supported even if they do not reach the standards required by EUCV members.

However, for the enhanced program for incentives (the S-factor) to be effective, the penalty/bonus values must be set at such a level that replicates the cost or benefit to consumers for failing or achieving the service standards. For example if the performance standards in one location are improved, yet they do not deliver real value to consumers, to pay any bonus for achievement has little merit. Equally if the value for improvement actually delivers a quantifiable benefit to consumers, then the bonus should reflect this value. Equally if there is a reduction in service standard then the penalty should reflect the cost to consumers for the lesser performance.

The key elements of any performance incentive program is that:-

- the targets have to be challenging but not impossible,
- the improvement has to be focused where there is a need
- the incentive has to be sufficient in size to warrant the attention, and
- that all performance payments (for good or poor performance) should be sourced which exclusively impact the bottom line of the DB revenue.

The EUCV assessment of the service standards and incentives against these criteria is as follows

1. The ESCoV has stated that:-

“The service performance of the distributors has shown marked improvement for virtually all customers over the last ten years.

In the time since the industry was restructured, privatised and placed under formal economic regulation in 1995, all key indicators of network reliability have shown significant improvement.

The broadest indicator of reliability, average customer minutes off supply per annum (or SAIDI), has fallen from 199 in 1997 to 132 in calendar year 2004. The proportion of customers experiencing more than five hours of supply outages (or 300 minutes-off-supply) has reduced from 20.5 to 11.6 percent over the same period. The annual incidence of interruptions (as indicated by SAIFI) has also reduced significantly.<sup>1</sup>

Services have not only improved in terms of average network performance, but they have also improved for most customers located in those parts of the electricity distribution network that have historically experienced poor performance. There has been significant improvement in the minutes off supply for worst served customers.”<sup>56</sup>

Yet despite these assertions, a review of the new standards for SAIDI, SAIFI, and MAIFI shows, on average, that the standards which applied for 2005 have been only marginally tightened, with 50% of the standards remaining as for 2005. There are specific targets which have been tightened from the 2005 targets but these have quite rightly been tightened as a result of historical performance. Of concern is that there are equally as many targets which show that the 2005 standard has been relaxed.

If service should have improved to the extent that the ESCoV alleges, then the targets should result in a demand for greater improvement rather than remaining effectively the same as the current standard.

Additionally the EUCV sought new standards to be introduced but the ESCoV has elected to ignore this request, based on the fact that the DBs did not have the ability to measure such standards. Whilst this principle must be accepted (it is unreasonable to set a standard if it can't be measured) there is no requirement for the DBs to move towards setting performance levels which have such a major impact on consumers. The failure to commence moving towards being able to measure such performance that impacts on consumers is not acceptable.

---

<sup>56</sup> ESCoV draft decision pages 1 and 2

Overall the ESCoV draft proposal does not meet the first requirement for an incentive scheme in that it does not meet the needs of consumers and it does not set sufficiently challenging targets.

2. The incentive scheme as developed is based on averages. Thus an improvement in one area where already the performance is above the benchmark does little for the consumers supplied from this part of the network, yet this “out performance” is netted off against poor performance in another part of the network. Thus there is no incentive to address areas of poor performance in their own right. It is noted that reporting of poor performance on those feeders involved is required but reporting the fact does nothing for those consumers impacted by the less than benchmark performance.

Therefore the incentive program does not meet the requirement that areas of poor performance must be addressed and improved performance provided.

3. The incentive must be of sufficient magnitude that it attracts the attention of the DBs. The ACCC currently exposes 1% of revenue for transmission businesses to an incentive program. This is clearly insufficient. It could well be argued that the implied 2.5% of revenue currently at risk is too low to incentivise the DBs

It is because of this view that the EUCV supports the increase of implied revenue at risk to about twice the current levels later in the regulatory period.

Equally, the EUCV notes that the exclusion of specific performance on the poorly performing feeders does detract from the benefits of the incentive approach

4. The ESCoV has set a benchmark revenue for the provision of the service. This benchmark revenue can be increased or decreased by the measurement of performance of the DBs. Thus the incentive scheme complies with goal that improved or lesser service will impact on the benchmark “bottom line”.

However, the concept of adding an amount to the revenue stream from which payments can be made for less than benchmark performance, as proposed by the ESCoV for the GSL incentive scheme appears to be contradictory, and this point was made in the EUCV submission to the position paper. It appears bizarre that the ESCoV will provide a fund (at the expense of consumers) for the DBs to make payments for poor performance. To provide money to the DBs for payment of GSLs in the revenue is akin to saying that the performance levels are not achievable and there is an expectation that the DBs will fail. No business in the

competitive environment can assume that they can put aside money for poor performance – if they did they would never win work.

Notwithstanding this the EUCV would point out that large users of electricity are not permitted to benefit from the GSL program. Because of this it is appropriate to point out that if large users cannot benefit, then neither should they pay for the fund to be established. Due to their large consumption larger users contribute perhaps more than 50% of the revenue to the DBs, so therefore care must be taken to ensure that the tariffs structured by the DBs exclude large users from contributing to the GSL fund if such is established.

## 11. DEMAND MANAGEMENT

The EUCV supports the encouragement of demand management actions, although it does point out that for most consumer-businesses, it is the need to continue normal operation which drives actions by consumers (especially manufacturing enterprises) as the potential savings from modifying demand are not guaranteed, and represent a modest (at best) contribution to business profitability.

The Electricity Distribution Pricing Review (EDPR) is about setting the appropriate revenue for the distribution businesses, and not about attempting to correct failings in the electricity market, such as the continuing drive to find solutions to market short comings. The EUCV would point out that if there is a need to send price signals to consumers, then the EDPR should only address those pricing signals which are related to the network constraints. Thus the EDPR should only include in its review methods to increase the utilization of the network and to avoid or delay investment in the networks.

The EDPR should not attempt to incorporate costs for demand side activities which are better addressed by modifying the National Electricity Law and Rules. If there is a dearth of demand side responsiveness then it is unlikely to be resolved within the purview of the electricity distribution businesses and consumers in Victoria should not be required to unilaterally contribute funds for activities which should be addressed at a national level.

However there are some actions of a demand side nature which do fit within the ability of distribution businesses to address – these include avoidance or deferring of capital works, sourcing external network support options and power factor correction. At the same time it has been recognized by IPART and ESCoSA that a demand reduction by consumers is likely to result in reduced revenue to the distribution businesses. Thus there is an essential disincentive on distribution businesses to be actively involved in demand side responsiveness. At worst to get their positive involvement will require an undertaking to keep the businesses “whole” in terms of revenue, if not providing them with a positive incentive such as an increased revenue to be active.

Countering this there needs to be an assessment of the likely benefits (in cash terms) which will offset this disincentive to the DBs. Preliminary calculations by SP AusNet at the ESCoV forum on 12 August would indicate that the benefits from achieving demand side responses might not exceed the costs. If this is the case, then the ESCoV must not allow any increased revenue to the distribution businesses for demand side responses as this is likely to result in an overall cost to consumers.

Before any commitment is made to increase the DB revenue, the ESCoV must demonstrate that this increase will result in a net benefit to consumers arising from the DB network activities. To assume that a benefit will come from other sources is not proven, and unproven assumptions should not be the basis for increasing DB revenues.

Of concern is that there is marginal correlation between the needs of the network and the pricing signals from the electricity pool. What has been identified is that on many occasions the timing of the peak price in the pool does not match the timing of a network overload or constraint. Where the two coincide on the same day, the pool peak price seems to occur some hours earlier than the network overload, and there are instances where the network overload occurs on days when the pool price does not exceed reasonable levels. Even more often there are pool price spikes when there are no network constraints.

Overseas experience shows that for the active participation of the demand side, it requires formal advice of up to 24 hours notice that a pool price peak and/or network constraint will occur. Whilst the DB can reasonably forecast a network constraint ahead of time, the current Australian pool pricing structure does not give clear signals that a pool price spike is to occur<sup>57</sup>. Thus to attempt to use network pricing signals to address concerns beyond the responsibility of the DB is fraught with conflict and low correlation.

At the forum there were conflicting signals from the DBs as to how they might provide pricing signals to cause demand side responses. One business stated that the introduction of interval meters could result in the DB introducing demand pricing to all consumers, where another was of the view that as such signals would be seen well after the event, and that as a result demand pricing was not likely. Certainly the presentation from SP AusNet implied that such pricing signals could well exceed 3 times base prices for peak periods, and research from overseas implies that 6 times base prices for peak periods (with notice) does deliver some demand side response. What this means is that DBs would introduce more tariffs and as history has shown (see earlier sections of this submission) the DBs will use the increased number of tariffs to increase revenue above benchmark revenue.

**The EUCV sees that funding the DBs for demand side responsiveness has the potential to increase costs to consumers but deliver little benefit to the networks or assist in avoiding costs which consumers would otherwise bear. On this basis the EUCV cannot support providing additional distribution revenue to the DBs for investigating demand side activities.**

---

<sup>57</sup> See the report "Interval Metering of Electricity Supplies to Domestic Consumers" February 2004 by Headberry Partners P/L.

What the EUCV does support is that the ESCoV convene workshops to address the many constraints and barriers to demand side responsiveness. From this workshop there will arise options for the DBs to become active in the issue of demand side responsiveness and where funding can be granted for this particular need. Such funding could be provided from government revenue or from other sources as identified in other jurisdictions. The decision to grant such funds can then be directly related to the benefits that will flow to consumers rather than lost in the total revenue a DB is granted for performing its basic function of an electricity distribution service.

Such issues that could be addressed in an open forum might be:-

- the barriers to embedded generation (including the costs levied by distribution businesses)
- power factor correction – kVA tariffs, a consumer responsibility or a DB responsibility
- how will IMRO provide a benefit if network tariffs remain consumption based
- the value of deferred capex – is it actual deferral or based on deferring from a forecast
- volatility of the pool price and its impact on the demand side
- signals from distribution tariffs for consumers with active participation in DSR – demand resets, demand based tariffs, seasonal tariffs, multiple tariffs

## APPENDIX 1

The list of companies used in the sample for assessing EBIT/assets on page 51 is as follows:-

A B C Learning Centres Limited Adelaide Bank Limited Adelaide Brighton Ltd Adsteam Marine Limited Alesco Corporation Limited Alinta Limited Alumina Limited Amcor Limited AMP Limited Ansell Limited APN News & Media Limited Aristocrat Leisure Limited Austereo Group Limited Australand Holdings Limited Australia and New Zealand Banking Group Limited Australian Gas Light Company Australian Pipeline Trust Australian Stock Exchange Limited AWB Limited AXA Asia Pacific Holdings Limited Bank of Queensland Limited Baycorp Advantage Limited Bendigo Bank Limited BHP Billiton Limited Billabong International Limited BlueScope Steel Limited Boral Limited Brambles Industries Limited Burns, Philp & Company Limited Caltex Australia Limited Centennial Coal Company Limited Centro Properties Group CFS Gandel Retail Trust Coates Hire Limited Coca-Cola Amatil Limited Cochlear Limited Coles Myer Ltd COLORADO group Ltd Commander Communications Limited Commonwealth Bank of Australia Commonwealth Property Office Fund Computershare Limited Consolidated Minerals Limited Corporate Express Australia Limited Crane Group Limited CSL Limited CSR Limited David Jones Limited DCA Group Limited Downer EDI Limited Energy Developments Limited Envestra Limited FKP Limited Fleetwood Corporation Limited Flight Centre Limited Foodland Associated Limited Foster's Group Limited Futuris Corporation Limited GasNet Australia Group GPT Group Great Southern Plantations Limited GUD Holdings Limited Gunns Limited GWA International Limited Harvey Norman Holdings Limited Healthscope Limited Hills Industries Limited Housewares International Limited Iluka Resources Limited ING Industrial Fund ING Office Fund Insurance Australia Group Limited Investa Property Group IOOF Holdings Ltd IRESS Market Technology Limited James Hardie Industries NV JB Hi-Fi Limited John Fairfax Holdings Limited Jubilee Mines NL Just Group Limited Leighton Holdings Limited Lend Lease Corporation Limited Lihir Gold Limited Lion Nathan Limited Macarthur Coal Limited Macquarie Bank Limited Macquarie CountryWide Trust Macquarie Infrastructure Group Macquarie Office Trust Mayne Group Limited McGuigan Simeon Wines Limited Miller's Retail Limited Minara Resources Limited Mirvac Group MYOB Limited National Australia Bank Limited Newcrest Mining Limited Nufarm Limited OAMPS Ltd Oil Search Limited OneSteel Limited Orica Limited Oxiana Limited Pacifica Group Limited PaperlinX Limited Patrick Corporation Limited Perpetual Trustees Australia Limited PMP Limited Promina Group Limited Publishing and Broadcasting Limited Qantas Airways Limited QBE Insurance Group Limited Ramsay Health Care Limited Ridley Corporation Limited Rio Tinto Plc - Rio Tinto Limited Roc Oil Company Limited Santos Ltd Seven Network Limited SFE Corporation Limited Sigma Company Sims Group Limited Smorgon Steel Group Ltd Limited Sonic Healthcare Limited Southern Cross Broadcasting (Australia) Limited Spotless Group Limited St George Bank Limited Stockland Suncorp-Metway Ltd Sunland Group Limited Tabcorp Holdings Limited Telecom Corporation of New Zealand Limited Telstra Corporation Limited Ten Network Holdings Limited Thakral Holdings Limited Timbercorp Limited Toll Holdings Limited TOWER Limited Transfield Services Limited Transurban Group UNITAB Limited United Group Limited Vision Systems Limited Watty Limited Wesfarmers Limited West Australian Newspapers Holdings Limited Westpac Banking Corporation Woodside Petroleum Ltd Woolworths Limited WorleyParsons Limited

**2003/04 ESCoSA**

**ELECTRICITY DISTRIBUTION PRICE REVIEW**

**OF**

**THE ETSA UTILITIES REVENUE CAP**

**Observations In Relation to ESCOSA's Draft Decision On**  
**Market Risk Premium And Equity Beta Applied to ETSA**

by

Headberry Partners P/L and Bob Lim & Co P/L

for

**The Electricity Consumers Coalition of South Australia**

**March 2005**

**This is an expanded version of the February 2005 paper that was submitted to ESCoSA by ECCSA.**

**It contains a more detailed critique of ESCoSA's analysis.**

## **CONTENTS**

	<b>Page</b>
<b>1. Introduction</b>	<b>3</b>
<b>2. Some recapping of past issues related to the level of regulated WACC</b>	<b>5</b>
<b>3. Issues surrounding Market Risk Premium</b>	<b>10</b>
<b>4. Issues surrounding equity beta</b>	<b>23</b>
<b>5. The ESCoSA Draft Decision</b>	<b>32</b>

## **1. Introduction**

This paper has been commissioned by the Electricity Consumers Coalition of South Australia (ECCSA) to make observations on ESCOSA's draft decision on the market risk premium (MRP) and the equity beta (EB) proposed to be applied to ETSA. ESCOSA's draft decision determines an MRP of 6% and an EB of 0.8. The implications of a reduction of equity beta by 20% will reduce the WACC awarded to regulated businesses by nearly 50 basis points (eg a reduction from 9% to 8.5%). On an asset base of \$2Bn (as applies to ETSA Utilities), this reduction equates to a saving to South Australian electricity consumers of \$10m pa, or \$50m over the regulatory period.

The members of the ECCSA include Adelaide Brighton Cement, Holden, Kimberly Clark, Mitsubishi, OneSteel, Seeley International and Zinifex. All are large consumers of electricity and therefore exposed to the costs granted by the ESCoSA to ETSA Utilities for the provision of electricity transport services to South Australian electricity consumers. It is because of this that the ECCSA is vitally concerned to ensure that the revenue awarded to ETSA Utilities is not excessive but at a level consistent with providing a long term viable cash flow to ETSA.

The Capital Asset Pricing Model (CAPM) used by regulators (both Australian and overseas (such as Ofgem in the UK) is an economic modeling approach used as a tool to assist in attempts to rationalize the capital asset (share) market. It uses the long term yield on secure debt as a basis and allocates premiums to the debt and equity elements to develop a weighted average cost of capital (WACC) used by public companies.

### **The "Risk Free" Rate**

The long term yield used as a basis for the CAPM is the long term (commonly the 10 year) forward rate for government securities (eg the "gilts" in the UK). This is considered to be a "risk free" rate of return.

### **Debt Premium**

The cost of debt used in the CAPM is that risk free rate plus a premium appropriate for the debt risk faced by lenders to enterprises operating in the competitive sector.

### **Market (Equity) Risk Premium**

The premium applied in the CAPM to assess the equity premium is derived from the share market accumulation index which recognizes both share growth and share dividends. From the accumulation index for all sectors is developed the market (or equity) risk premium MRP. The accumulation index changes on a daily basis, and is particularly volatile at the times when company dividends are paid, and when a market scare is present such as the 1929 and 1987 share

market falls. Thus there is potential for there to be a large scatter of values in the equity risk premium when it is calculated for each day, and there is likely to be a very large error from the long term average market risk premium when it is calculated for a specific day.

### **Equity Beta**

As different classes of shares have differing risk profiles (eg the property sector from the consumer staples sector, etc) the equity risk premium is modified by the application of a qualifier (the “equity beta”) which reduces or increases the value of the equity risk premium. The equity beta can be calculated from financial data including profitability and returns earned by specific companies or by comparing the accumulation indices calculated from the different industry sectors. An equity beta of unity is by definition the value of equity beta applied to the weighted average for all companies in the overall share market index.

## **2. Some recapping of past issues related to the level of regulated WACC**

The Capital Asset Pricing Model (CAPM) has been used by Australian regulators as the basis of setting a regulated return on monopoly network assets in the gas and electricity industries for the past eight years. The first instance of this occurred when the NSW IPART set the return on the AGL assets used to distribute gas in the Sydney area in 1996. It has most recently been used by the Queensland Competition Authority for price regulation for Queensland ports and the ESCoV has stated its intention for its use for price regulation of Victorian ports and in the electricity distribution pricing review. The NSW IPART has recently completed its draft determination on AGL Gas networks, using the CAPM to set the regulated rate of return.

In 1998 the ACCC and the ESCoV (then ORG) deliberated on the access arrangements application by the Victorian Government for the gas transmission and distribution assets prior to their sale. At that time, the Victorian Government believed that the regulated return should exceed 10% but the two regulators, after holding what was to become referred to as the “The Great WACC Debate of 1998” finally determined that the regulated return should be 7.75%, after first concluding in a draft determination that 7.0% was appropriate at that time. The requested value for MRP was 6.5% but in its final decision for MRP the ACCC stated a view that it should be in the range 4.5-7.5% and opted for the mid point of 6%<sup>58</sup>.

The ACCC did however note that [Prof R.R.] Officer:-

“... provides support for the view that the MRP may be trending downward”.<sup>59</sup>

Causing even greater confusion was that the Victorian Government initially sought an equity beta of 0.95. In its draft decision, the ACCC stated that equity beta should be 0.85 but then upwardly revised this input in its Final Decision to 1.2 stating<sup>60</sup> that:-

“On the basis of evidence presented, the Commission was not convinced that there were significant downside risks that outweighed potential upside benefits which would be on top of profits implied by the target revenue

---

<sup>58</sup> Page 53, ACCC Final Decision, Access Arrangement by Transmission Pipelines Australia Pty Ltd and Transmission Pipelines Australia (Assets) Pty Ltd for the Principal Transmission System Access Arrangement by Transmission Pipelines Australia Pty Ltd and Transmission Pipelines Australia (Assets) Pty Ltd for the Western Transmission System Access Arrangement by Victorian Energy Networks Corporation for the Principal Transmission System. 6 October 1998

<sup>59</sup> *ibid*, page 53

<sup>60</sup> *ibid*, page 60

calculations.<sup>61</sup> Nevertheless, the Commission does acknowledge that all of these risks are difficult to quantify. Accordingly it has adopted the suggestion of financial experts at the WACC forum, that they are taken account of by choosing beta estimates towards the top end of the plausible range.

In determining the beta pertinent to TPA, submissions have suggested that regulatory arrangements which are based on revenue caps or price caps are inherently more risky than the US rate of return regulation which provided the main source of benchmark firms for beta determination. As a consequence, [Energy Projects Division of the Victorian Government] has suggested higher beta assumptions than it originally proposed would be appropriate. The asset beta range for Transco in the UK, which is subject to a similar regulatory regime to TPA, was assessed by the Monopolies and Mergers Commission 1997 price review as being between 0.45 and 0.60. [It is reported later in this paper that the new UK regulator (Ofgem) has instituted significantly lower values for equity beta than used by the UK Monopolies and Mergers Commission in 1997.]

In addition, it was suggested that the ‘newness’ of the regulatory framework introduced perceived uncertainties on the part of investors which should be taken into account in setting the cost of capital via the beta value assumption.

The Commission accepts these considerations as being relevant and has acknowledged that commensurate increase in the beta estimates may be appropriate. The asset beta (equity beta) has been increased from 0.35 (0.85) to 0.55 (1.20).<sup>62</sup> Given that the risks are compensated for by the higher beta which leads to a higher rate of return, it would be difficult to justify additional compensation should one of these risk events materialise and impose additional costs on the service provider.”

The Victorian Government publicly stated that the WACC level accorded by the ACCC was too low and considered stopping the sale process for the assets as it considered that it would not receive a reasonable sale price. In fact, the asset sale did continue and the Victorian Government received a higher sale price for the assets than that which it had originally targeted. This was the first demonstrable example of where, after asset owners claimed that they were being grossly disadvantaged by low returns being granted by regulators, it can be

---

<sup>61</sup> Upside potential for profits from increased productivity, judicious choice of annual price adjustments within the context of the price control formula, etc.

<sup>62</sup> The market portfolio has an asset beta of about 0.7. Given the stability and maturity of the Victorian transmission system, an asset beta above 0.6 would be difficult to justify.

shown that regulators are in fact providing returns which exceed expectations of the market.

Since that time there has been continuing trade in regulated assets. Acquisition prices of regulated assets have consistently exceeded the regulated asset base (RAB) – recent examples demonstrating this competition for assets has been the sale of the “Epic Rest” assets to Hastings Funds Management and the DBNGP in Western Australia to an AlintaGas led consortium. That the purchase price for the regulated assets has consistently exceeded the RAB, is in spite of the fact that the RAB has been valued at a depreciated optimized replacement cost basis – a process which values assets by allowing the effects of inflation to be added to the asset value, contrary to the approach generally used by industry in the competitive market sector, which depreciates the purchase cost of assets.

Press reports and media releases by these new owners commonly justify the purchase of the regulated assets because of their certainty of cash flow and the long term security of return. Reflecting the acceptance of these views, bidding for regulated energy assets has been consistently strong, usually with at least 3-4 serious contenders.

That purchase prices have consistently exceeded the RAB valuation, strongly indicates that the WACC determined by regulators is at the high end of the feasible range.

## **2.1 The critical inputs to the CAPM formula**

There are a number of the inputs to the CAPM formula where there is reasonable correlation of views between those providing the assets and those paying for the service. Certainly there appears to be wide acceptance that the risk free rate used should be the ten year Government bond rate, that the gearing should be 60% debt, and there are only marginal differences between an acceptable level for the debt premium. The input for the level of imputation (gamma) has been accepted at 50%, although it should be noted that some recent applications by regulated businesses have requested that this level should be reduced.

There are two inputs to the CAPM formula that are hotly contested, including in the ESCOSA review of ETSA. These are:-

- Market Risk Premium (MRP)
- Equity Beta (EB)

Although regulators have consistently used values of 6% for MRP and 1.0 for EB for decisions related to regulated returns for gas and electricity network assets over the past 5-6 years, they have also indicated that they have concerns that the levels of these two inputs they are currently using may be too high. However,

they then consistently advise that they will not change the values until there is more evidence providing substantiation for making a change<sup>63</sup>.

## 2.2 Comparisons of regulatory decisions

In 2002, Pareto Associates presented a comparison between the WACC's awarded by UK regulators and Australian regulators and provided a graphical presentation<sup>64</sup> showing that the return on equity element of the WACC awarded by UK regulators is significantly lower than those of Australian regulators.

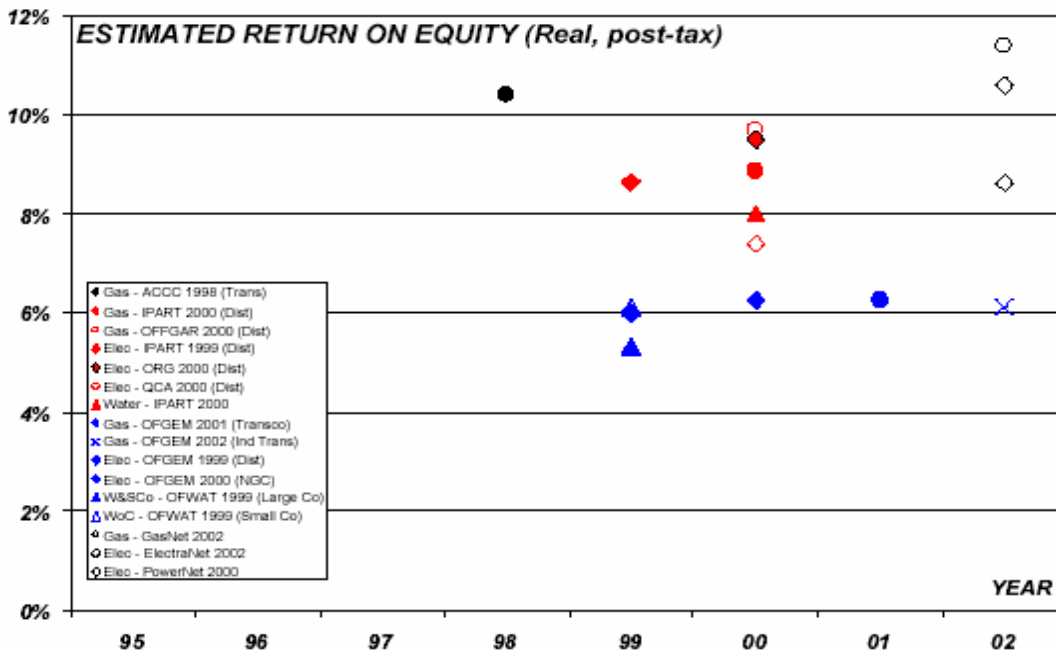


Figure 2 Comparison of estimated cost of equity from UK and Australian regulators' decisions.

This analysis covers the period between 1997 and 2002. It should be noted that the blue markers denote overseas (UK) decisions and sit on the 6% line; the black and red markers denote Australian decisions and range between 7.5-11.5%, averaging about 9%. The UK decisions average about 6%, some 300 basis points lower than the Australian decisions.

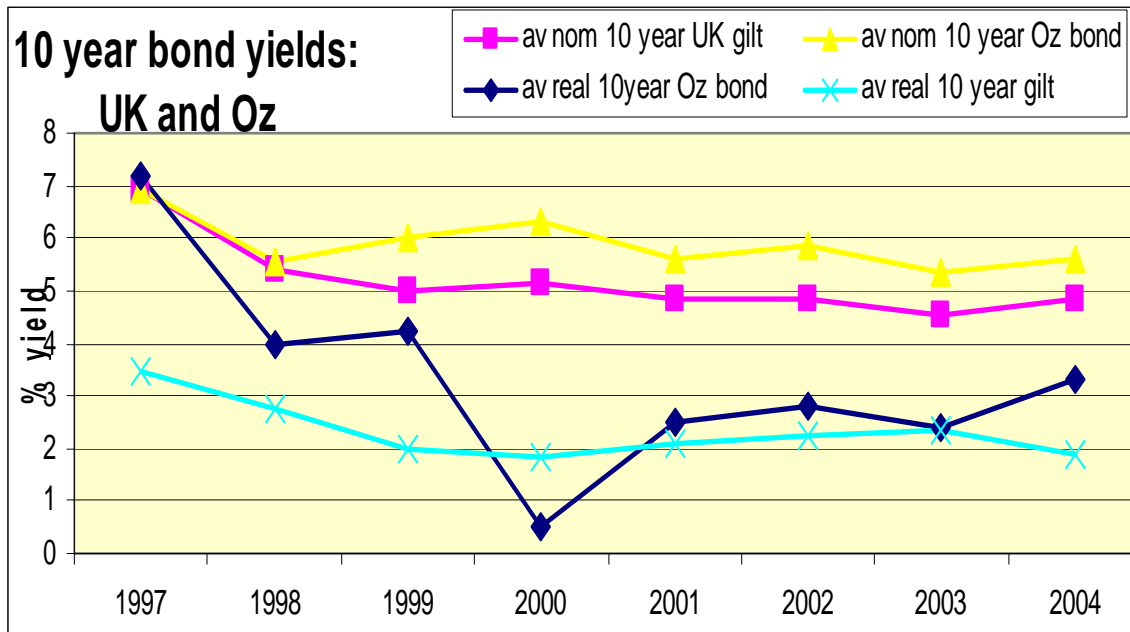
Comments by regulators have discounted the evidence of this comparison by pointing out that the base "risk free rate" is different in both countries and that the financial markets in Australia are subject to unique features (such as distance

<sup>63</sup> For example, in ESCoV decision on gas distribution (2002), and ACCC on TransGrid (2004).

<sup>64</sup> Pareto Associates Pty Ltd, The weighted average cost of capital for gas transmission services, June 2002, page 24

from world markets and a less competitive financial market) – such issues are addressed later in this paper.

However, it is pertinent to point out that the risk free rates in the UK and Australia bear a remarkable similarity. The UK regulators use the 10 year “gilts” as their risk free rate. As the following chart shows, the difference between the UK and Australian bonds is modest at best.



Source: RBA website and Bank of England website

Australian bond rates tend to be higher than UK rates (but not always), but the difference is not great. In fact, the average difference between the two nominal bond rates over the same period as the Pareto assessment, is consistently less than 100 basis points, and averages about 70 basis points, although the difference between the “real” rates shows a little greater volatility, but nevertheless averages about 100 basis points. This indicates that there is insufficient evidence in the general economies of the two countries to support the 300 basis points noted as existing between the UK and Australian regulators return on equities, and raises the very real question, “why do Australian regulators grant regulated business an equity return of about 200 basis points more than their UK counterparts?”

The ECCSA would point out that much of the difference lies in the inflated MRP and equity beta values used by Australian regulators.

### **3. Issues surrounding Market Risk Premium**

Generally Australian regulators have slavishly used an MRP level of 6% since the “Great WACC Debate of 1998”, although the NSW IPART has suggested that a range for MRP of 5-6% is more appropriate. It should be stated that regulators have used the 6% value as it is assumed to reflect a long term (historical) view of this input. They also have noted<sup>65</sup> that shorter term views of MRP show that perhaps a lesser amount might well apply.

The MRP over the risk free rate in the CAPM formula is intended to reflect the fact that an investor of equity requires a premium over a risk free investment in order to accept the higher risk associated with the investment. This is not denied.

It has, however, been observed (including by ESCOSA in the ETSA review ) that the MRP does vary with time, and analytical work by Prof R Officer shows that the MRP has in fact varied considerably over time. The table in the ESCoV gas decision (which is also presented by ESCOSA)<sup>66</sup> shows this quite clearly.

TABLE C.2  
**HISTORICAL AUSTRALIAN EQUITY PREMIUM – 1882 TO 2001**

Time period	Equity Premium: Returns	Standard Deviation	Standard Error of the Mean
1882-2001	7.19%	16.97%	1.55%
Different Ending Point:			
1882-1950	8.00%	11.11%	1.34%
1882-1970	8.16%	13.70%	1.45%
1882-1990	7.40%	17.33%	1.66%
Different Beginning Point:			
1900-2001	7.14%	17.94%	1.78%
1950-2001	6.51%	22.60%	3.13%
1970-2001	3.37%	24.38%	4.31%

Source: Information in the first three columns provided by Professor Officer. Original information published in Officer, R., ‘Rates of Return to shares, bond yields and inflation rates: An historical perspective’, in *Share Markets and Portfolio Theory; Readings and Australian Evidence*, 2<sup>nd</sup> edition, University of Queensland Press, 1992.

The clear implication of this work as discussed by ESCOSA, is that MRP has reduced over time, and has a current shorter term value between 3-4%. The ESCoV refers to other studies which replicate the observations that MRP does vary over time.

<sup>65</sup> For example, in QCA draft decision on DBCT (2004) “... the Authority notes that empirical research by Dr Lally indicates that there has been a downward long-term trend in volatility, implying estimates based on historical averaging are too high, rather than too low.” (page 184)

<sup>66</sup> ESCoV (then ORG) final decision on gas distribution 2002 page 324

Whilst ESCOSA refers to other studies considered by ESCOV, it does not specifically refer to the ESCoV commissioned Mercer Consulting to provide it with an independent view of what the then current expectation of MRP might be – Mercer opined that an MRP of 3% was the then current level (4% if imputation was accounted for). The ESCoV comments<sup>67</sup>:-

“Regarding Mercer’s opinion that a consensus of market participants agrees that the expected equity premium is lower than historical excess returns, the Commission considers that Mercer’s unique position, and lack of interest in the assumption about the equity premium that is adopted by the Commission, to justify placing weight on its views, together with the other available evidence.

The Commission has subsequently received a copy of the survey results, which show that the premium of 5.87 per cent related to the views on the premium expected in the past – the average of assumptions about the forward-looking equity premium was approximately 1 percentage point lower. Table C.6 sets out the results of the survey for the different classes of respondent. The survey also canvassed views about the equity premium in the US – these results are reported also for illustrative purposes.

TABLE C.6  
**RESULTS OF THE JARDINE FLEMING CAPITAL MARKETS SURVEY**

	Responses	Australia		United States	
		Past	Expected	Past	Expected
Academics	26	6.30%	4.92%	6.72%	5.17%
Brokers	20	5.05%	4.50%	5.93%	4.68%
Asset Consultants / Trustees	4	6.67%	3.13%	5.67%	2.13%
Corporate Managers	11	6.05%	5.27%	5.78%	4.55%
<b>Total</b>	<b>61</b>	<b>5.87%</b>	<b>4.73%</b>	<b>6.26%</b>	<b>4.70%</b>

Source: Jardine Fleming Capital Partners Limited, The Equity Risk Premium – An Australian Perspective, Trinity Best Practice Committee, September 2001.

The Commission is cognisant of the disperse beliefs across the survey participants reported, as well as the response rate to the survey (less than 50 per cent), which it has taken into account in assigning weight to these results. Subject to those caveats, it notes that some of the observations that may be made on these results are as follows.

- the average of each of the classes is lower than the long-term average of the historical excess returns to equity;

<sup>67</sup> ibid pages 333 and 334

- the simple average of views about the future equity premium are lower than the views about the past for every class of survey participant, and thus lower still than the long-term average of the historical excess returns to equity;
- corporate managers have the highest expectations about the equity premium – but the average of expected future values is lower than the long-term average of the historical excess returns to equity; and
- the average of views across the asset consultants and superannuation trustees is very close to the views of Mercer Investment Consulting.

Thus there is little doubt that MRP does vary with time, and that the current level of MRP indicates that it is lower than the historic average. As pointed out in Headberry/Lim in a submission to ESCOSA which was commissioned by ECCSA,<sup>68</sup> there have been a number of structural changes in the Australian economy over the periods used to assess the varying MRP levels, and which might well have contributed to an enduring reduction in MRP<sup>69</sup>.

Headberry/Lim calculates MRP (measured from accounting data released by 300+ companies using PBT/equity less 10 year bond rate) and this showed that the MRP over the past 15 years varied from -3.6% to +7.8%, averaging 3.03%. This again supports the Officer and Mercer views of the current MRP level being at ~3-4%. That the results of the Headberry/Lim report replicate results by other such luminaries as Officer and Mercer adds credence to the recommendation of Headberry/Lim that the WACC (and MRP) be benchmarked against the historic results of the EBIT/assets achieved by industry in the competitive environment.

More recent (and most importantly, independent) reports relating to the current level of MRP being less than 6% include:-

1. Mr Ian Macfarlane Governor of the Reserve Bank who states that

“It seems to me that the community has not yet come to terms with the fact that nominal rates of return on financial and real

---

<sup>68</sup> “Further capital markets evidence in relation to the market risk premium and equity beta values” by Headberry Partners P/L and Bob Lim & Co P/L, December 2003

<sup>69</sup> Another structural change that will impact on future ERP is the fact that recent high equity prices have been driven in part by the “Baby Boomer” phenomenon. Baby Boomers were in their maximum savings mode during the 1980s and 1990s and as equities were the main asset acquired this drove up equity prices, and so inflated the ERP. In the next decade there is an expectation that the Baby Boomers will commence selling these equities to finance their future as they have no other income. This will depress equity prices resulting in a fall in the ERP. This outcome is more fully developed in the article “Follow the money” Australian Financial Review 13-14 November 2004

assets are likely to be much lower over the coming decade or so than over the previous two decades.”<sup>70</sup>

2. Mr David Bassanese,<sup>71</sup> commentator for the Australian Financial Review, opines that the long term market risk premium might be of the order of 3.3%. Bassanese suggests that this is much higher than the historical MRP over the past 20 years which he estimates at 2.25%.
3. Economic consultant, Winton Bates (in a letter<sup>72</sup> responding to the Bassanese article) adds the view that MRP over the past 20 years is 3.3%.
4. Dr David Rees, head of investment strategy for CommSec notes<sup>73</sup> that

“in Australia and elsewhere estimates of ERP vary from 0 to 8%. CommSec estimates it at 3.7% and argues that the ERP has been declining in recent years, both here and in the US, but may be ready to return to higher levels.”

### 3.1 Analysis of the Variability of MRP

The ESCoSA observes that there needs to be added to the long term average MRP, a premium to accommodate the necessary confidence that the MRP used for the regulated business does not understate what might be considered an acceptable forward looking return. It states that :-

“due to the statistical imprecision and the fact that historical is being used to forecast the premium, the Commission treats the estimate of the market risk premium from historical data with some caution.”<sup>74</sup>

On the following page the ESCoSA goes on to imply that the actual recorded MRP (ie the difference between the actual accumulation index and the actual corresponding bond rate) might not be an appropriate measure of historical MRP as there are other studies (noted by the ESCoV in its deliberations) which aver that :-

“the expected equity premium can be expressed as the sum of the expected dividend yield and the expected capital gain”.<sup>75</sup>

---

<sup>70</sup> “Economic Opportunities and Risks over the Coming Decades” by I.J. Macfarlane, Governor, RBA, 13 November 2003)

<sup>71</sup> Australian Financial Review 27 September 2004 “Fat dividends may not last”

<sup>72</sup> Australian Financial Review, 5 October 2004 (letters to the Editor “Real bond yields to hit 4pc again”)

<sup>73</sup> Australian Financial Review, 27 October 2004 “High yields, low P/Es to continue”

<sup>74</sup> ESCoSA draft determination page 179

<sup>75</sup> ibid page 180

This change from implying the historical MRP should not be used in preference to an **expectation** of a higher MRP runs counter to the ESCoV view that the independent view they sought from Mercer Consulting (which suggests a forward looking MRP would be between 3% and 4%) should be discounted in preference to use of long term historical data which gave a higher value.

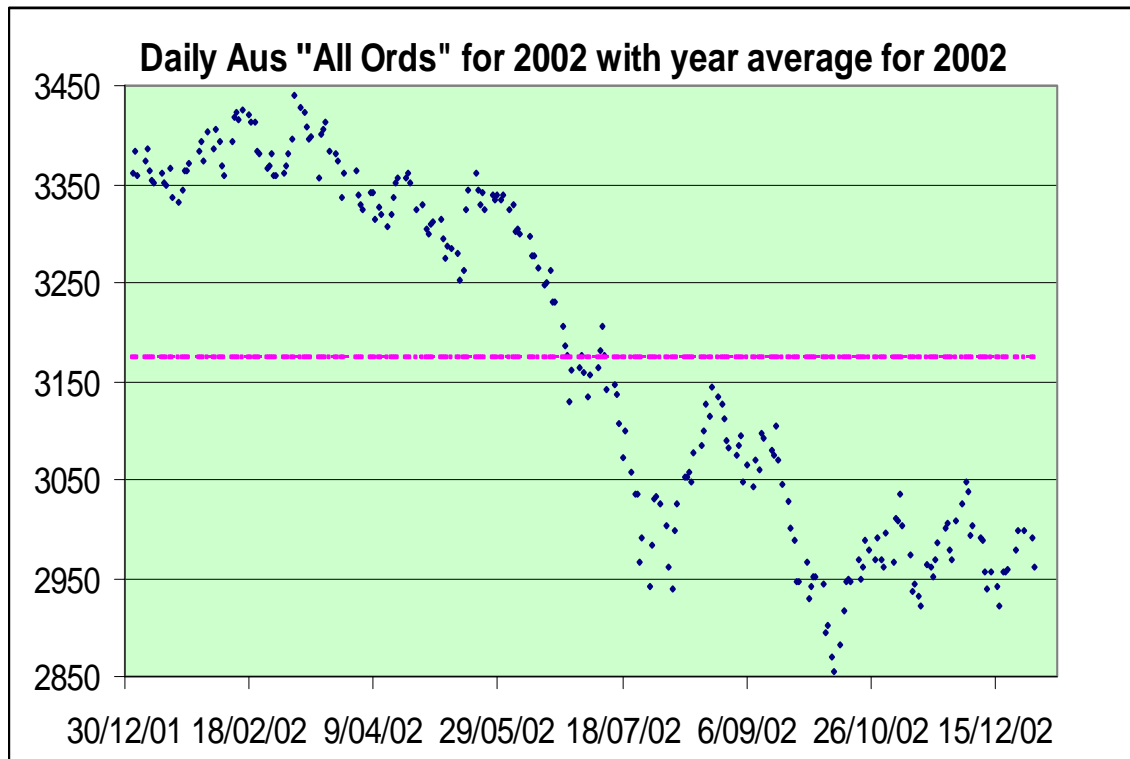
Based on the confusing logic in the draft determination, the ESCoSA suggests that the independent and recent recorded value of MRP of 3.3% **should be doubled** because of the need to incorporate both a “**confidence**” **premium** above the actual recorded amount and an **expectation** that returns might be higher than independent investment experts consider appropriate.

The following chart is a plot of the daily values for the Australian All Ordinaries index opening prices for 2002. As can be seen there is a significant scatter of the daily values varying from the year’s average of 3174. As the “all ordinaries” daily prices comprise a major element of the accumulation index<sup>76</sup> it is easy to see that the daily variability introduces large values for the for the standard deviation and standard error calculated by Professor R R Officer for the average market risk premiums, and quoted by ESCoSA in table 10.5 of its draft determination for the ETSA review<sup>77</sup>.

---

<sup>76</sup> The other element of the accumulation index is the share dividend which shows much less volatility, and which tends to remain closer to a constant level over long durations, generally in a 2-6% range band. This can be observed on the RBA website or in daily newspapers.

<sup>77</sup> ESCoSA Draft 2005-2010 electricity distribution price determination part A statement of reasons, 2004, page 179



Source: RBA website

Because of this daily variability and the large error and standard deviation noted by Officer, ESCoSA has determined that there needs to be a premium added to the recent 30 year average MRP of 3.3% calculated by Officer, and indeed replicated in the work by Headberry/Lim<sup>78</sup> which identified an ERP of 3-4% by comparing actual returns (earnings and profits) published by the largest 300+ (by revenue) companies operating in Australia.

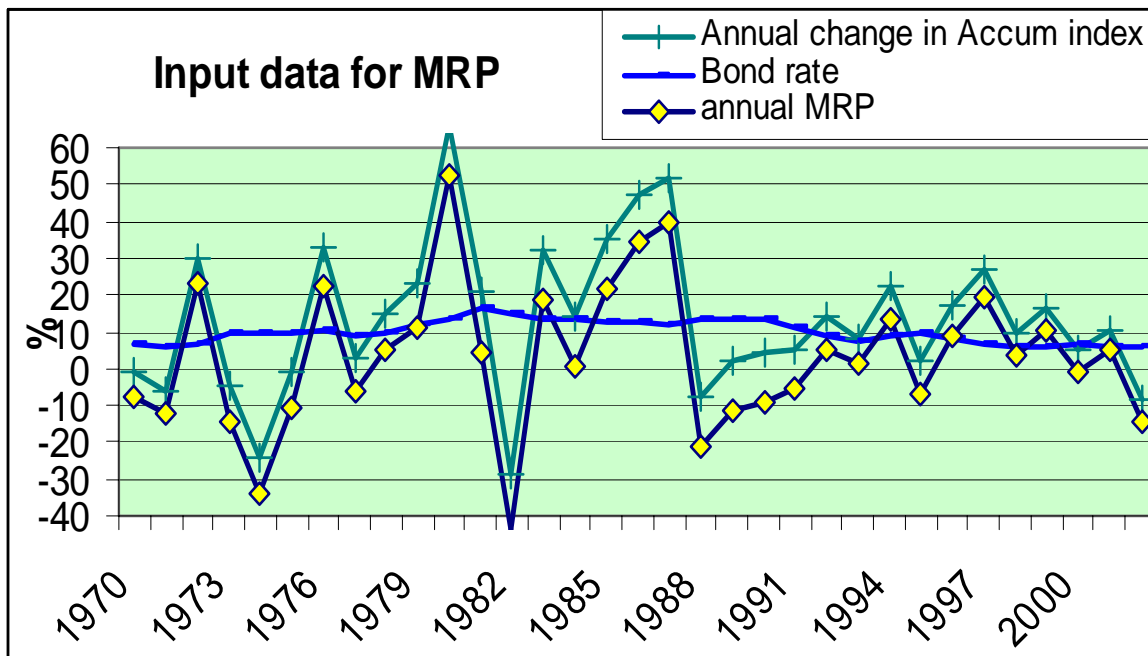
When considering the source data and its application, ESCoSA is in error in adding the standard deviation to the Officer calculated MRP for the past 30 years. If ESCoSA were trying to ensure that the MRP that they have determined should apply was just for one day in the coming regulatory period, then their approach is correct as the error which applies to **a single day's value** should fall within a reasonable error range (eg say 2 standard deviations which would give a 95% confidence level of being correct).

But for setting an MRP which is to apply for a period of five years, using the standard deviation which applies to **daily** variability, results in using an inappropriately high confidence level premium, as in reality the actual MRP for a continuous 5 year period is likely to exceed the average level by a much lesser amount. Thus the risk premium to reflect a long continuous period must be much

<sup>78</sup> "Further capital markets evidence in relation to the market risk premium and equity beta values" by Headberry Partners P/L and Bob Lim & Co P/L, December 2003

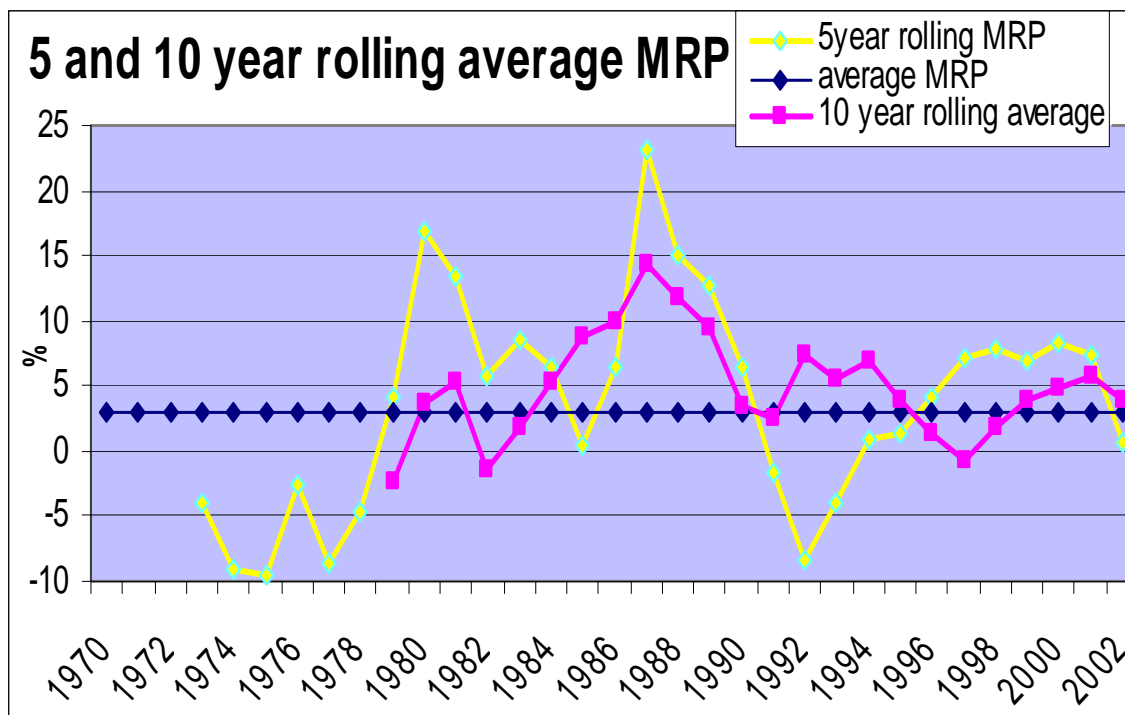
smaller than the risk premium to accommodate daily variations. Officer assesses the past 30 year term average at 3.3%.

Historic MRP is based on the change in the actual All Ordinaries Accumulation Index less the actual 10 year bond rate. The resultant MRP for each year is shown in the following chart. As can be seen in the following chart there is significant annual variation in the resultant MRP, which ranges from a high of 53% to a low of -44%. If such variation applied for a full regulatory period, then there would be some justification for the use of a high confidence premium.



Source: raw data from RBA website

The premium for setting a confidence level that the average MRP for **an entire five year regulatory period** is unlikely to greatly exceed the recent average value of 3.3%, and this is demonstrated by plotting a 5 and 10 year rolling average of the MRP to replicate the smoothing effect of setting an average MRP for an entire regulatory period. This is shown in the following chart.

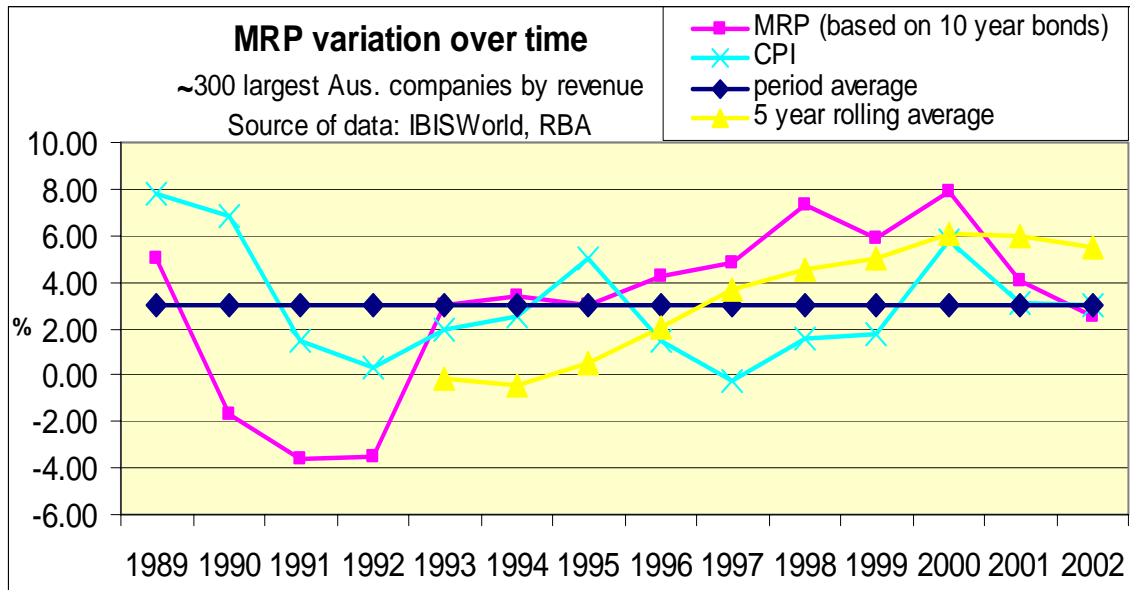


Source: manipulation of RBA source data using Excel, and adding R R Officer calculated average MRP

This chart shows that the volatility of the annually calculated MRP reduces dramatically with some reasonable averaging. This chart demonstrates the importance of using the most recent data to provide a more appropriate forward looking MRP. Using the 10 year rolling average provides a strong basis for using a forward looking MRP of perhaps 4% at best, if the decision is to not use the 30 year average of 3.3%. Certainly the chart shows that to use an MRP of 6% (ie twice the 30 year average) is excessive, and provides ETSA with an unreasonable premium on its investment.

Thus the MRP of 6% used by ESCoSA in its draft determination must be seen as excessive.

To support this view, the following chart shows a plot of MRP against 14 years of the 30 year period used by Officer for the last 30 years. The data is sourced for actual company profitability calculated for each year, and therefore a sound averaging for each year's performance. As can be seen the MRP volatility is quite low with an average of 3%. Adding a five year rolling average demonstrates that the MRP follows a similar trend to that based on the accumulation index, and again demonstrates that **at most** a forward looking MRP should be no more than 5%, still significantly below the MRP level of 6% used by ESCoSA.



Source: Headberry/Lim<sup>79</sup>

### 3.2 Recent Ofgem Studies

A report by Ofgem<sup>80</sup> in its recent review of the cost of capital<sup>81</sup> also refers to a variation of MRP (also referred to as equity risk premium ERP) over time. It includes in its analysis the following observation

“Given the increasingly integrated nature of capital markets, Dimson, Marsh and Staunton argue that there is a strong case to adopt a global rather than a country specific approach when determining the prospective ERP. They present a forward looking ERP in the order of 3% on a geometric basis and in the order of 5% on an arithmetic basis. They argue that the ERP is almost certainly not as high as in the mid-1990s, and regard a 5%-6% geometric mean or 7.5%-8.5% arithmetic mean as excessive. The reduction in the expected ERP is due to a range of factors, such as a more stable business environment<sup>82</sup>(e.g. end of the Cold War, increased international trade and investment flows) and better opportunities for investors to diversify (both domestically and internationally).”

<sup>79</sup> Ibid, page 21

<sup>80</sup> The Office of Gas and Electricity Markets (the UK regulator for gas and electricity)

<sup>81</sup> Electricity Distribution Price Control Review, Background information on the cost of capital March 2004

<sup>82</sup> These sentiments reflect the observation of Headberry/Lim about the impact of structural change of markets.

Ofgem, and its consultants, have assessed the long term MRP in the UK (in the range 5%-8% depending on the basis of the calculation used) and this shows a remarkable similarity to the range of MRP developed by Officer. Ofgem asserts that the long term values of MRP observed in the UK are reflected in the US as well. Ofgem offers the observation that this is probably related to increasing international trade (globalization) and the better opportunities available for investors to diversify globally.

In this regard it is worth noting that many of the investment funds operating in Australia have a significant proportion of their funds invested internationally<sup>83</sup>. In this regard it is pertinent to note that the Australian equity market represents only 2-3% of world equities market. Failure to invest offshore has the distinct disadvantage of limiting the returns available to Australian investors. If such a high proportion of Australian investment funds are placed off shore, it then comes as no surprise that the MRP in different developed countries is similar.

In defending their stance of holding the MRP at a high level, the ACCC and other regulators have often referred to the observation that as Australia is somewhat remote from other developed countries and is more isolated from international money markets, that there is some justification for holding the Australian MRP at higher levels than in the UK or the US. Based on the observed MRPs in these other countries which replicate the observed Australian MRP, this argument would appear to have little factual substantiation, and relies more on unfounded intuition or, at best, only a reflection of past conditions. There is little doubt that with its current exports, Australia is an active competitor in the world markets.

If the long term MRP is similar in each of Australia, the UK and the US, it would be expected that similar approaches to awarding MRPs by the regulators in each country would/should be similar.

Ofgem accepts that the MRP varies over time (both upwards and downwards) and highlights the importance of using a forward looking MRP as the best reflector of an appropriate WACC to be used for its forth coming regulatory period. Despite the fact that Ofgem recognizes that the long term average MRP is considerably higher, based on its analysis **it is of the view that the forward looking MRP to be used in its current review is in the range 2.5 to 4.5<sup>84</sup>, a change over the past five years from the 3.25-3.75 used in 1999<sup>85</sup>.**

---

<sup>83</sup> One of the authors of this paper was a director of a medium sized investment fund and advises that the fund (on the advice of globally recognized investment advisers) operated with a nominal funding approach of 30% in international equities, 40% in Australian equities, and the balance in bonds, fixed interest and property.

<sup>84</sup> OFGEM report Electricity Distribution Price Control Review, Background information on the cost of Capital, March 2004, page 15

<sup>85</sup> It is important to note that Ofgem uses 20, 10 and 5 year "gilts" as the basis for assessing its risk free investment rate. "Gilts" are issued by the UK government and thus equivalent to Australian government bonds

That Ofgem identifies the importance of recognising there is a need to accept there is a variation in MRP, is an issue that Australian regulators have failed to either understand, or worse, have decided is an issue to be left to regulators in the future.

### 3.3 The implications of a variable MRP

This consensus view that recent shorter term levels of MRP are somewhat lower than a long term average of 6% raises a very important issue.

The WACC is intended to provide a forward looking estimate of financing over the next five year regulatory period. The WACC set by the regulator is intended to provide the regulated business with the ability to continue funding its existing assets and provide funds for capital expenditure. As such, it represents a common approach to financing their activities which applies equally to all regulated businesses regardless of their unique capital structure or methods for financing or raising funds.

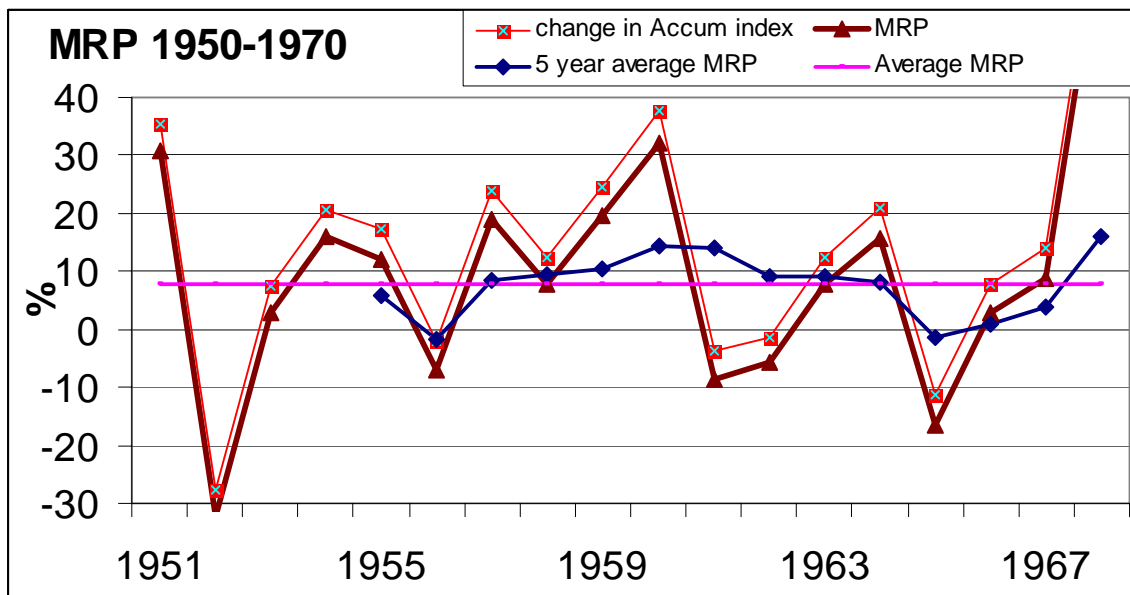
There is little doubt from the surveys and estimates of MRP over time that the MRP does change. If regulators persist with using an MRP which is above the current market, this effectively penalizes consumers and creates an incentive for regulated businesses to over invest in order to obtain higher returns than they would get elsewhere. By using a long term average for MRP, the regulator is tacitly agreeing to provide higher returns to regulated businesses when the returns from the market are low (ie when the short term MRP is below the long term average) and lower returns to the regulated businesses when the returns from the market are high (ie when the short term MRP is above the long term average).

This will create a major asymmetric issue for all concerned – consumers, regulated businesses and regulators – at some point in the future. If regulators persist with basing returns on a long term average of MRP, then there must be at some point of time in the future when the long term average MRP will be lower than the shorter term MRP and therefore be insufficient **at that time** for an investor to provide equity to a regulated business.

Using the Officer data referred to above, the last 30 years have an average MRP of 3.37 (1970-2001). The long term average for MRP is estimated by Officer at 7.19 (1882-2001). Simply by just applying ratios to these numbers, this implies that for the period 1882 to 1970, the MRP would be 8.6%. Thus if at some point of time in the future the market returned to the implied returns of the period 1882 to 1970 of 8.6% and regulators persisted with using an MRP of 6% (as this is the long term average) then the owners of the regulated business would have **an insufficient return on equity by about 300 basis points** (which translates to a

WACC insufficiency of some 100 basis points) to justify investing any more equity into the business<sup>86</sup>. The most obvious outcome of this would be that service provision would either commence running down or there, would need to be an increase in gearing. Either outcome places stress onto the regulated business.

This point can be made more graphically. Below is a chart of the MRP calculated for the 20 year period 1950-1970. This shows that the MRP exhibit's a similar volatility as noted earlier, and it shows that the average MRP for this period is nearly 8%, well above the long term average of 6%. The rolling five year MRP shows a much reduced volatility compared to the annual movements.



Source: raw data obtained from the RBA website

This clearly shows that even in the past 50 years, a medium term average MRP of nearly 8% did actually occur. If the regulator of the day had used the long term average of 6%, regulated businesses would have been severely disadvantaged financially.

As regulated businesses are essential services by their very nature, the regulators can then be placed in an extremely invidious position. They would either have to point out to the business that there would be no increase in the return thereby creating financial stress or, and the more likely scenario, the regulator would agree to an increase in the MRP to reflect the then current conditions. As regulators have been using the long term average MRP to set the

<sup>86</sup> Simply applied and assuming a gearing of 60%, the implication of using 6% MRP instead of 8.6% would result in a WACC of at least 100 basis points below the market levels needed at that time.

WACC, if the regulator did agree to increase the return to the business then it would have failed to execute its role in ensuring a balance between the needs of the business and the commitment to consumers to ensure equity between service and cost. **It would have been a better solution for the regulators tended to reflect the current MRP, allowing the MRP (and the WACC) to rise and fall as the market conditions actually vary, rather than using a long term average, which currently disadvantages consumers, but will lead to disadvantaging regulated businesses in the future.**

Owners of regulated businesses and regulators change over time. The only constant is the consumer. Regulators have the responsibility to ensure that their actions of today do not create problems for regulators in the future; these regulators of the future will also have to provide a balance in their decisions between regulated businesses and consumers. The outcome of continuing the practice of using inappropriate long term averages for MRP not only disadvantages consumers of today, but will also have the potential to do likewise to consumers at some point in the future.

In ensuring fairness to all, now and in the future, it must be accepted that there is an essential inconsistency in using a long term average as the basis of setting the MRP.

**ESCOSA's draft decision has failed to recognize these issues, as well as failing to recognize the importance of the more recent studies undertaken by Ofgem and others.**

## **4. Issues surrounding equity beta**

Australian regulators have been consistently applying an equity beta of 1.0 for 5-6 years. This has been used as it is effectively the average equity beta for all businesses. It was also the equity beta calculated by the AGSM as representing the “Infrastructure and Utilities” sector of the stock market. As there were few regulated businesses listed on the stock exchange, regulators assumed that the “Infrastructure and Utilities” sector reflected the regulated businesses involved in electricity and gas transport – analysis of the companies comprising this Index shows the fallacy of this comparison.

In more recent times, regulators have accepted that an equity beta of 1.0 is probably on the high side of appropriate. In fact, the ACCC stated in its submissions to the Australian Competition Tribunal when the ACT heard the appeal by GasNet against the regulator’s decision for the Victorian gas transmission business, that an equity beta of 0.7 was more appropriate to the Victorian gas transmission business.

During a meeting between the ACCC and representatives of energy consumers on 1 October 2004, the ACCC made an observation that there is no doubt that using an equity beta of 1.0 for gas transport is “intuitively” too high, and this intuitive observation is supported by the Allen Consulting Group calculations<sup>87</sup> for the small number (6)<sup>88</sup> of Australian gas businesses available for comparison. This report suggests that the equity beta for regulated gas businesses should be 0.7.

The Allen report notes<sup>89</sup> that

“... there are sound arguments for relying upon the latest market evidence when deriving a proxy beta for the regulated activities of a regulated gas transmission entity. Exclusive reliance on the latest Australian market evidence would imply adopting a proxy equity beta (re-levered for the regulatory-standard gearing level) of 0.7 (rounded-up) for these activities. Moreover, regard to evidence from North American or UK firms as a secondary source of information does not provide any rationale for believing that such a proxy beta would understate the beta risk of the regulated activities. Rather, **the latest evidence from these [overseas] markets would be more supportive of a view that the Australian estimates *overstate* the true betas for these activities,**

---

<sup>87</sup> Allen Consulting Group Empirical Evidence on Proxy Beta Values for Regulated Gas Transmission Activities July 2002

<sup>88</sup> The six being AGL, Australian Pipeline Trust, Envestra, United Energy, AlintaGas and GasNet

<sup>89</sup> Allen Consulting Group Empirical Evidence on Proxy Beta Values for Regulated Gas Transmission Activities July 2002. page 5

although concerns are expressed with the reliability of the beta estimates from these other countries.” (our emphasis added)

Despite the Allen observation that the calculated equity beta of 0.7 could well be too high, it was stated by the ACCC at the 1 October 2004 meeting that in accepting that the equity beta at 1.0 is too high, there is a problem in deciding what the figure should be. It was then stated by the ACCC that its “considered view” was not to reduce equity beta from the average of 1.0, but accepting at the same time that at 1.0 it is too high.

#### **4.1 QCA and Dalrymple Bay**

In its recent draft decision<sup>90</sup> (2004) on Dalrymple Bay Coal Terminal (DBCT) the QCA states that the equity beta for the DBCT should be 0.66. To support its view it based its draft decision on the report<sup>91</sup> commissioned from Allen Consulting Group on proxy betas for infrastructure facilities similar to the Dalrymple Bay facility. The QCA states (page 186) that:-

“ACG, in summary, identified the most important explanatory factors for DBCT’s asset beta as the nature of the product and customer base, pricing structure, and duration of contracts. Consequently, the ACG concluded that this implies that DBCT’s revenue is highly invariant to the state of the domestic economy. Along with a low operating cost structure, these factors jointly imply low systematic risk for DBCT.”

Whilst the views apply to the uniqueness of an export port facility, these same features which reduce the systematic risk apply equally, if not more so and with greater emphasis, to electricity and gas transport, with their unique products and market niches, lack of serious competition, guaranteed revenue streams and low risk on operating costs. The QCA (page 185) notes that whilst there is potential for competition to DBCT, it is :-

“... in a strong competitive position, [with] possible inter-port competition, eg Gladstone and (potentially) Abbott Point, [being] a significant issue for DBCT.”

Analysis of the relative risks between an export port such as DBCT and energy transport, shows that if anything the security of revenue and continuing demand for the service business is even higher (implying a lower equity beta) for energy transport, than that enjoyed by DBCT.

---

<sup>90</sup> QCA Draft Decision Dalrymple Bay Coal Terminal Draft Access Undertaking October 2004

<sup>91</sup> Allen Consulting Group Dalrymple Bay Coal Terminal, Analysis of Proxy Betas September 2004

## 4.2 QCA and EDPR

In its draft decision for the electricity distribution price review (EDPR) in Queensland, QCA has determined that the equity beta for Energex and Ergon should be 0.9, even though it had used a value of 0.71 in its Final Decision on the EDPR in 2001<sup>92</sup>. QCA reached this figure after seeking input and a report from the Allen Consulting Group<sup>93</sup> (ACG) as to what equity beta should apply for Energex and Ergon.

ACG carried out studies and calculations from both local and overseas equities markets, in order to determine as to what appropriate levels of equity beta should be used by QCA for the EDPR. This was initiated by report prepared on behalf of the electricity distribution businesses by Strategic Finance Group (SFG) which was requested to provide advice as to an appropriate value of equity beta. The implication of this SFG report is that a value of between 0.9 and 1.41 should be used.

In its report, ACG observed that while the world markets displayed a significant variation as a result of the “tech (also called the dot.com) bubble” of the late 1990s, the Australian market did not show this as vividly, although ACG notes that it is of the view that the “tech bubble” effect was still felt in Australia. They then opined that this impact would have had a dampening effect on the utilities sector resulting in companies in the utilities sector exhibiting lower equity betas during this period than would normally apply to the sector over a longer period. ACG then attempted to calculate equity betas which ignored the impact of the “tech bubble” for regulated businesses. This understandably results in a higher equity beta for those companies which exhibited **actual** equity betas much lower than the figures calculated by ACG.

This then raises an important issue. Is it appropriate to ignore market movements where specific issues can be attributed as causing an impact on the market as a whole, or should the market be accepted as it stands regardless of the impacts of identified trends? If it is accepted that the impact of specific issues is to be eliminated (as suggested by SFG and ACG regarding the “tech bubble”) then the same approach should be followed with all other identified trends, such as the mining boom of the 1960s, the property boom of the 1980s, and the credit squeezes of the 1970s and the early 1990s<sup>94</sup>. During the 2000s there is just as likely to be another market trend (such as in the resources sector) which can also

---

<sup>92</sup> QCA Draft Determination, Regulation of Electricity Distribution, *December 2004*, see page 103.

<sup>93</sup> ACG, Queensland Distribution Network Service Providers, Cost of Capital Study, December 2004, Report to Queensland Competition Authority, page 41.

<sup>94</sup> As well as the many other factors identified in Headberry/Lim “Further capital markets evidence in relation to the market risk premium and equity beta values”, December 2003, page 17

be identified as distorting market outcomes by the significant attention of investors paid to a specific sector.

The CAPM is a methodology for trying to identify the outcomes of the market as it really operates. To selectively delete the impacts of specific (but actually occurring) market movements in order to substantiate a theory is to deny the entire actuality of the operation of the market. Thus an attempt to discard an element of the market is, of itself, a distortion and leads to distorted outcomes.

The impact of the “tech bubble” should be accepted as the normal element of the market and the calculated outcomes should be as the market determines, without any attempt to rationalize and adjust the outworkings of the market operation to suit specific theories and to justify a target outcome.

### 4.3 Ofgem Study

Ofgem, as part of its recent price control analysis work, notes<sup>95</sup> that the observed monthly calculated equity beta of 1.0 for the period 1993-1999 for electricity businesses (and adopted by Ofgem in its 1999 review) has fallen approximately to a current level of 0.3 (page 16). Ofgem perceives that the higher equity beta was perhaps a result of the “TMT”<sup>96</sup> bubble and the benefit that regulated businesses provide “safe haven” stocks. This has exhibited the downward movement of equity betas for “safe haven” stocks and the upward movement of equity betas in “high tech” stocks. Reviews quoted by Ofgem attribute this effect would result in equity betas for electricity businesses being closer to 0.6-0.70 in both the UK and the US. As a result of their analysis Ofgem concludes (page 20) that:-

“Given the Smithers & Co report and Ofgem’s own analysis of the evidence, Ofgem has adopted a range for equity beta of 0.6 – 1 for its cost of capital calculations”

an equity beta for the regulated element of electricity businesses should lie in the range of 0.6-1.0.

### 4.4 The implications of the Ofgem analysis

One of the prime stated reasons for the ACCC and other regulators not to accept the findings of the Allen Consulting analysis of equity beta calculations is the view that there is a limited sample for comparison. It is then stated that in the

---

<sup>95</sup> Ofgem, Electricity Distribution Price Control Review, Background information on the cost of capital, March 2004

<sup>96</sup> TMT refers to the major influence technology, media and telecommunications stocks had on stock markets internationally during the mid to late ‘90s

absence of a large sample to give confidence it is “safer” for the regulator to consider that the equity beta be set at the market average ie at unity. Regulators state that setting equity beta at this level does not disadvantage the regulated business. Countering this, consumers have consistently stated that setting equity beta at unity results in a distinct financial disadvantage to consumers.

A further argument used by regulators (with the exception of ESCOSA and IPART- see below) to support their “safe” setting of equity beta at unity, is that the bulk of comparisons are from overseas observations and that the Australian market has different characteristics and therefore there might not be a direct comparison between the different markets. What this assumption overlooks is that by definition equity beta of unity is the average of the market regardless of the country and its market. All other equity betas are relative to this same average of unity. Thus it must be expected that similar equity betas would apply to similar businesses regardless of the country in which the calculation is made.

The Ofgem analysis provides a much larger sample for the analysis of equity beta and therefore provides a higher degree of confidence of the outcome. Ofgem has set the electricity distribution businesses equity beta in the range 0.6 to 1.0. This range certainly implies that an equity beta of unity is at the extreme upper range of an acceptable level.

#### **4.5 IPART analysis**

ESCOSA’s draft decision on EB at 0.8 is a significant move by an Australian regulator and is a recognition of the forward-looking expectation of the relationship between the movements in the returns to ETSA to the movements in the equity market as a whole i.e. by placing weight on the market evidence of betas, albeit at the upper end of observed equity betas.

The NSW IPART in its December 2004 draft determination on the AGL Gas Networks applied an equity beta in the range of 0.8 to 1.0. The Tribunal took into account the views contained in the Headberry/ Lim study :-

“ that the proposed equity beta is too high and the comprehensive study on the equity beta it submitted in support of this view”<sup>97</sup>.

IPART also undertook its own study of companies comparable to AGLGN that are traded on the Australian share market. The study shows that equity betas for these companies have historically been lower than unity and in the case of AGL (of which AGLGN is a subsidiary) the equity beta has decreased over the last three years. Whilst a backward-looking equity beta will not of itself reflect prevailing market conditions over the next 5 years, (the equity beta is a forward-

---

<sup>97</sup> IPART. Revised Access Arrangement for AGL Gas Networks December 2004. Draft Decision, page 83

looking parameter), it does, provide a relevant guide or consideration in indicating trends.

#### 4.5 The SFG<sup>98</sup> report for AGLN

AGLN employed SFG to review and comment on the equity beta which they believe should apply in the development of the WACC for the AGL gas distribution network review of 2005 by IPART. As might be expected, the results of their examination and analysis are that the equity beta to be applied to AGLN should be 1.0.

What is of great interest is that there is a major variability in the equity betas calculated for individual businesses, and that there is considerable variation in the equity beta for the same business when tracked over time. SFG comments they:-

“...examine the statistical reliability of standard beta estimates... demonstrate that beta estimates for individual firms, and for small portfolios of comparable firms, suffer from a high degree of statistical unreliability...[and they] examine a range of methods for estimating betas and conclude that no single method can provide a precise and statistically reliable point estimate.”<sup>99</sup>

SFG goes on to state they conclude that:-

“The uncertainty surrounding beta estimates, and the effect this has on estimates of WACC, should be quantified and explicitly addressed (e.g., by specifying ranges rather than point estimates and/or examining the sensitivity of WACC estimates to parameters that are estimated with uncertainty),”<sup>100</sup>

SFG devotes much of its report into demonstrating that in the estimation of equity beta, the calculations demonstrate a high degree of volatility in equity beta values, and it also uses statistics to show the impact of excluding certain values calculated has a major impact on the outcome of their analysis. Even using a regression analysis and selecting inputs at random, it concludes that the actual equity beta calculated for AGL over the past four years (of -0.06) must be the:-

---

<sup>98</sup> SFG is the Strategic Finance Group, a consultant employed by AGLN to prepare the report “The Equity Beta of an Energy Distribution Business”, 10 February 2005, forwarded to IPART as part of the NSW gas distribution review

<sup>99</sup> SFG, “The Equity Beta of an Energy Distribution Business”, 10 February 2005, page 3

<sup>100</sup> Ibid, page 3

“...result of outliers and statistical aberrations.”<sup>101</sup>

SFG considers that if the impact of the “tech bubble”<sup>102</sup> is excluded from the calculation, then the underlying AGL equity beta would be much higher. This view is not denied but as the market is really a continuum the SFG analysis goes to demonstrate that external events such as the tech bubble will cause continuing changes in the market outcomes, and so highlights that change itself is a constant in the market place. This point is clearly made in Headberry/Lim<sup>103</sup> that changes in the world of equities are continually occurring and all impact on the equities market which is the fundamental source of both equity beta and market risk premium. For SFG to identify that the tech bubble only should be addressed for specific treatment<sup>104</sup> is to deny the impact of all other changes which have affected the equities markets in the past 120 years.

SFG observes that the equity betas for Australian businesses comparable to AGLN – the regulated element of AGL – (such as AlintaGas, Australian Pipeline Trust, Envestra and GasNet) need to be adjusted to equate to 60% gearing, implying that these companies have a lower gearing than that of the assumed 60% used by regulators as a vanilla benchmark. In fact each of these four companies has a gearing of about 60% or greater (having gearing of 67%, 58%, 91% and 68% respectively<sup>105</sup>). As each has been able to secure funding from the market place to enable growth for their businesses, the average equity beta of 0.7 across all (including AGL) calculated by SFG<sup>106</sup> from the market values for each company, would appear not only to be an appropriate value to use in the WACC development, but also is sufficient for the “average” (or vanilla) business to secure necessary and appropriate funding for future investment.

What SFG does not include in its analysis is that despite identifying that AGL (with its overall gearing of 42%<sup>107</sup>) already exhibits a low equity beta, this low value has not impacted on AGL ability to secure funding (debt and equity) for its acquisitions over the past four to five years. The deduction that can therefore be drawn from this clear example is that the identified actual low equity beta for AGL has not significantly affected its ability to secure all of the funds required for its expansion and investment, including the acquisition of one third of Loy Yang power station.

---

<sup>101</sup> Ibid, page 19

<sup>102</sup> Also referred to as the “dot.com bubble” by others

<sup>103</sup> Op cit page 17

<sup>104</sup> SFG refers to the Allen Consulting Report relating to the QCA review of electricity businesses as supporting its view that equity beta should be 1.0. Other ACG reports (eg to ACCC in 2002, and to QCA on Dalrymple Bay in 2004) clearly imply that regulated utilities should have a lower equity beta than 1.0

<sup>105</sup> Source – CommSec webpage

<sup>106</sup> SFG page 35 quoting ACG table 6.1

<sup>107</sup> Source – CommSec webpage

This example throws significant doubt at the often stated observation (by regulated businesses) that granting of a low equity beta by the regulator would prevent the regulated business from acquiring funds (debt and/or equity) from the market place.

## 4.6 The implications of the SFG analysis

The SFG review and analysis identifies that equity beta (particularly for a specific entity) does not have a fixed value, but one which varies between entities and over time for the same entity.

SFG provides the view that:-

“... the real goal for a regulator is not to set the regulatory equity beta to match “the 60-month equity betas...over the next 5 years” but to set a regulatory equity beta which results in returns being sufficient to attract a sufficient level of investment. Even if we could perfectly match the 60-month equity beta that will be estimated over the next 5 years, we would only be matching an imprecise and statistically unreliable estimate of the true value.”<sup>108</sup>

This view is supported in principle but when considering the equity beta for AGL (for example) as a business, it is essential to be aware that AGLN is only a relatively small part of the entire AGL business. Other elements include energy retailing (AGL is one of the three major retailers of gas and electricity in Victoria, the dominant retailer of gas in NSW, and the dominant retailer of electricity in SA), and electricity generation (AGL is a major shareholder of Victoria’s largest generator, and has peaking generation facilities in both Victoria and SA. AGL also owns the smallest electricity distribution business in Victoria, and until recently has owned distribution, retailing and generation assets in New Zealand.

Accepting that SFG has assessed that AGL as an entity<sup>109</sup> should attract an equity beta of 1.0, as AGL has a variety of businesses, most of which it must be agreed have a higher risk profile than owning network assets, it would appear that in order to accommodate the higher equity betas associated with retail and generation activities<sup>110</sup> of AGL, this implies quite clearly that even if AGL had an equity beta of 1.0 (which it doesn’t) the AGL networks businesses must have a much lower equity beta (to balance the higher equity betas for the other activities) of between 0.7 and 0.8 in order to achieve an overall equity beta of

---

<sup>108</sup> SFG page 36

<sup>109</sup> The data used by SFG to calculate equity beta for AGL applies to the entire business entity

<sup>110</sup> The AGSM has calculated average equity betas for retail businesses (1.269) and infrastructure and utilities (0.983) which included generators. These are listed by the ACCC in its draft decision on ElectraNet 2002, in table 2.2

unity for the listed (aggregated) entity. In fact using the AGL equity beta of 0.66 identified by SFG<sup>111</sup> would reduce the equity beta for the regulated element (AGLN) of the AGL portfolio, even further.

There is little doubt that the equity beta for individual firms varies greatly with time (as is noted earlier in reference to the market risk premium) and SFG goes at great lengths to demonstrate this. Accepting that this is a feature of the equities market on which both equity beta and MRP are deduced for use in the CAPM approach, the task is for the regulator to identify what is an acceptable and legitimate average value at a given point in time, and to use this as a proxy for a forward looking view for a “vanilla” business on which to base the WACC for the coming regulatory period. Granting too high a figure will give an unearned benefit to the regulated business at the expense of the consumer.

It is the role of the regulator to identify an acceptable value for equity beta which does not penalize the consumer, but provides (just) the ability of the regulated business to (just) secure the necessary capital to carry out the capital works approved in the regulatory decision.

The values of equity beta exhibited in the market place show that for regulated businesses a value of 1.0 is clearly too high, and that regulated businesses have previously and still do raise the necessary funding for investment in the networks they own at values of equity beta in the range of 0.6-0.8, with a vanilla average at 0.7.

---

<sup>111</sup> SFG page 35 quoting AGC table 4.1

## **5. The ESCoSA Draft Decision**

ESCOSA's draft decision on the MRP and the equity beta only partially recognizes the absence of asymmetric risk in the rate of return adopted for ETSA. The Electricity Pricing Order (EPO) constrains the Commission in its review of ETSA, in particular, by preventing it from reviewing the Regulatory Asset Base and requiring it to accept that past capex and opex are prudent and efficient (in terms of the requirements of c1.7.2 (e) of the EPO). These are significant constraints on the veracity of the independent review, and more than likely provide ETSA with substantial additional regulated revenues (compared with a situation where all costs have to be rigorously assessed and justified). Electricity consumers in South Australia are substantially disadvantaged by such governmental fiat.

Against this background and based on the issues discussed above, it is quite clear that ESCOSA should determine for ETSA:-

1. A forward looking Market Risk Premium in the range of 3-4%
2. An Equity Beta in the range of 0.6-0.8.

As it is now becoming more obvious that there is considerable doubt as to what the values for market risk premium and equity beta for a firm or class of firms will be at any given point in time, there is a need to ensure that the calculation of WACC is verified against an actual benchmark independently derived from the market place. Headberry/Lim has suggested that such a benchmark should be based on a review of the actual performance of all businesses operating in Australia (such as EBIT/assets) and the expectation of the regulated business revenue and expenditure used as the basis of the regulatory decision<sup>112</sup>. Until such independent comparison is instituted there will be a continuing debate as to whether the WACC calculated will be the minimum needed to ensure the continuing viability of the regulated business.

It is the actual performance of businesses operating in the market place that provides clear guidance as to what return is essential for investment. The fact that all of the regulated businesses have experienced no difficulty in securing debt and/or equity for the historic investment in their networks clearly indicates that regulators have been providing regulated returns higher than is necessary for this task.

March 2005

---

<sup>112</sup> The ACCC has done this for example in the recent TransGrid decision (28 April 2004), where the ACCC granted a nominal vanilla WACC of 8.8% (table 6.5), which they translated to an EBIT/assets of ~11% (appendix 4, table 4.1)