2003/04 ESCoSA

ELECTRICITY DISTRIBUTION PRICE REVIEW

OF

THE ETSA UTILITIES REVENUE CAP

An analysis of the ESCoSA discussion paper

"Return on Assets"

by

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for

The Electricity Consumers Coalition of South Australia

September 2003

"In comparing regulatory decisions in Australia with those in the United Kingdom, on average [ratings agency Moody's] rated Australian … electricity transmission companies one notch above UK counterparts".

"Moody's believes Australian regulators have shown a willingness to let [regulated] companies earn returns above the weighted average cost of capital."

Excerpts from a paper by Graeme Samuel (Chairman of the ACCC) published in the Australian Financial Review, 25 September 2003.
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Executive summary

There is an increasing belief amongst consumers operating in competitive markets that the returns awarded to monopoly electricity transport businesses are far too high. Countering this has been a vociferous campaign by the regulated businesses that they require higher returns in order to incentivise them to invest sufficiently in to what is allegedly an asset rapidly declining into old age with inadequate capacity, with the resultant potential for a reduced performance in the medium term.

Whilst regulators are becoming increasingly aware that the views of consumers have validity, they are too readily persuaded that reducing returns may result in "the lights going out". In contrast to their overseas counterparts, what Australian regulators have not yet done is to test the bounds of the "incentive to invest" argument. Currently there is <u>no</u> lack of requests by regulated businesses for capex for investment. Across all of the NEM regulated businesses have requested and been granted by regulators, many billions of dollars to be allowed for investment in the regulated assets. If returns were too low the amount of capex requested would be much lower.

As a comparison to the view of the regulated businesses, it is noted that businesses in the competitive environment have to invest *just to maintain market share and the same returns!*

The Discussion Paper focuses attention on the value of the asset base to be used for the forthcoming review of the ETSA Utilities benchmark revenue and the value of the underlying elements used to develop a fair return on these assets.

The ECCSA sees as the fundamental issue of what should be set as a fair return, is that there is lacking a benchmarking approach to what is calculated for the weighted average cost of capital (WACC). As a first step, we recommend that ESCoSA benchmark the outworkings of their WACC calculation with equity returns achieved in the competitive environment.

ESCoSA is proposing to use the capital asset pricing model (CAPM) formulae to establish the WACC, with the CAPM elements essentially unchanged from the decisions of other regulators.

This submission highlights that:-

➢ Regulators seek to set a forward-looking WACC, yet (illogically and irrationally) consistently use a CAPM element reflecting market performance many decades (even centuries) ago.
➢ The practice of reviewing recent performance of regulated businesses after their returns were set earlier by regulators, inevitably will confirm the input values used in the earlier regulatory decision
➢ For regulators to base their decisions invariably on earlier decisions of other regulators is a circular decision making process (and continues to compound the earlier errors).

- ➢ The CAPM elements used do not reflect the changed business circumstances applying to Australian industry over the past 15 years.
- ➢ Care needs to be taken in using market data that is not related to the use proposed. Specifically, market risk premium is calculated from the return on assets, with the assets valued on an historic basis, yet the resulting WACC is to be applied to the current cost of assets,
- ➢ The equity beta used for a "defensive" investment should be lower than for the average of all investments (defensive <u>plus</u> aggressive),
- ➢ Risks are identified by regulated businesses which are assumed to be unique to them and thereby justify an increase in returns. In fact most of these risks are also borne by businesses in a competitive environment and are already included in the development of the CAPM elements.

Of particular concern is that capex by regulated businesses is *prima facie* considered by regulators to be prudent and to be automatically rolled into the regulated asset base (RAB). Businesses in a competitive environment can and do make unsound investments. Investors, lenders and even consumers quickly punish such businesses. There is no such penalty imposed on regulated business. The only protection consumers have lies with the regulator imposing some level of oversight to ensure capex prudency, whether by a rigorous use of the Regulatory Test or by some other control. ESCoSA must ensure that capex used by ETSA has been prudent before allowing its inclusion in the RAB.

ECCSA recommends that ESCoSA accepts that there are a number of mismatches between the proposed use of some elements of the CAPM formulae and their derivation. This means that adjustments must be made to align them if they are to be used by regulators in developing an acceptable and technically correct rate of return for regulated network assets.

1. Overview of the discussion paper

The Discussion Paper prepared by the Essential Services Commission of South Australia (ESCoSA) relating to the development of the return on assets (RoA) to be applied to the forthcoming ETSA Utilities (EU) setting of the revenue cap, provides a useful insight into the preliminary views of the ESCoSA into what is one of the key elements of the revenue cap.

There are a number of methods for setting what constitutes a reasonable return to a regulated business. However, the National Electricity Code (and the related code – the Gas Code) have nominated a preference for using the Capital Asset Pricing Model (CAPM) for establishing the weighted average cost of capital (WACC) to be applied to the revenue setting task.

In principle ECCSA has no objection to using this model, providing that the values for the elements used within the model bear some objective relationship to each other and to the use they are to be used for. Unfortunately the values used in the model by regulators tend to be developed in isolation, often from a set of data that is not appropriate for the proposed use. Because the source of the information may have come from a reputable organisation (eg Australian Graduate School of Management) it is assumed to be sufficient that the values can be used in the CAPM, but there is insufficient analysis carried out to ensure that the values to be used are indeed objectively relatable to the task. This is the first shortcoming of the Discussion Paper

The second shortcoming of the Discussion Paper is that there is no "reality check" applied to the result of the final calculations. The fact that a number is generated from the application of the formula for the WACC is deemed sufficient. But this is not sufficient! It is axiomatic that a "reality check" should always be carried out to ensure the calculation results in a value that is near that which would apply in the market place. ESCoSA however, does not include for any such "reality check".

The third shortcoming of the Discussion Paper is that (like observations by other Australian regulators) it professes to prefer forward looking values for elements of the CAPM formulae, but then reverts to the use of historical values. What such a backward looking approach does is to eliminate entirely the impact of three of the most momentous changes to the Australian economy in the past fifty years, viz:-

    a.   The deregulation of the banking industry resulting in banks become more competitive and entrepreneurial, increasing their lending to companies to permit higher gearing levels, and using as security a much wider range of asset types, including shares, stocks and good will.

    b.   Later there was the reduction of any financial protection for Australian industrial businesses by the virtual elimination of import tariffs. These reductions and increased global trade have seen businesses exposed to reduced profit returns and have had to modify their operations to institute slimmer and more effective corporate and financial structures.

    c.   The more recent upheaval of the taxation system, including corporate tax reductions and the time consuming tracking of GST.

The impact of these three major changes of the past 10-15 years was intended to remove the comfortable ways of the past, to bring Australian industry into the global market and to introduce a fairer taxation regime, but this has been done at significant cost to industry, with the professed goal of reducing costs to consumers.

It is quite obvious that regulators have not recognised these massive changes in their regulatory reviews by the elimination of their use of long-term historical data, and then using those values for the CAPM elements which are relevant and apply in the current business environment.

The changes, which have had such a major impact on competitive businesses, have driven a number of elemental changes. These include

- a wiser but increased use of debt (increasing gearing),
- requiring the use of new technology that has made obsolete much of the investment of previous decades,
- instituting new concepts for management of processes and
- better utilisation of assets and staff.

The concept of "work smarter, not harder" has had to be at the forefront of Australia business since the elimination of protection from the overseas manufacturers. As a result, we have seen costs for Australian manufactured products driven down by these changes, resulting in lower returns to manufacturing enterprises, and bringing Australian industry returns to be more comparable to those achieved elsewhere in the world.

As an example of the pressures these changes have wrought on Australian manufacturing industry is the change in the cost of motor cars. Whilst automobiles have undergone major upgrades in quality and incorporate new features now deemed essential by car owners, it is not so apparent that auto manufacturers have not been able to increase their selling price to match the cost of the significant enhancements. Below is a chart tracking the recommended retail price for two of the more popular base model Mitsubishi cars (the Magna passenger car and the smaller Lancer). To eliminate specific variations a third value is added which is the average cost of the two models.

"Constant" RRP of Mitsubishi cars — Magna, Lancer, ave of M+L
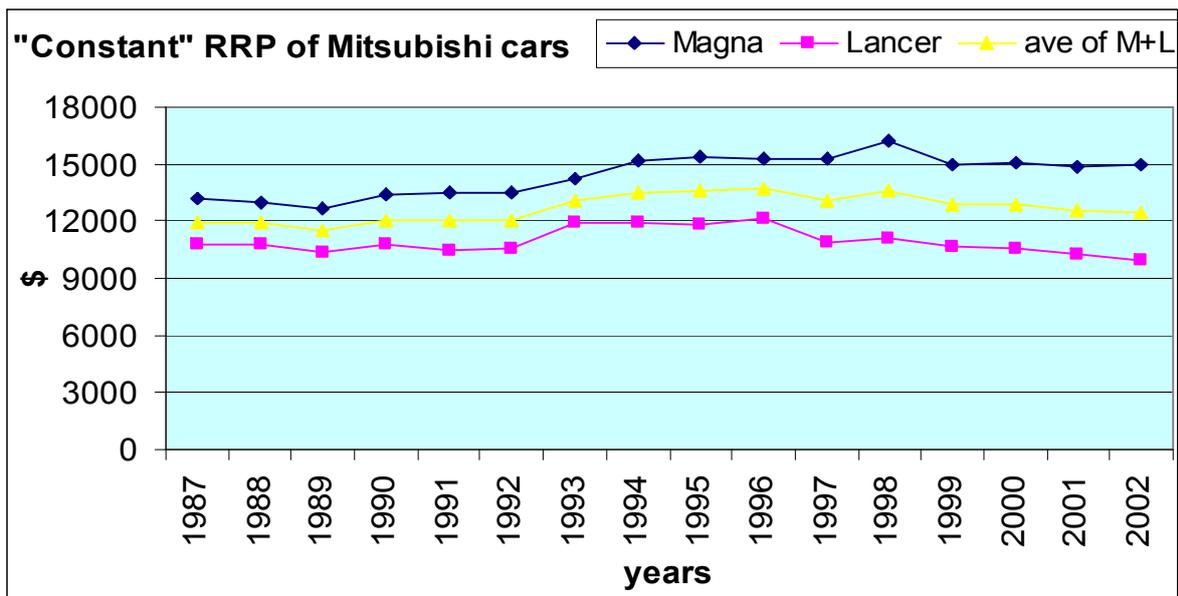
What this chart shows is that despite the obvious increases in quality and safety features of motor vehicles over the past 15 years or more, and the inclusion as standard features which once were optional extras (if indeed they were then available - air bags and CD players which are now standard were not then available) the "real" price of the vehicles has remained virtually constant, or probably fallen in real terms if the value of the features of more recent models are included. This graphically demonstrates the impact of the globalisation of Australia's industries, and that the consumer has been the clear winner.

The fact that Australian industry has had to significantly lift its game because of the competitive pressures imposed on it from the world economy should also be reflected in those Australian industries that are not subject to such pressures. The electricity transport industry in this country is not being subjected to these pressures and given its status as a low risk business with guaranteed revenues, in all fairness, it should be. In spite of the rhetoric and objectives of the Hilmer report that initiated the massive changes to industry, we have seen electricity prices in South Australia increase in "real" terms.

Prima facie it appears the ESCoSA intends that it will base its decision on the RoA to be allocated to ETSA assets on the work carried out by other Australian regulators. There is little new in the discussion paper presented which reflects the recent work by consultants to regulators, nor any analysis of the interaction between many of the elements which have been developed in isolation, nor indeed to compare the calculated answer with results from the highly competitive global market.

This response from ECCSA is intended to provide ESCoSA with more up to date information and an alternative approach to using the various CAPM elements in the way that recognises their origin and development.

2. Return on assets (RoA) and asset valuation

The reason monopoly businesses are regulated is to ensure that they do not use their monopoly status to extract monopoly rents from users of the service and/or to avoid the duplication of investments in natural monopolies. In an attempt to replicate competitive pressure on monopoly businesses, regulation is expected to be a surrogate of competition to ensure there is no abuse of monopoly power.

The mismatch when comparing CAPM elements
The derivation of RoA arises from observed trends, averages and results exhibited by companies operating in the competitive market. RoA is a tool used by investors to evaluate the relative performance of different businesses.

In a competitive environment, the RoA of a business is calculated by dividing the current profit return by the value of the assets involved. Universally, competitive businesses value their assets on a depreciated actual value. Thus, the RoA of competitive business is effectively inflation adjusted in its numerator, but it is not so adjusted for its denominator. There are sound reasons for following this approach.

> ➢ At a very pragmatic level, this approach maximises the observed profitability ratio for the business.
> ➢ More usefully, the depreciated actual value (DAV) of assets is a clearly quantifiable amount, not subject to any arbitrary assessments or value judgements such as apply with the depreciated optimised replacement cost (DORC) or deprival value (DV and ODV) approaches so attractive to regulated businesses. As such, the DAV provides a consistent and sound basis for comparisons between businesses.
> ➢ When a competitive business adjusts the value of its current assets (either up or down) it takes the adjustment to the profit and loss account, thus maintaining the integrity of the ratio. New investments are included in the business asset value at actual cost.

In contrast to this, inflating the business asset base under the DORC approach, and accepting the profit stream is current, this would effectively eliminate inflation from the RoA ratio, but would reduce the value calculated for RoA. Thus, when a regulator wishes to use a weighted average cost of capital (WACC) which is developed from using the RoA of competitive business (such as when developing the market risk premium) the regulator should either use an RoA which is derived from the numerator and denominator both being "inflation adjusted" or if the RoA allows for an inflation "mismatch" between numerator and denominator, to apply the WACC to a deflated asset base. To use a CAPM element calculated from an uninflated historic asset base and apply it to an inflated asset base is to provide the regulated business with an inflated return on capital. This is a major distortion

The Discussion Paper quite clearly assumes that the regulated asset base (RAB) should be adjusted for inflation using the CPI. If this approach is to be used then the RoA comparisons should be made on a like basis and CAPM elements calculated should be adjusted for inflation. We would recommend that as a minimum for

calculating the CAPM elements they should be based on a CPI adjusted asset base or on CPI adjusted returns.

The GST Spike
This problem with mismatch is particularly obvious when trying to accommodate the GST spike of 2000/01. In developing the DORC asset valuation there is an argument that the replacement cost would incorporate the full impact of GST. At the same time the regulated business is required to levy GST on all of its customers. To inflate both the element of revenue associated with the RAB (i.e. the WACC*RAB element which is the largest contributor to the revenue calculation) by including GST in the RAB valuation and then levying GST on revenue from customers, is clearly a double dip and is specifically not permitted by the GST Act.

The ACCC in its review of ElectraNet SA revenue cap assessed that the inclusion of the GST spike into the RAB was inappropriate (as ECCSA pointed out to them at the time) and the ACCC correctly excluded the GST impact. We consider that the ESCoSA should likewise reduce the RAB calculation by eliminating the impact of the GST spike in the CPI. This then generates a technically correct adjustment of the RAB.

Past capex to be assumed "prudent"
ECCSA does not accept *prima facie* that past actual capex should be included into the asset base.

It is accepted that in making its determination the Electricity Pricing Order (EPO) requires that the regulator must

> "… where the value of the assets used by *ETSA Utilities* is required to be taken into account, use the fixed asset base set out in the *Asset Schedule* provided that:
>> (i) the value of the fixed asset base must be adjusted to take into account inflation, depreciation, additions, contributions and disposals in the ordinary course of business since the *Commencement Date*;"[1]

The Discussion Paper implies that the regulator is constrained to include all capex incurred by ETSA regardless as to whether this investment is prudent or not.

ECCSA would point out the EPO requires that the regulator must include "additions" (capex) which are carried out in the "ordinary course of business". Whilst not stated explicitly it must be assumed that the ordinary course of business includes ensuring that capex is spent wisely and that the funds are not inappropriately used.

Accepting that ETSA has the licence to provide electricity distribution services in South Australia (and in providing this service it has been permitted a regulated revenue) "good industry practice" requires ETSA to ensure that its capex is directed to providing the required service at the lowest appropriate cost. As an essential part of this obligation ETSA must, as a minimum, demonstrate that it has selected the

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[1] Electricity Pricing Order Section 7.2(e)(i).

lowest cost option for providing any enhancement or replacement of the system which is to be included in the regulated assets.

Thus, whilst the EPO may (arguably) excuse ETSA from proving that it has invested efficiently in its network in accordance with the rigors of the regulatory test required under the National Electricity Code, there is still a need for it to be able to demonstrate that the capex to be included in the asset base has undergone the rigour of examination as implied by the requirement on ETSA to follow "good industry practice".

Further, "good industry practice" (both for regulated businesses and competitive enterprises) requires generation of internal approval authorisations, and the preparation of substantiation documentation against which the authorisation is granted to proceed with any capital expenditure. Such documentation should clearly demonstrate the benefits flowing from the proposed capex and the attributes and detriments of alternative solutions which would provide a similar outcome which the proposed capex will achieve.

As a minimum, before accepting any capex into the asset base, the regulator should require ETSA to provide copies of the internal substantiation documents for all capex claimed, demonstrating it has followed "good industry practice". If this documentation cannot be provided, then the capex should be disallowed.

Depreciation and disposals
It is accepted that, in principle, depreciation should be treated as a return <u>of</u> capital. The rate of depreciation for each class of asset should be consistent with the expected operating life of each class of asset. It is the <u>rate</u> of depreciation that must be consistently applied by the regulator, and be applied to the actual growth of the asset, rather than some planned future investment such as implied by incorporating forecast capex into the RAB.

The implication of the ESCoSA proposal to incorporate the quantum of planned depreciation is inconsistent with equity to both provider and customer. In the competitive environment varying rates of depreciation are used for different asset classes, and each asset class is usually valued on an actual basis. Because the regulated asset base is developed on the notional DORC approach, this should not be used as an excuse not to apply sensible and consistent depreciation policies. The DORC value should be separated into a number of asset classes, as should the capital invested during the regulatory period. The appropriate depreciation rate reflecting reasonable asset operating life should then be applied to each asset class.

The valuation of disposals should be treated as if they are valued on the DORC basis used to value all assets, and not on the actual value achieved on disposal. In theory the DORC value should be the value the asset would accrue if sold on the open market i.e. it is the depreciated optimised value of the asset. To allow the service provider to only vary its RAB by the actual value of the disposal, is to mix two totally separate valuation methodologies, and permits the service provider to game the asset valuation.

Purchase and sale of a business owned motor vehicle provides a good example of the ability of the provider to game the asset disposal valuation. A car is purchased for $40,000 when inflation is running at 5% and the agreed depreciation rate is 10%. After four years the car will probably have a market value of about $20,000[2]. At the time of purchase the asset is included in the RAB at $40,000 and suffers annual "economic depreciation" of 5% (10% depreciation less 5% CPI adjustment). Thus the RAB will be reduced by $7,000 leaving a residual of $33,000. The car is sold at $20,000, leaving the RAB inflated by $13,000 against which there is now no asset, giving the service provider an unearned enhancement of the RAB.

Thus the RAB needs to be adjusted for the regulatory value of assets that are disposed of rather than the actual sale value.

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[2] Those who have sold a car after four years will note that the sale value drops very quickly in the first 2-3 years, well below the straight line depreciation value. Those who have sold a car recognise that the dealer adds ~$4000 to the car for sale to cover profit, preparation for sale and warranty. Thus the DORC value will always to higher than the disposal value

3. Depreciation and asset stranding

As mentioned above in section 1, the regulator should not examine issues in isolation. Straight line depreciation over a period replicating the useful life of the asset is supported for its simplicity, but to overlook the impact of technology to optimise the value of the asset base seriously disadvantages consumers as consumers are then expected to contribute a return on assets that may well be excessively over-valued. It is well accepted that competitive business has no such protection as that afforded the regulated business in relation to assets being superseded in less then the expected useful life. If competitive business wants to institute accelerated depreciation on superseded assets, this is taken as a loss in the profit and loss statement, reducing profitability and leading to a reduction in the benchmark ratio RoA. This impact is thus incorporated in the calculated market risk premium.

The electricity code recognises the impact of technology change and is one of the few aspects in favour of consumers, as it requires the regulator to optimise down the value of the existing asset if the DORC value reduces due to technological change.

It is also accepted that the rate of change in technology of electricity transport is extremely slow, thus dramatically reducing the real risk of technological optimisation faced by electricity transport businesses – the risk in practice is more one of form rather than real.

Notwithstanding the lack of any real risk of optimisation, the benchmark elements used in the CAPM formulae relate to competitive industry which is continually faced with real technological change which will impact on profitability but without the safety net regulators propose for the businesses they set revenues for. Thus, if the regulators desire to reduce the risks faced by regulated businesses then the returns they grant must also relate to the lower risk profile faced by the business.

As discussed later in this submission, there are two key aspects that must be considered when agreeing to reduce the risk profile as suggested in the Discussion Paper:-

> ➢ The rate of return (WACC) used to generate the allowable revenue must be set at a lower level than the average of all risk taking (and unprotected) enterprises, and
> ➢ The regulator must take care in granting any dispensation in one aspect of calculating the return, that this benefit is not compounded by adding in further dispensations and benefits which will effectively add benefit on benefit in favour of the business to the detriment of the consumer.

The argument consistently put by regulated businesses and the regulators, is that the risk to a utility must be low and the returns high to ensure there is an incentive to invest and so ensure future growth is accommodated and the existing assets remain in good order. This principle is not contested. In counterpoint, another way of ensuring there is no monopoly rent taking, is to set the returns (commensurate with

the risk) at a level where the decision to invest is "on the cusp", with the set return being just above this point. With the returns being granted by Australian regulators, there has been no lack of investment (past or proposed) in energy transport assets, indicating that regulators may be erring too much in favour of regulated businesses.

Asset stranding

Energy transport businesses consistently point to the risk they face of their assets being stranded, due to competition from other energy forms (eg electricity from gas competition) or from downstream enterprises ceasing operation. Compared to the risks faced by competitive enterprises, the potential for stranding is likely to be very low.

Firstly, the risk of asset stranding across an entire electricity network is very low when considering the continuing growth in demand and volume of what is now considered an essential service.

Secondly, in relation to the total business assets, potentially stranded assets comprise a very small percentage of the total assets involved.

Thirdly, there a few supply points where all of the demand on a single service feeder will be removed, creating a stranding risk – there may be a reduction of volume but a very low risk of all demand being removed.

Fourthly, the concept of ensuring that an investment is "prudent" requires some intelligent forecasting of future demand and volume usage.

Fifthly, electricity has features that make it the only utility that can provide the service, such as for lighting, motors, communications and data processing.

On balance, if the return awarded was set at the lowest level then there is some reason to mitigate the (albeit) very low risk of stranding, with the ability to increase depreciation (i.e. get a return of capital) of "prudent" investments. If the regulator permits a return commensurate with the risk profile of businesses in a competitive environment there is no justification for permitting the regulated business protection for its failed investment, bearing in mind that it is achieving a competitive return on its other assets.

4. Weighted Average Cost of Capital

> "The ACCC has undertaken empirical analysis of returns
> required … for regulated industries. This suggests that
> returns approved by the ACCC are above market
> requirements."[3]

Consumers would agree with this sentiment espoused by the ACCC Chairman, as it is supported by observations of the returns achieved by businesses operating in the competitive environment.

The Reserve Bank of Australia provides a wealth of information regarding the financial activities of Australia, including company dividend yields.

Monthly Dividend Yield %
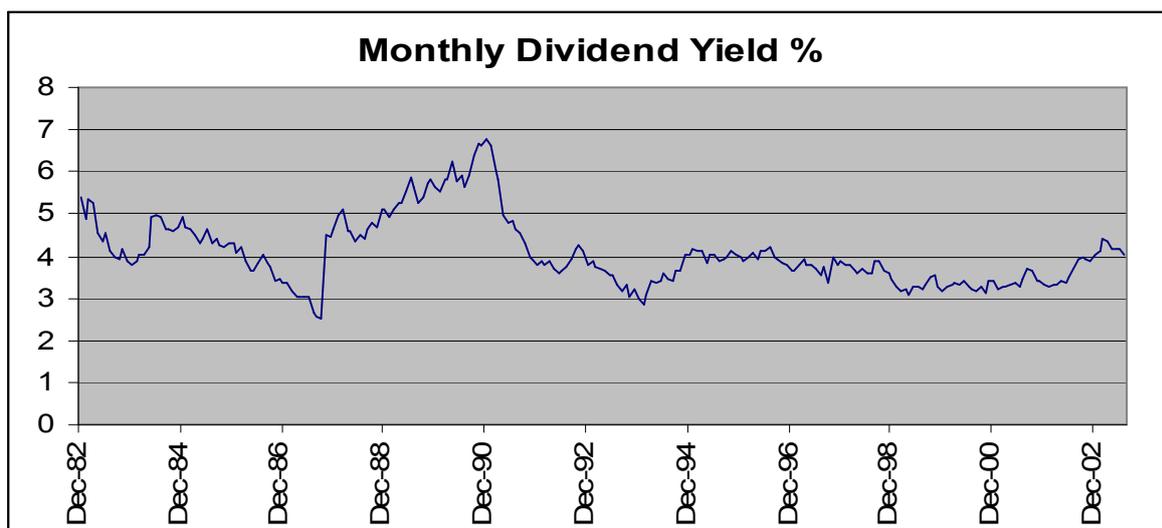
This data shows that since 1983 the dividend yield for listed Australian companies has averaged 4.1, peaking at 6.8, and falling to a low of 2.5.

The Australian Financial Review[4] provides an expectation of the highest dividend yields to be achieved by listed Australian companies for financial year 2003/04. Of the highest six companies listed, the expected dividend yield for them ranged from 8-10%. Most telling is that three of these six companies have their entire revenue from regulated gas transport businesses (GasNet, Envestra and Australian Pipeline Trust). Unfortunately there are no equivalent listed electricity transport businesses to reinforce this comparison as they are either government owned or have income from other activities such as retailing and power generation[5].

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[3] Excerpt from a paper by Graeme Samuel (Chairman of the ACCC) published in the Australian Financial Review, 25 September 2003.
[4] AFR published on 29 September 2003, page S10.
[5] Notwithstanding this, it must be accepted that largely regulated gas and electricity transport businesses have a similar risk profile with the two key differences being that the electricity code eliminates tariff risk to the business and electricity is perhaps a "more essential" service than gas, as electricity has a number of characteristics which prevent any competition from gas, such as for lighting, data processing and driving motors.

What this information does is to highlight that regulated businesses are being granted returns in the highest range which then allow these companies to deliver high yields when compared to businesses operating in the competitive environment.

ECCSA has been carrying out a review of two of the key elements used in the CAPM formulae – MRP and Equity Beta. As part of this analysis it has examined the financial results for the last 12 years (1989 to 2002) of the largest (by revenue in each year) public and private companies operating in Australia.[6] The summary of the results is quite telling. On average the gearing[7] of these 300+ companies is 77%, the net profit before tax (NPBT) related to shareholder funds (equity) is 11.4% whilst over the same period the 5 and 10 year bond rates averaged 8.06% and 8.33% respectively[8].

Included in the sample were a number of companies with have regulated electricity transport activities (comprising Origin Energy, AGL, Energex, TXU, Energy Australia, Integral Energy, Aurora, Ergon, ETSA, PowerCor, Western Power and EnerTrade). Over the period, the average gearing of these companies was 55% and the return achieved (NPBT on shareholder funds (equity)) was a massive 26.5%!

The ASX 200 accumulation index is an indicator of the compounding return from investing in the stock market (share value change plus dividend) and as such it can be assumed to reflect the long term returns an investor will get from investing in an enterprise. As shareholder equity and the share price show a degree of correlation, using the accumulation index incorporates both the dividend yield plus the capital growth (primarily related to retained profits) of the value of equity investment in an enterprise. Over the same period as the sample (i.e. 1989 to 2002) the annual compounding growth of the ASX 200 accumulation index[9], was 8.9%. This compares to the 11.4% pretax return on equity from companies in the sample. The differential between these two amounts is a result of the impact of taxation and is an indication of the degree of dividend imputation.

The clear import of this work is that by not comparing the performance of businesses in the competitive world, regulators are operating in a vacuum assuming that the input data used in the CAPM formulae is correct, without ever verifying the resultant figures they award really do relate to the competitive "real" world.

Regulation circularity
Unfortunately the "regulated energy businesses" class of equities in Australia is too small and what there is, is too recent to be able to deliver a clear message as to the benefit that high returns awarded by regulators has delivered to the regulated

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[6] This information was provided by IBISWorld which amongst other data included net profit before tax, total asset and shareholder funds amounts for each company. This data was used to generate the above comparisons. The companies included in the sample were those with the highest revenue in Australia.
[7] Gearing = (total assets – s/h funds)/total assets.
[8] This data was sourced form the Reserve Bank of Australia website.
[9] Ibid.

businesses. However, the work done so far indicates a classic case of "regulation circularity".

There are relatively few Australian electricity transport businesses. Consistently the energy regulators only benchmark each of these businesses against its Australian peers, making allowance for the differences between the business under review to the few other equivalent businesses. The regulator then provides an assessment of what is considered appropriate to the review. There is no involvement in assessing the performance of the Australian business against international best practice.

This circularity of review of returns prevents any acceptance by regulators of new evidence. The following statement by the Essential Services Commission of Victoria typifies this.

> "While … an assumption [of an MRP of 6.0] may be out of step with the assumptions now commonly adopted by market practitioners, the Commission does not consider this evidence to be sufficiently persuasive to revise its past assumption about the equity premium, particularly when weight is placed upon the long-term consequences of the Commission's decisions."[10]

This decision by the ESCoV is predominantly based on the weight of its earlier review and acceptance of the decisions of other Australian regulators rather than the facts applying at the time. Further, its fear that reducing the returns might impact on the future investment by the regulated businesses has obviously over-ridden the import that there is clear doubt that the allowed returns should remain at the current high level.

Of concern to this review by ESCoSA, is there has been no attempt to benchmark the proposed inputs to the CAPM formulae, other than to slavishly use numbers used by other Australian regulators. The impact is that the results become self-fulfilling. By utilising RoA amounts developed, in theory, as stand alone at the beginning of a regulatory cycle and then using the actual results achieved over the regulatory period to substantiate the use of the initial numbers is clearly a circular activity and does not allow the development of independent assessment.

In a further example the ESCoV in its 2002 decision on gas distribution states:-

> "In the Draft Decision, the Commission accepted a proxy equity beta (for an assumption of 60 per cent gearing) of approximately 0.7 to be consistent with the most recent market evidence on the beta for the regulated activities of the Victorian gas distributors. This proxy equity beta was derived as the simple average of the estimate of the raw equity beta for the comparable Australian entities discussed above, adjusted for leverage.

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[10] From the Review of Gas Access Arrangements, Final Decision of the Essential Services Commission of Victoria, October 2002, page 336

The Commission also had regard to beta estimates for the comparable US and UK firms discussed above. These betas were also much lower than those obtained for the Australian firms, with the re-levered (for 60 per cent debt-to-assets) simple average of the beta estimates approximately 0.40 for the UK firms, and 0.2 for the US firms, *but which was not accorded significant weight*."(emphasis added)[11]

The ESCoV went on to say that the Commission finally decided to adopt

"… a proxy equity beta of 1 for the Victorian gas distributors' regulated activities, for an assumed gearing level of 60 per cent. It emphasised that this estimate is well above that which would be derived exclusively with reference to the latest market data. That is, in deriving this proxy beta, the Commission placed *considerable weight* on the desirability of continuity between regulatory decisions, and the long-term consequences of the Commission's decisions for the Victorian gas industry. However, it noted that additional evidence from the capital markets should be available at future reviews, at which time the Commission envisaged placing far more weight on the latest empirical estimates than it did in the Draft Decision."[12]

What is overlooked in this analysis is that the returns for the Australian gas businesses that the ESCoV subsequently measured were effectively set in previous regulatory decisions using equity betas of unity and market risk premiums of 6%. Thus, when analyzing past performance of Australian regulated businesses, the outcome should replicate the inputs of the previous regulatory review. Further, the ESCoV elected to disregard substantial evidence to the contrary and continues to use estimates out of step with current market conditions, overtly favoring the business to the detriment of all consumers, including businesses in the competitive environment.

This clearly shows that what is required is a "circuit breaker" analysis which shows that the results of using the CAPM approach with the inputs slavishly used by regulators, fail to return a result in keeping with the risk profile of the enterprise, recognizing the fact that regulated businesses are insulated from true competition, have an essentially guaranteed return and do not suffer the commercial rigors of operating in a competitive environment.

The need for high returns to encourage investment
Consistently regulators "err on the side of caution" (this is becoming "regulator speak" to permit favoring the regulated businesses) due to the concern that providing a low return will deter needed investment. This cry has been taken up by the regulated businesses and those that represent them, demanding a high return in order to ensure needed investment so that "the lights stay on". This approach of awarding high returns does not necessarily achieve the outcomes desired.

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[11] Review of Gas Access Arrangements, Final Decision of the Essential Services Commission of Victoria, October 2002, page 342.
[12] ibid page 356.

There is significant experience that the regulated businesses, after being permitted to include large amounts of capex into the approved revenue stream, then fail to incorporate all of the investment permitted by the regulator. Under-run of investment allows the regulated business to recover a return on funds which were never used for investment, and the only penalty to date has been a reduction of the RAB at the next reset to reflect the actual investments made. Fortunately, some regulators are now instituting a "claw back" mechanism of the return on capex not used, or carrying out annual adjustments to reflect actual capex in the allowed revenue stream.

The Electricity Code permits the regulator to optimize the network asset base to reflect the actual usage of the assets, although some regulators have signaled that if "prudent" investments are made then there might not be a future optimization of the assets involved. If this occurs, then there is a significant risk that if regulators persist in awarding high returns, then there is a clear incentive for the regulated businesses to maximize investment. The prudency tests then become critical, but as an external review of such prudency only applies to large investments (the Regulatory Test), regulators may lose control of the value of the bulk of the prudency examinations to verify that investments have been wisely made.

Conversely if the returns granted are lower, then this in itself drives the regulated businesses to institute their own capex controls rather than relying on any external impetus from consumers and regulators.

What regulators have not addressed is whether there is room to reduce the regulated returns without impacting needed investment. Such an assessment can only be made by the actual reduction of the returns as is occurring in the UK[13] – an assessment made base on rhetoric alone is essentially flawed. The regulated businesses have successfully convinced governments and regulators of their views on this issue[14] but history is a useful guide. When the electricity supply industries were vertically integrated government businesses funding was a continuing problem, but despite this electricity supplies were, by and large, adequate for the purpose. What is needed is a similar constraint on the regulated electricity transport companies that replicates this pressure to maximize performance and minimize expenditure.

Again a view of the competitive environment provides some very good insights into what is the point at which investment will dramatically reduce. Competitive enterprises are continually investing, often just to stay in business. Using the auto industry example from earlier, in order to improve the quality of the finished product, the auto industry has made massive injections of funds, and the clear result has only been to maintain the "real" selling price of an enhanced product. This is in clear counterpoint to the regulated business which is permitted an increase in revenue to compensate for the need for capex.

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[13] As identified by Pareto Associates in the paper The weighted average cost of capital for gas transmission services benchmarking regulated Australian and UK "vanilla" WACC components for BHP-Billiton, June 2002.

[14] For example, where the Chairman of the Productivity Commission, Mr Gary Banks, is reported to opine that "… [Australian] regulators favour instant consumer gratification over long term investment". The Age 3 October 2003.

The CAPM formula elements

The elements used in the CAPM formulae come from a variety of sources. Unfortunately there is little consistency between them in their derivation and subsequent use by regulators.

For example:-

- ➢ The benchmark RoA used in competitive industry is derived from the relationship between a current figure (this year's profit) and the actual value of depreciated investments of earlier years. Comparing this to using the calculated WACC (supposedly reflecting the competitive RoA) with a current (inflated) depreciated cost of earlier investments allows a clear mismatch of benchmark comparisons.
- ➢ The calculated market risk premium is assumed to be derived from a post tax return (and so the regulatory adjustments then convert this figure to pre tax), but all of the benchmarks used by competitive industry imply that the value for MRP is in reality closer to being a pre tax figure, as the investor then pays tax on the returns.
- ➢ The equity beta of unity used for regulated businesses implies that the regulated business have a risk profile equal to the average of all competitive business. The implication of an average is that half of all competitive businesses will have a lower risk profile than essential utilities, which is patently absurd.
- ➢ Both regulators and regulated businesses advise they want to have the WACC set using a forward looking assessment. Using government bonds as the risk free rate does this in part, but using an MRP based on returns earned in the 19th and early 20th centuries does not relate at all to a forward looking MRP.

Thus care needs to be taken when utilizing figures from a range of unrelated sources.

Gearing

Gearing is the relationship between the debt used by a business and the equity injected (either as capital or by retaining earnings) by investors in a business. Regulators have assumed a relatively low level of gearing in the CAPM formulae when developing the WACC to be used for regulated businesses.

It is generally held that the level of gearing has at most a minor impact on calculation of the WACC, because it is assumed that as debt increases, the debt premium also increases, countering the impact of the resultant decrease in the equity element of the calculation. This observation arises from the general assumption that the financial structure of a business is such that it is carrying the maximum level of debt commensurate with the cost of the debt premium and the assessed ability of the business to support the debt repayments (usually referred to as the "interest cover"[15]). A corporate financial structure is assessed as being at its optimum where it

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[15] Interest cover is a relation between the debt repayments and a discounted assessment of the expected profit before interest and tax (PBIT).

operates at the highest level of gearing possible, as debt is consistently seen as a lower cost source of funding than by raising equity.

Regulators assume that the 60% gearing level is one which supports the highest level of debt rating (lowest level of interest), and then further assume that the impact of gearing is effectively "washed out" of the further assessment of the WACC calculation. However, observations of a number of regulated businesses show that they operate at levels of gearing well above the 60% assumed by the regulators (some water utilities in the UK operate at nearly 100% debt to assets) and the cost of this debt shows little or no increase in debt premium to that of the notional regulated business which operates at the nominal 60% gearing.

In this regard it is worth reviewing the example of the Epic purchase of the Dampier to Bunbury pipeline in Western Australia. Reportedly Epic purchased the pipeline for some $2.4Bn, financing 75% of the purchase with non-recourse debt of $1.85Bn[16]. This debt was protected by the assumption of a gas transport tariff for the pipeline exceeding $1/GJ (ratcheted with a discounted CPI) which would provide in excess of $230m pa revenue of which $40m would be non-capital costs[17]. At this time (2000) bond rates were ~6% which, with a 1.5% debt premium, would result in the banks assessing there would likely be a "guaranteed" debt coverage of at least 40%. This is why the banks would lend at such a high proportion of the purchase price with a low debt premium.

If gearing can be increased at little or no penalty, then this will axiomatically relate to allowing an increase in the rate of return on equity. Where there is a guaranteed revenue stream to underwrite the increase in debt, stand alone investments (even with non-recourse debt) usually operate at 70%+ gearing as this is the lowest cost way to raise finance.

What is absent from the regulatory analysis of the financial structure of regulated businesses is the impact of a guaranteed revenue stream to underwrite a higher debt level without suffering any significant increase in debt premiums. Until this break point is identified, the bland assumption that gearing has little or no impact on the development of the WACC appears, again, to favour the regulated business.

Risk Free rate
It is noted that the EPO Reset Schedule nominates that the benchmark risk free rate should use the five year rolling average of the longest dated government bonds, and that this should also be used as the basis for estimating the market risk premium. The Reset Schedule nominates the use of long dated bonds as this "should ensure proper matching with the life of the underlying assets."

There are three issues that arise from this statement.

> ➢ That long dated bonds are needed to reflect the life of the asset. This matter has been debated extensively, with the ACCC now recognizing that the use

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[16] AFR 7 August 2003.
[17] Source: Epic access arrangement information 15 December 1999.

of bonds equating to the regulatory period is the most appropriate approach, as to do so best reflects the risks expected during the regulatory period. To use an instrument which is mismatched, incorporates into the CAPM formulae a risk profile which does not apply to the period in question. Analysis shows that the difference between the 5 year and ten year bond rates averages over the past 12 years, some 25 basis points. Thus to use the 10 year bond rate for a five year regulatory period increases the final WACC assessed by a similar amount.

➢ The ESCoSA should use current bond rates in its assessment of forecast inflation. To use a five year rolling average unnecessarily distorts the calculated next 5 year inflation figure, and could lead to quite absurd outcomes.

➢ ECCSA supports the fact that the bond rate used for the risk free rate should be the same as that used in the calculation of the market risk premium.

It is agreed that the Reset Schedule requires the regulator to use the most recent five year rolling average of the long term bond rate as the basis of the risk free rate. The professed aim of the regulator is to provide a forward looking assessment of the WACC, rather than one based on historic outcomes. There is no doubt that the bond rates are the closest instrument available to develop a view on what might occur in the future. The shorter the term for forecasting leads to a greater likelihood of accuracy of the forecast. Thus the most recent bond rates probably provide the latest and best assessment of what the future trends might be.

In addition to this, inbuilt into longer dated bonds is an allowance for greater uncertainty which provides a risk hedge for the acquirer. Unnecessarily using the longer term bonds in the WACC calculation provides the regulated business the benefit of this risk hedge and so again provides favorable treatment of the business to the detriment of the consumer.

There is much debate about the use of 5 year bonds for a five year regulatory period (as by the ACCC) or using 10 year bonds as do the state based regulators. The argument provided by the regulated business is that they invest for the long haul and the WACC should reflect the longest term risk free rate. There is little mention that over time 10 year bonds return a higher premium than do 5 year bonds and so would inflate the WACC.

It is agreed that the equity return should be based on the length of bonds used to calculate the market risk premium, for the sake of consistency.

What is not recognized by regulators is that businesses in the competitive environment have a mix of debt durations as this provides them with the flexibility to react to market changes and so minimize their debt costs over the long haul. The optimum approach taken by corporate financial staff is to "buy" short duration debt in a falling market sufficient for the enterprise needs, and to "buy" long in a rising market. As there is always uncertainty in forward markets, a commercially astute business has a mix of short and long term debt, shading the average duration to reflect the market changes. Traditionally an average competitive enterprise debt

duration lies between 5 and 8 years, so that using the five year bond rate more closely replicates competitive enterprise debt profile.

Debt premium

Banks and other debt providers operate in a competitive environment and so acquisition of debt is a competitive activity. As banks assess their debt portfolio so they attempt to attract more business, change the risk profile of their debt structure and vary the length of their debt duration.

Regulated businesses refer to their need to compete for limited funds available in Australia for investment in their businesses. This view runs counter to two key features of the new environment for available for funding debt requirements.

a. The deregulation of the Australian banking industry has opened up access to the world supply of debt for funding. This is particularly noticeable when reviewing the Annual Reports of many of Australia's businesses that identify that some of the funding they have is sourced from overseas.

b. The determination (and success) of the Australian and some State governments to consistently run a budget surplus has caused a reduction in the availability of government bonds which are the mainstay of a significant element of investment portfolios. With the declining availability of this secure investment, investors are actively seeking opportunities to lend their investment dollar to businesses with similar security (in terms of capital and cash flow) as governments.

Thus there is a growing demand for secure (low yielding) debt stocks that the regulated electricity businesses with their unique guaranteed revenue arrangements underwritten by the bulk of the Australian (electricity consuming) population. The fact that these businesses can offer indexed securities is an additional feature and we are aware that some of the listed regulated energy businesses have already commenced raising debt funds in this way.

The independent credit rating agencies (eg S&P, Moody's) provide a guide to potential lenders as to the credit worthiness of businesses, but as this is only a guide, each lender makes its own assessment regarding the credit worthiness of the borrower. Approaching a lender on a hypothetical borrowing scenario tends to access a high rate of interest which is often reduced when the hypothetical case is firmed into an actual borrowing situation.[18]

The concept of using rating agency assessments needs also to be carefully considered. As mentioned earlier in the section on gearing, there is every expectation that increasing gearing above the notional 60% will have minimal, if any, impact of the rating of a cash flow secure business. As regulators have not yet tested the boundaries of actually assessing the impact of setting a higher level of gearing for the notional regulated business, the potential for higher gearing at the same debt

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[18] One of the authors had first hand experience of this phenomenon when developing non-recourse debt for power projects.

premium still exists. The continuing failure to test this boundary continues to favour the regulated business to the detriment of consumers.

The optimum source of assessing actual debt premiums above the risk free rate is to assess the actual interest payments applying in competitive industry, and then perhaps rank these according to the rating agency rankings. As well as from lenders data on corporate debt is available from company annual reports, ASIC reportings and from the regulated businesses themselves. This analysis will provide an indication of the <u>average</u> cost of debt for all business, and further analysis will be needed to establish a debt premium for those businesses that exhibit similar security to the regulated businesses. In particular as property is also seen as a cash secure investment, lending for purchase (or debt replacement) of property investments will also provide a clear indication of what constitutes a reasonable debt premium.

ECCSA would suggest that ESCoSA commission an independent body to access such data to evaluate what actual debt interest payments are from a variety of sources, and using the agreed risk free rate, establish its debt premium from this range of sources.

An analysis such as that proposed above should also indicate an average debt duration that can be used to reinforce the selection of the risk free rate duration.

Gamma
The assessment of gamma is complex and varies greatly between each individual enterprise and from year to year as each enterprise elects to fully or partially frank its dividends. ECCSA notes that the opinions of the "experts", also varies dramatically. There is no doubt that gamma should not be zero nor unity.

What is not clearly stated in the discussion paper is that gamma is also used for converting the post tax nominal WACC into the pre tax (nominal and real) WACC amounts. This obviously has an impact on the comparative use of NPBT or NPAT to shareholder equity to develop a market risk premium value. As imputation credits vary so greatly between each business and within one business from year to year, it is suggested that perhaps rather than attempting to assess what should apply , ESCoSA should access market data which is pre-tax to develop its input to the establishing a pre-tax WACC.

Equity Beta
The major problem with analyzing the results of regulated businesses in order to assess the equity beta that should apply to them is the essential circularity of such an approach. Providing a regulated business operates much as is expected when setting the revenue for the regulatory period (and this must be the aim of the regulator when setting the revenue) then the result must reflect the inputs. If the regulator uses and equity beat of unity, then providing the business performs as expected then an equity beta of unity should result.

The Allen Consulting Group carried out extensive analysis for the ACCC[19] to derive equity betas. This work showed that equity betas for Australian regulated businesses were consistently higher than for UK and US companies. Of the four Australian businesses measured two had other significant activities, particularly retailing. However the results of this study indicate that equity betas being used by Australian regulators are higher than those benchmarked from equivalent overseas businesses. An approach such as this removes the circular regulatory approach now prevalent in Australia.

In its decision on the ElectraNet revenue cap, the ACCC used an equity beta of unity when calculating the WACC for this electricity transmission business. It argued that

> "… [it] considers that it may be premature to rely on market data exclusively when determining the equity beta … and that an equity beta of 1.0, while biased in favour of the service provider, is appropriate …" [20]

The ACCC goes on to say regarding debt beta that in its use of a debt beta of zero, it notes that its decision is again biased in favour of the service provider.

In its conclusion the ACCC benchmarks its calculation of equity beta against the ASX "Infrastructure and Utilities" group[21] average equity beta as calculated by the AGSM. What the ACCC has not done is to assess what companies are included in this ASX group to verify that the companies included in the group have features similar to those of a regulated business. In fact this group included generators, a large number of gas and electricity retailers, a very limited number of regulated gas businesses and gas producers – hardly a mix on which to compare a cash stable enterprise!

We would point out that for companies having stable cash flow (such as those in the property and food groupings) are more akin to the electricity transmission business. These cash flow stable companies have an equity beta at half that suggested as appropriate for regulated energy transport businesses.

Interestingly the returns made by property acquisitions support the use of a lower equity beta. The average yields[22] for property acquisition for premium office buildings[23] in Melbourne and Sydney for the past fifteen years range from 4.50% to

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[19] Empirical Evidence on Proxy Beta Values for Regulated Gas Transmission Activities, July 2002, by the Allen Consulting Group.

[20] South Australian Transmission Network Revenue Cap 2003-2007/08, ACCC Final Decision, 11 December 2002, page 37.

[21] Unfortunately the ASX no longer provides this category having moved to the S&P GICS method of categorisation. The GICS category for "Utilities" includes electricity generators, gas pipeline. companies and two companies having electricity distribution assets, most of which were also included in the earlier "Infrastructure and Utilities" grouping.

[22] Property yield is defined as the current rent revenue divided by the purchase price of the building – thus it provides a real example of the expectation of an investor.

[23] Premium is defined as "a landmark office building in major CBD office markets which is a pace setter in establishing rents and includes ample natural lighting, good views/outlook, prestige lobby finish, on-site undercover parking, quality access to/from an attractive street setting and premium presentation and maintenance".

7.75%, with an average of ~5.9%[24]. With the high security of returns and stable cash flows from investment in such properties there is a close correlation between investing in this class of asset and investment in an electricity transport business due to security and certainty of cash flow – certainly this correlation is closer than between the market average and electricity transport!

As the yields for government bonds over a similar period (the 5 and 10 year bond rates over the period1989 to 2002 averaged 8.06% and 8.33% respectively[25]) were higher than the property yields, the is implies that the equity beta for premium office buildings could well be less than zero, supporting the AGSM assessment of an equity beta for property trusts of less than 0.4.

The Pareto Associates[26] analysis of UK regulatory decisions supports that an equity beta for ETSA should be of a similar magnitude to those Australian companies having a stable cash flow.

We contend that rather than the equity beta of 1.0 which was (incorrectly in our view) used for the ElectraNet WACC calculation, a figure of 0.5 is more appropriate for use with ETSA Utilities and much more comparable to the class of the business enterprise. In this regard the ACCC notes in its ElectraNet decision

> "… that an equity beta estimate of 1.0 … suggests that the TNSP experiences the same volatility as the market in general … [but] …this is not consistent with the frequently held views that gas and electricity transmission businesses are less risky and have more stable earnings than the market average. Greater stability suggests that the equity beta should be less than 1.0"[27]

Recent discussions with the ACCC indicate that it is seriously considering a reduction in its equity beta for electricity businesses to a value of 0.7.

The ESCoSA should carryout its own independent review of appropriate equity beta rather than relying on the decisions of other regulators.

Market risk premium
Since the first regulatory review in 1997 under the emerging gas code there has been a belief that the market risk premium should be at least 6% and perhaps as high as 8%. Since that time, despite the views of consumers that the MRP should be significantly lower, all regulators have slavishly followed the earlier decisions of the other regulators in using 6%.

The regulated businesses have devoted extensive resources to convince regulators that an MRP should be greater than 6%. This is to be expected. Unfortunately

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[24] Source - FPD Savills International Property Consultants, average investment yields Sept 1988 – June 2003 for a range of property investments.
[25] This data was sourced form the Reserve Bank of Australia website.
[26] The weighted average cost of capital for gas transmission services benchmarking regulated Australian and UK "vanilla" WACC components for BHP-Billiton, June 2002.
[27] South Australian Transmission Network Revenue Cap 200302007/08, final decision 11 December 2002, page 36.

consumers have not had the same financial resources to provide sound arguments but regardless they have consistently highlighted the fact the outworkings of the CAPM formulae using inflated levels of MRP (and equity beta) have provided the regulated businesses returns that many businesses in the competitive environment could only dream about.

Unfortunately as noted earlier the ESCoV notes that an

"… assumption [of an MRP of 6.0] may be out of step with the assumptions now commonly adopted by market practitioners …"[28]

Data is provided by ESCoSA[29] that shows the movement of MRP over a number of time periods. Interpolating this data clearly shows that the market risk premium has trended downward over time. Interestingly the MRP value of 3.37% for the period 19970 to 2001 is close to the MRP calculated in an ECCSA study currently being carried out.

It is recognized that during the periods included for the MRP data provided there were:
➢ two world wars;
➢ a major world depression, a number of lesser depressions and recessions; and
➢ an extended Australian boom period (the 1950's and early 1960's).

As well during this time, there was significant protection afforded Australian industry initially due to its isolation and then subsequent extensive tariff protection was provided, although tariff protection was increasingly reduced as the end of the twentieth century approached. This loss of protection culminated in the elimination of most of the protectionist import tariffs in the last decade of the last century. That MRP reduced as these protections (distance and tariffs) reduced would appear to be no coincidence.

The continued use of long term assessments of MRP runs counter to the expressed desire to use forward looking values for the WACC. The use of forecasts[30] is effectively dismissed as it is assumed that the expected equity premium will be consistently lower than the historical figure. Notwithstanding this dismissal, because the MRP appears to be higher, regulators consistently refer to the earlier decisions of their regulatory colleagues and take what appears to be a safe path to setting MRP, even though there is a consistent view amongst regulators that the value of 6% being used is considered to be on the "high side".

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[28] Review of Gas Access Arrangements, Final Decision of the Essential Services Commission of Victoria, October 2002, page 336.
[29] Table 5.3, Historical Australian Market Risk Premium 1882-2001 which was extracted from the Review of Gas Access Arrangements, Final Decision of the Essential Services Commission of Victoria, October 2002, using data prepared by R. Officer.
[30] Such as the suggested Jardine Fleming Capital Markets survey.

Even though major changes can (and do) occur in a five year regulatory period, the impact of these changes usually takes some time to wash through. If regulators desire to set a forward looking WACC, then they must use the most recent data available, as the near past is a much closer indicator of the future than the distant past (MRP data back to 1882 is referred to in the ESCoSA discussion paper!) and recent values of MRP must have a greater correlation to the near future, allowing regulators to come closer to their stated aims for forward looking.

The ECCSA study underway has revealed that the returns earned by the largest (by sales) companies in Australia – public and private – are considerably lower than implied by a market risk premium of 6% about the risk free rate. The work under this study done so far is summarized in the following table.

Period 1989 to 2002	300+ largest companies by revenue operating in Australia	Electricity transport companies in sample[31]	5 year BR	10 year BR
Gearing	77%	55%		
NPBT/ SH equity	11.4%	26.5%	8.06%	8.33%

The implications of this study shows that the MRP <u>before tax</u> is about 3%, which equates with the average MRP independently advised by Mercer Consulting[32] in 2002 in response to a request by ESCoV. Obviously the post tax NPAT/SH equity would be even lower, and dependent on the extent of franking included. If a gamma of 0.5 is used the after tax return of the sample reduces to 9.7%, giving an MRP of between 1.5 and 2.0.

As mentioned above, despite the generally held view that MRP and equity beta are independent of gearing, the impact of gearing on the value for MRP can be considerable, particularly if the debt is at a level where there can be no further increase in security of the debt by further reducing the debt level. Accepting that the actual gearing can be low enough that it can be increased at no increased risk to the lender[33], then increasing the gearing at no penalty to the debt part of the WACC equation has a massive impact to the calculation of the MRP.

Using the results of the study, de-levering the impact of the MRP to 40% equity from the observed 23%, would reduce the MRP applicable to a level of less than 2%.

It is also noted that changes to one element in the formulae may affect the impact of another. Thus if a lower equity beta was used for regulated businesses (due to inherent stability of the cash flow of the business) then the impact of the gearing has a much lesser effect if a lower MRP was also used. As regulators are using high

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[31] Comprises Origin Energy, AGL, Energex, TXU, Energy Australia, Integral Energy, Aurora, Ergon Energy, ETSA, PowerCor, Western Power and EnerTrade.
[32] Letter to ESCoV 1 July 2002 from Mercer Investment Consulting, published on ESCoV website.
[33] For example if the interest coverage continues to be sufficient, that the security of revenue is such that it safely permits a reduction of interest cover, or that the assets themselves provide a high level of security.

equity betas, high MRP and low gearing the combined effect has been to enhance the returns on equity significantly above the average returns on equity for the wider (average) class of competitive enterprises. This is clearly demonstrated by the actual outperformance achieved by regulated businesses to the Australian average.

Conclusions

There is no doubt that there has been a significant increase in the knowledge surrounding appropriate elements to be included in the CAPM formulae to develop the WACC to be used for regulated monopolies. The WACC development is to replicate what is achieved in a competitive environment as the regulators' task is to ensure that the regulated business is <u>only</u> rewarded to the extent that an equivalent business operating in a competitive environment would achieve.

This increase of knowledge about the development of WACC and the understanding of it strongly leads to the conclusion that WACC's currently awarded by regulators are too high. Despite the emergence of more information regarding this matter, the continuing approach by regulators in relying only on past regulatory decisions compounds the circularity of all Australian regulators decisions, and introduction of new evidence should lead regulators to refine the values for elements used in the CAPM formulae.

Whilst in principle we agree with the concept of having all WACC calculations consistent between regulators, it is beholden on the regulators to develop appropriate outcomes before settling on what now consistently appears to give inflated returns for the regulated businesses.

What makes the current dependence on past decisions even worse is the regulators' acceptance of always erring in favour of the regulated business, and the lack of appreciation that by doing it results in a cumulative effect. This means that by the time the final answer is calculated it bears little relationship to the espoused goal of replicating what occurs in the competitive environment.

The only way to fairly assess what is a reasonable WACC is to benchmark the final outcomes with what is being observed in the competitive market place – this is the basis of the ECCSA study. At best the regulated businesses should not receive a higher benchmark return than the average of all competitive enterprises classed as "defensive" stocks[34].

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[34] A defensive stock is usually observed to have capital stability with a high certainty of a known return, supported by a stable cash flow.

5. The Building Block Formula

The discussion paper proposes that the value of the asset should be based on a value applying notionally at the mid point of the year, with adjustments for economic depreciation, disposals and investment. It is accepted that such an approach might give an increased return to the business, and that ESCoSA suggests that this increase will be partially offset against not granting the business a return on "working capital"

There is no doubt that working capital should be excluded from the RAB. The competitive industry benchmark RoA that is used to establish the MRP and debt premium does not exclude working capital as this is included within the value of total assets of competitive enterprises. The exclusion of granting a return on working capital as a balancing mechanism is considered inappropriate.

It is also inappropriate to use a WACC that is essentially derived from an RoA based on depreciated historical cost of assets to be applied to an assessed current cost of assets.

There is no clarity provided as to whether the capex to be included in the formulae will be the actual capex or the planned capex. There is no doubt that only the actual "prudent" capex should be included in the RAB.

Thus neither of the two suggested approaches is seen as acceptable.

However if the following changes are made to:-

> ➢ exclude working capital;
> ➢ use a WACC to be recalculated to reflect returns based on current asset values; and
> ➢ use actual capex is used to increase the RAB.

then we consider that the suggested formula (2) which values the asset base at the midpoint of the year is more appropriate.